DOE/CF-035
Volume 1

U.S. DEPARTMENT OF ENERGY

FY 2010 Congressional Budget Request

National Nuclear Security Administration

Office of the Administrator
Weapons Activities
Defense Nuclear Nonproliferation
Naval Reactors

Office of Chief Financial Officer
May 2009

Volume 1

DOE/CF-035
Volume 1

U.S. DEPARTMENT OF ENERGY

FY 2010 Congressional Budget Request

National Nuclear Security Administration

Office of the Administrator
Weapons Activities
Defense Nuclear Nonproliferation
Naval Reactors

Office of Chief Financial Officer
May 2009

Volume 1

Office of the Administrator [redacted]

Weapons Activities [redacted]

Defense Nuclear Nonproliferation [redacted]

Naval Reactors [redacted]

Office of the Administrator

Weapons Activities

Defense Nuclear Nonproliferation

Naval Reactors

Volume 1

Table of Contents

The Department of Energy's Congressional Budget justification is available on the Office of Chief Financial Officer, Office of Budget homepage at http://www.cfo.doe.gov/crorg/cf30.htm.

For the latest details on the Department of Energy's implementation of the Recovery Act, please visit: http://www.energy.gov/recovery

U.S. DEPARTMENT OF ENERGY
FY 2010 Internal Statistical Table by Appropriation
(dollars in thousands - OMB Scoring)

	FY 2008 Current Approp.	FY 2009 Current Approp.	FY 2009 Current Recovery	FY 2010 Congressional Request	FY 2010 vs. FY 2009 $	FY 2010 vs. FY 2009 %
Discretionary Summary By Appropriation						
Energy And Water Development, And Related Agencies						
Appropriation Summary:						
Energy Programs						
Energy efficiency and renewable energy	1,704,112	2,178,540	16,800,000	2,318,602	+140,062	6.4%
Electricity delivery and energy reliability	136,170	137,000	4,500,000	208,008	+71,008	51.8%
Nuclear energy	960,903	792,000	----	761,274	-30,726	-3.9%
Legacy management	33,872	----	----	----	——	0.0%
Fossil energy programs						
Clean coal technology	-58,000	----	----	----	——	0.0%
Fossil energy research and development	727,181	876,320	3,400,000	617,565	-258,755	-29.5%
Naval petroleum and oil shale reserves	20,272	19,099	----	23,627	+4,528	23.7%
Strategic petroleum reserve	186,757	205,000	----	229,073	+24,073	11.7%
Northeast home heating oil reserve	12,335	9,800	----	11,300	+1,500	15.3%
Total, Fossil energy programs	888,545	1,110,219	3,400,000	881,565	-228,654	-20.6%
Uranium enrichment D&D fund	622,162	535,503	390,000	559,377	+23,874	4.5%
Energy information administration	95,460	110,595	----	133,058	+22,463	20.3%
Non-Defense environmental cleanup	182,263	261,819	483,000	237,517	-24,302	-9.3%
Science	4,082,883	4,772,636	1,600,000	4,941,682	+169,046	3.5%
Energy transformation acceleration fund	----	----	400,000	10,000	+10,000	N/A
Nuclear waste disposal	187,269	145,390	----	98,400	-46,990	-32.3%
Departmental administration	148,415	155,326	----	182,331	+27,005	17.4%
Inspector general	46,057	51,927	15,000	51,445	-482	-0.9%
Advanced technology vehicles manufacturing loan	----	7,510,000	10,000	20,000	-7,490,000	-99.7%
Innovative technology loan guarantee program	4,459	----	----	----	——	0.0%
Section 1705 temporary loan guarantee program	----	----	5,990,000	----	——	0.0%
Total, Energy Programs	9,092,570	17,760,955	33,588,000	10,403,259	-7,357,696	-41.4%
Atomic Energy Defense Activities						
National nuclear security administration:						
Weapons activities	6,302,366	6,380,000	----	6,384,431	+4,431	0.1%
Defense nuclear nonproliferation	1,334,922	1,482,350	----	2,136,709	+654,359	44.1%
Naval reactors	774,686	828,054	----	1,003,133	+175,079	21.1%
Office of the administrator	402,137	439,190	----	420,754	-18,436	-4.2%
Total, National nuclear security administration	8,814,111	9,129,594	----	9,945,027	+815,433	8.9%
Environmental and other defense activities:						
Defense environmental cleanup	5,411,231	5,657,250	5,127,000	5,495,831	-161,419	-2.9%
Other defense activities						
Health, safety and security	425,461	446,471	----	449,882	+3,411	0.8%
Legacy Management	154,961	185,981	----	189,802	+3,821	2.1%
Nuclear energy	75,261	565,819	----	83,358	-482,461	-85.3%
Defense related administrative support	98,104	108,190	----	122,982	+14,792	13.7%
Office of hearings and appeals	4,565	6,603	----	6,444	-159	-2.4%
Congressionally directed projects	----	999	----	----	-999	-100.0%
Subtotal, Other defense activities	758,352	1,314,063	----	852,468	-461,595	-35.1%
Adjustments	-8,893	----	----	----	——	0.0%
Total, Other defense activities	749,459	1,314,063	----	852,468	-461,595	-35.1%
Defense nuclear waste disposal	199,171	143,000	----	98,400	-44,600	-31.2%
Total, Environmental & other defense activities	6,359,861	7,114,313	5,127,000	6,446,699	-667,614	-9.4%
Total, Atomic Energy Defense Activities	15,173,972	16,243,907	5,127,000	16,391,726	+147,819	0.9%
Power marketing administrations:						
Southeastern power administration	6,404	7,420	----	7,638	+218	2.9%
Southwestern power administration	30,165	28,414	----	44,944	+16,530	58.2%
Western area power administration	228,907	218,346	10,000	256,711	+38,365	17.6%
Falcon & Amistad operating & maintenance fund	2,477	2,959	----	2,568	-391	-13.2%
Colorado River Basins	-23,000	-23,000	----	-23,000	——	0.0%
Total, Power marketing administrations	244,953	234,139	10,000	288,861	+54,722	23.4%
Federal energy regulatory commission	----	----	----	----	——	0.0%
Subtotal, Energy And Water Development and Related Agencies	24,511,495	34,239,001	38,725,000	27,083,846	-7,155,155	-20.9%
Uranium enrichment D&D fund discretionary payments	-458,787	-463,000	----	-663,000	-200,000	-43.2%
Excess fees and recoveries, FERC	-20,370	-27,682	----	-26,864	+818	3.0%
Total, Discretionary Funding	**24,032,338**	**33,748,319**	**38,725,000**	**26,393,982**	**-7,354,337**	-21.8%

National Nuclear Security Administration

Overview

Appropriation Summary

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2009 Supplemental Request	FY 2010 Request
National Nuclear Security Administration				
Office of the Administrator	402,137	439,190	0	420,754
Weapons Activities	6,302,366	6,380,000	0	6,384,431
Defense Nuclear Nonproliferation	1,656,922	1,482,350	89,500	2,136,709
[non-add MOX Project funded in other appropriations]	[278,879]	[487,008]	N/A	N/A
Naval Reactors	774,686	828,054	0	1,003,133
Total, NNSA	**9,136,111**	**9,129,594**	**89,500**	**9,945,027**
Rescission of Prior Year Balances	-322,000			
Total, NNSA (OMB Scoring)	**8,814,111**			

The National Nuclear Security Administration (NNSA) is critical to ensuring the security of our nation. The President's Budget Request for NNSA for FY 2010 is $9.9 billion, an increase of 8.9 percent over the FY 2009 appropriated level. NNSA programs are on the front lines for three major national security endeavors: maintaining a safe, secure and effective arsenal of weapons and capabilities to deter any adversary and guarantee that defense to our allies; accelerating and expanding our efforts here in the homeland and around the world to reduce the global threat posed by nuclear weapons, nuclear proliferation and unsecured or excess nuclear materials; and, providing safe and effective nuclear propulsion for the U. S. Navy.

The President has initiated bold steps to put an end to Cold War thinking to lead a new international effort to enhance global security. The United States will take steps toward achieving a world without nuclear weapons. Until that goal is achieved, we will maintain a safe, secure and effective arsenal to deter any adversary, and guarantee that defense to our allies. We will continue the work of further reducing our nuclear weapon stockpile. The United States will negotiate a new strategic arms reduction treaty with Russia this year that will set the stage for further reductions. Programs funded within NNSA appropriations support the nation's current and future defense posture, and its attendant nationwide infrastructure of science, technology and engineering capabilities.

To cut off the building blocks needed for the production of a nuclear weapon, the United States will seek a new treaty that verifiably ends the production of fissile materials intended for use in such weapons. If we are serious about stopping the spread of these weapons, then we should put an end to the dedicated production of the weapons grade materials that create them. NNSA's Defense Nuclear Nonproliferation programs support these objectives, including the Elimination of Weapons Grade Plutonium Production program that has been working in Russia to replace plutonium-producing power reactors, and Fissile Materials Disposition that is working to provide a disposition path for U.S. excess plutonium.

The Administration also seeks to strengthen the nuclear Non-Proliferation Treaty as a basis for cooperation. To strengthen the Treaty, we need to strengthen the international inspections and organizations with this responsibility. NNSA is a key leader in many of these initiatives, and others to ensure that terrorists never acquire a nuclear weapon. NNSA is in the forefront of efforts to detect and intercept materials in transit, and secure nuclear materials around the globe. The President seeks to expand our cooperation with Russia, pursue new partnerships, and to secure all vulnerable nuclear material around the world within four years. NNSA's Global Threat Reduction Initiative and International Nuclear Materials Protection and Cooperation programs will have a major role in this initiative in the outyears.

In the upcoming year, NNSA will participate in the national debate to lay out a vision for our nation's nuclear security and non-proliferation goals. This vision is based on the reality that nuclear security is not just about warheads and the size of the stockpile. The vision emphasizes that we must increase our focus on nuclear security and transforming the Cold War nuclear weapons complex into a 21st century national security enterprise. We must ensure our evolving strategic posture places the stewardship of our nuclear arsenal, nonproliferation programs, missile defenses, and the international arms control objectives into one comprehensive strategy that protects the American people and our allies.

The nuclear strategy reviews will help inform the Congress and the Administration on a path forward that clearly defines NNSA's future direction. The Bipartisan Congressional Commission on the U.S. Strategic Posture was established by Congress to identify the basic principles for reestablishing a national consensus on strategic policy. The Commission is examining the role of deterrence in the 21st century, assessing the role of nuclear weapons in U.S. national security strategy, and making recommendations as to the most appropriate strategic posture for the U.S.

The Department of Defense (DoD) supported by the NNSA and other departments has started the Nuclear Posture Review (NPR). This effort is scheduled to culminate in a report to the Congress in the near term. The NPR will provide an important opportunity to establish a consensus between the Administration and Congress on U.S. nuclear weapons policy and programs. In particular, the NPR will highlight how nuclear forces fit into a broader national security framework, taking into account U.S. military strategy, planning, and programming, as well as providing a basis for arms control objectives and negotiating positions.

The FY 2010-2014 President's Budget for NNSA is just the first step toward this new direction. For the Nuclear Nonproliferation programs, significant funding increases are requested to continue to expand and respond quickly to opportunities to reduce global nuclear threats. Increases are also requested in the Naval Reactors program to begin development of the reactor and propulsion system for the next generation submarine. Conversely, for programs in the Weapons Activities appropriation, the budget strategy is to maintain scientific and engineering capabilities and activities at the current level until new strategic directions are established for the nuclear weapons stockpile and the associated enterprise.

Outyear Appropriation Summary
NNSA Future-Years Nuclear Security Program

(dollars in thousands)

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
NNSA					
Office of the Administrator	420754	424,962	429,211	433,504	437,838
Weapons Activities	6,384,431	6,356,635	6,350,472	6,339,946	6,335,066
Defense Nuclear Nonproliferation	2,136,709	2,227,276	2,284,049	2,439,019	2,595,190
Naval Reactors	1,003,133	950,786	950,334	948,978	948,717
Total, NNSA	**9,945,027**	**9,959,659**	**10,014,066**	**10,161,447**	**10,316,811**

The NNSA budget justification contains information for five years as required by Section 3253 of P.L. 106-065, entitled *Future-Years Nuclear Security Program (FYNSP)*. The FY 2010-2014 FYNSP projects $50.4 billion for NNSA programs through 2014. The principal increases from the FY 2009-2013 FYNSP are: the transfer of funding for the Mixed Oxide (MOX) Fuel Fabrication Facility project back from the Office of Nuclear Energy to NNSA; the multi-year initiative to further enhance global nuclear nonproliferation efforts; and some of the increase required to support the development of the new generation submarine reactor replacement. For Weapons Activities, the outyear projections reflect only a continuation of current capabilities, pending upcoming strategic nuclear policy decisions. The FY 2011-2015 budget process is expected to present a fully integrated Future Years Nuclear Security Program budget aligned with the new strategic direction and program requirements for all of the NNSA programs.

FY 2008 Budget Execution

(dollars in thousands)

	FY 2008 Appropriation	Use/Rescission of PY Balances	Across the Board Rescission	Reprogramming and Other Transfers	Total Adjustments	Final FY 2008
Office of the Administrator	405,987	0	-3,850	0	-3,850	402,137
Weapons Activities	6,442,147	-86,514	-58,167	4,900	-139,781	6,302,366
Defense Nuclear Nonproliferation	1,673,275	-322,000	-15,279	-1,074	-338,353	1,334,922
Naval Reactors	781,800	0	-7,114	0	-7,114	774,686
Total, NNSA	**9,303,209**	**-408,514**	**-84,410**	**3,826**	**-489,098**	**8,814,111**

FY 2009 Budget Execution

(dollars in thousands)

	FY 2009 Appropriation	Use/Rescission of PY Balances	Across the Board Rescission	Reprogramming and Other Transfers	Total Adjustments	Final FY 2009
Office of the Administrator	439,190	0	0	0	0	439,190
Weapons Activities	6,380,000	0	0	0	0	6,380,000
Defense Nuclear Nonproliferation	1,493,768	-11,418	0	0	-11,418	1,482,350
Naval Reactors	828,054	0	0	0	0	828,054
Total, NNSA	9,141,012	-11,418	0	0	-11,418	9,129,594

Preface

The NNSA was created by the Congress in 2000 to focus the management of the nation's nuclear defense through a single, separately organized and managed agency within the DOE. The NNSA brought together three existing major program components that maintained all of the nuclear weapons in the United States (U.S stockpile and associated infrastructure; led the Administration's efforts to reduce and prevent the proliferation of nuclear weapons, materials, and expertise; and provided cradle-to-grave support for the U. S. Navy fleet's nuclear propulsion.

The NNSA is funded through four appropriations. The Weapons Activities appropriation funds mission programs in five organizations, (Defense Programs, Nuclear Counterterrorism Incident Response (NCTIR), Infrastructure and Environment, Defense Nuclear Security (DNS), and Cyber Security), and has 13 Government Performance and Results Act (GPRA) program units. The Defense Nuclear Nonproliferation (DNN) appropriation funds one program with 6 GPRA Units. The Naval Reactors appropriation supports all activities, including Program Direction, for that program, and is a single GPRA Unit. The Office of the Administrator appropriation provides support for all Federal NNSA employees in Headquarters and its field elements (except the Secure Transportation Asset (STA) and Naval Reactors), and also provides for Information Technology for Federal employees in Headquarters and field locations and is a single GPRA Unit Program.

NNSA Budget Request Summary

The NNSA FY 2010-2014 Request continues significant efforts supporting U.S. national security and global threat reduction. Key focus areas include:

- Maintaining the nuclear deterrent;
- Addressing Nonproliferation priorities through innovative programs in the Former Soviet Union and other countries, and securing radiological materials worldwide;
- Supporting naval nuclear propulsion requirements for the U. S. Navy;
- Providing nuclear counter-terrorism and emergency response assets and capabilities in support of homeland security;
- Maintaining comprehensive security for facilities, employees and information;

- Reducing the legacy deferred maintenance backlog for mission critical facilities; and,

- Providing corporate management and oversight for NNSA programs and operations.

Program Highlights and Changes

National Security Enterprise Transformation

The Department has just completed a programmatic decision process to guide restructuring of the physical infrastructure of the nuclear security enterprise. The first two Records of Decision (RODs) were signed on December 16, 2008. While outlining a path forward for the enterprise, the RODs do not commit to a specific budget, timeline, size or capacity for any related facility. Enterprise transformation will support the Administration's strategic direction for our nation's nuclear security and non-proliferation goals that will be more fully articulated in the coming year.

Science, Technology, and Engineering Infrastructure

The laboratories and facilities that support the national policy of nuclear deterrence are also a key capability and resource for other agencies that have national security responsibilities. Efforts to promote and enhance the national laboratories scientific capability includes a new strategic partnership with the Defense Threat Reduction Agency. This establishes a path to a broader scope for our NNSA laboratories that focuses on the full spectrum of national security concerns.

Denuclearization in the Democratic Peoples Republic of Korea

The U.S. is working to achieve the complete and verifiable denuclearization of the Korean peninsula through the "Six Party Talks" process. The NNSA supports the Six Party Talks by overseeing several "Phase II" disablement activities. A three phase approach has been agreed. The current funding estimate for the U.S. to support, undertake and completely denuclearize the Democratic People's Republic of Korea, excluding international contributions, totals over $750 million for the FY 2009-2013 time period.

Since the Six Party Talks are still negotiating verification and further disablement/dismantlement activities to take place in a future "Phase III" Agreement, no budget authority was requested by NNSA for these activities in FY 2008-2009, beyond small amounts in our ongoing Nonproliferation and International Security (NIS) and Global Threat Reduction Initiative (GTRI) programs. There is a pending FY 2009 supplemental request of $34.5 million for these activities, and a request of $80 million in FY 2010, pending further clarification of requirements and schedules.

Mixed Oxide (MOX) Fuel Fabrication Facility Project and Related Projects

The MOX Fuel Fabrication Facility Project in South Carolina is a key component of the U.S. strategy for plutonium disposition and enterprise transformation. This meets key national security and nonproliferation objectives by converting the plutonium into forms not readily usable or attractive for weapons use and supports efforts to consolidate nuclear materials throughout the weapons complex further reducing the size of the security footprint.

The Consolidated Appropriations Act, 2008, moved the funding for the MOX Fuel Fabrication Facility project to the Nuclear Energy appropriation, and funding for the Waste Solidification Building (WSB) and the Pit Disassembly and Conversion Facility (PDCF) project to the Weapons Activities appropriation. The FY 2009 appropriation includes funding for the MOX Fuel Fabrication Facility in the other Defense Activities appropriation. However, as a result guidance contained in the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, the FY 2010 President's Request moves the MOX Fuel Fabrication Facility project funding request back to the Defense Nuclear Nonproliferation appropriation. The WSB funding has also been moved back to DNN in the FY 2010-2014 Request due to the mission support function of handling waste from the MOX Fuel Fabrication Facility project and the related startup schedule between the two projects. The NNSA has funded the current baselines for both MOX Fuel Fabrication Facility project and WSB within the Request for FY 2010-2014. The PDCF project remains within Weapons Activities in the FY 2010-2014 President's Request.

Site Stewardship

Site Stewardship is proposed as a new GPRA Unit that consolidates most activities managed by the Office of Infrastructure and Environment in recognition of the increased scope of programs in these areas. This GPRA unit encompasses activities currently conducted under Environmental Projects and Operations (EPO), and includes new subprogram elements for Nuclear Materials Integration (NMI), and selected stewardship line item construction projects. Integration of these related activities within a single site stewardship GPRA unit provides the NNSA with focus and flexibility in program management, priority-setting, and funding for these important activities, many of which are regulatory-driven.

Defense Nuclear Security Funding Approach

Starting in the FY 2009, there is no longer an offset in the program appropriations or the Departmental Administration account for Work for Others (WFO). Beginning in FY 2010, direct funding is requested for the mission base program for security, and costs of routine security for Work for Others will be provided via full cost recovery. Extraordinary security requirements for Work for Others projects will be direct charged to those customers. Site security activities that pertain to the institutional security requirements will be charged to either indirect or General and Administrative costs.

Contractor Defined-Benefit Pension Plans

The FY 2010 President's Request for NNSA includes a total of $122.0M to directly support defined-benefit contractor pension contributions. This funding is distributed in the Weapons Activities ($64.2 million) and Naval Reactors ($57.8 million) appropriations in existing Congressional controls and is not carried forward in FY 2011-FY 2014.

The requested funding will be used in part to reimburse the costs of DOE contractor contributions to defined-benefit (DB) pension plans as required by the Employee Retirement Income Security Act (ERISA), as amended by the Pension Protection Act of 2006 (PPA), and consistent with Departmental direction. The PPA amended ERISA to require accelerated funding of DB pension plans so that the plans become 100 percent funded in 2011. Most contractors that manage and operate DOE's laboratories, weapons plants, and execute environmental clean-up projects at various government owned sites and facilities are contractually required to assume sponsorship of any existing contractor DB pension plans for incumbent employees who work and retire from these sites and facilities. Increased

contributions began to be required for some of these DB pension plans as a result of the downturn in investment values in FY 2009. Whether additional funding will be needed in future years will depend on the funded status of the plans based on plan investment portfolios managed by the contractors as sponsors of the DB pension plans.

NNSA Summary by Appropriation

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Office of the Administrator							
Office of the Administrator	379,997	415,878	431,074	424,962	429,211	433,504	437,838
Congressionally Directed Projects	22,140	23,312	—	—	—	—	—
Use of prior year balances			-10,320				
Total, Office of the Administrator	402,137	439,190	420,754	424,962	429,211	433,504	437,838
Weapons Activities							
Defense Programs							
Directed Stockpile Work	1,405,602	1,590,152	1,514,651	1,522,230	1,485,842	1,531,408	1,553,468
Science Campaign	286,274	316,690	316,690	313,075	311,860	308,223	304,899
Engineering Campaign	168,548	150,000	150,000	118,630	118,170	116,792	144,415
Inertial Confinement Fusion Ignition and High Yield Campaign	470,206	436,915	436,915	431,927	430,251	425,234	420,648
Advanced Simulation and Computing Campaign	574,537	556,125	556,125	549,776	547,643	541,257	535,420
Pit Manufacturing and Certification Campaign	213,831	—	—	—	—	—	—
Readiness Campaign	158,088	160,620	100,000	84,029	83,704	82,728	81,835
Readiness in Technical Base and Facilities	1,635,381	1,674,406	1,736,348	1,736,779	1,770,867	1,736,475	1,694,224
Secure Transportation Asset	211,523	214,439	234,915	253,902	257,444	255,575	259,146
Total, Defense Programs	5,123,990	5,099,347	5,045,644	5,010,348	5,005,781	4,997,692	4,994,055
Nuclear Counterterrorism Incident Response	158,655	215,278	221,936	223,178	222,914	222,508	222,300
Facilities and Infrastructure Recapitalization Program	177,861	147,449	154,922	156,764	154,750	154,687	—
Site Stewardship	—	—	90,374	89,915	91,636	91,261	245,729
Environmental Projects and Operations	17,272	38,596	—	—	—	—	—
Safeguards and Security							
Defense Nuclear Security	765,133	735,208	749,044	753,233	752,341	750,972	750,271
Cyber Security	105,287	121,286	122,511	123,197	123,050	122,826	122,711
Subtotal, Safeguards and Security	870,420	856,494	871,555	876,430	875,391	873,798	872,982
Congressionally Directed Projects	47,232	22,836	—	—	—	—	—
Use of Prior Year Balances / Rescission of Prior Year Balances	-93,064	—	—	—	—	—	—
Total, Weapons Activities	6,302,366	6,380,000	6,384,431	6,356,635	6,350,472	6,339,946	6,335,066
Defense Nuclear Nonproliferation							
Nonproliferation and Verification Research and Development	379,649	363,792	297,300	318,882	318,474	321,630	331,183
Nonproliferation and International Security	149,993	150,000	207,202	170,888	166,251	171,390	175,507
International Nuclear Materials Protection and Cooperation	624,482	400,000	552,300	583,400	575,375	568,996	563,581
Elimination of Weapons-Grade Plutonium Production	180,190	141,299	24,507	—	—	—	—
Fissile Materials Disposition	66,235	41,774	701,900	672,991	566,551	650,492	442,165
Global Threat Reduction Initiative	199,448	395,000	353,500	481,115	657,398	726,511	1,082,754
International Nuclear Fuel Bank	49,545	—	—	—	—	—	—
Congressionally Directed Projects	7,380	1,903	—	—	—	—	—
Use of Prior Year Balances	—	-11,418	—	—	—	—	—
Total, Defense Nuclear Nonproliferation	1,656,922	1,482,350	2,136,709	2,227,276	2,284,049	2,439,019	2,595,190
Naval Reactors							
Naval Reactors	774,686	828,054	1,003,133	950,786	950,334	948,978	948,717
Total, Naval Reactors	774,686	828,054	1,003,133	950,786	950,334	948,978	948,717
Total, NNSA	9,136,111	9,129,594	9,945,027	9,959,659	10,014,066	10,161,447	10,316,811

NNSA Budget Summary by Program
The NNSA FY 2010 Request is $9.9 billion, a total of $815.4 million above the FY 2009 appropriations. The FY 2010-2014 FYNSP will provide a program level of $51.2 billion.

Weapons Activities
The Weapons Activities appropriation funds five NNSA program organizations.

Defense Programs
The FY 2010 President's Request for Defense Programs is $5.0 billion, a decrease of 1.1 percent from the FY 2009 appropriation. The outyear projections for Defense Programs reflect a continuation of current programs and services pending further national nuclear policy direction expected during 2009.

Within the President's Budget request level, the NNSA will continue all programs to meet the immediate needs of the stockpile, stockpile surveillance, annual assessment, and Life Extension Programs (LEP). As directed by the Nuclear Weapons Council, a feasibility and cost study was initiated in September, 2008, to investigate the replacement of aging non-nuclear components in the family of B61 bombs, and to study the potential incorporation of modern safety and security features in these systems. Included in the program are efforts to complete the B61 Phase 6.2/6.2A refurbishment study evaluating end-of-life components, aging, reliability, and surety improvement options. The decrease within the DSW request is attributable mainly to the relocation of the funding for the Pit Disassembly and Conversion Project to Readiness in Technical Base and Facilities (RTBF) and the Waste Solidification Building to Defense Nuclear Nonproliferation. The DSW budget, when adjusted for the transfer of the PDCF, shows an increase in Weapons Dismantlement and Disposition of 46.9 percent to $84.1 million to support increased dismantlement efforts.

The Campaign activities for Science, Engineering, Inertial Confinement Fusion and Advanced Simulation and Computing maintain the FY 2009 funding level throughout the FYNSP. The Science Campaign consolidates a new subprogram called “Academic Alliances” that encompasses the funding for university grants, alliances, and the joint program with Science. The Engineering campaign increases emphasis on Enhanced Surveillance and Systems Engineering Technology in the FY 2010 request. The Inertial Confinement Fusion Ignition and High Yield Campaign is requested at $437 million, and in FY 2010, the emphasis shifts away from NIF assembly and toward Facility Operations as the program continues to refine requirements and prepare for the first ignition experiments in 2010. The FY 2010 Request for the Advanced Simulation and Computing Campaign provides growth in Physics and Engineering models as support shifts away from hardware procurements and software. The Readiness Campaign contains a planned 38 percent reduction reflecting cancellation of several Readiness projects.

The RTBF request is $62 million above the FY 2009 appropriations driven by an additional $64M to partially mitigate increased pension costs at the M&O contractors. Within the request for operating expenses, an increase is included for the Kansas City Plant supporting the work for the move to a new, smaller facility. Funding for construction projects is requested at $203 million to sustain ongoing construction and design efforts. The location of funding for the PDCF has been changed from DSW to RTBF. One new construction project is requested: the Nuclear Facilities Risk Reduction Project at Y-12 will provide maintenance to sustain uranium related capabilities at Building 9212.

The Secure Transportation Asset program is requested at $234.9 million, an increase of 9.6 percent over the FY 2009 appropriation. The STA program plans to acquire a total of three transport category aircraft. One 737-type aircraft will be purchased each year--starting in FY 2010, FY 2011, and FY 2012 to replace the aging aircraft. In addition to the aircraft purchases, the remaining increase will be used for training and equipment.

Nuclear Counterterrorism Incident Response/Emergency Operations

The NCTIR program responds to and mitigates nuclear and radiological incidents worldwide as the U.S. government's primary capability for radiological and nuclear emergency response. The FY 2010 Request for these activities is $221.9 million, an increase of 3 percent over FY 2009 appropriations. The increase reflects funding growth in three specific areas of the program – International Emergency Management and Cooperation, Emergency Response, and Render Safe Stabilization Operations. These initiatives support increased efforts to address serious emergency management programs in priority countries, while continuing and completing ongoing programs with the International Atomic Energy Agency (IAEA) and other international partners and countries; scientific breakthroughs for Render Safe Stabilization Operations and the Technical Integration programs and continued implementation of National Technical Nuclear Forensics for pre- and post-detonation phases and the Stabilization aspect of nuclear emergencies through development of first generation stabilization equipment including training and maintenance programs to selected teams nationwide in support of better emergency response capability.

Infrastructure and Environment

This organization is responsible for the Facilities and Infrastructure Recapitalization Program (FIRP) and the new Site Stewardship Program which encompasses EPO (that provides for Long-Term Stewardship (LTS) at NNSA sites after remediation is completed by the DOE Office of Environmental Management) and Nuclear Materials Integration.

The FY 2010 President's Request for FIRP is $154.9 million, an increase of 5 percent above FY 2009. This provides funding for recapitalization, infrastructure planning and construction. The increase supports continued progress in restoring the condition of mission critical facilities and infrastructure across the nuclear security enterprise to an acceptable condition.

Site Stewardship

The FY 2010 President's Request for the new GPRA Unit, Site Stewardship, is $90.4 million. The goal of the Site Stewardship is to ensure environmental compliance and energy and operational efficiency throughout the nuclear security enterprise, while modernizing, streamlining, consolidating, and sustaining the stewardship and vitality of the sites as they transition within NNSA's plans for transformation. The Site Stewardship program will institute and maintain a robust operational framework at the NNSA government-owned, contractor operated sites that encompass responsibility for achieving the NNSA mission by providing an efficient and effective nuclear security stewardship for the Department of Energy (DOE). This new GPRA Unit will encompass activities currently under Environmental Projects and Operations (EPO) and will include new subprogram elements Nuclear Materials Integration (NMI) and Stewardship Planning. Only one of the elements of this program had funding in the I&E organization in FY 2009. Environmental Projects and Operations increased 7 percent over the FY 2009 appropriation for regulatory-driven Long Term Stewardship activities at NNSA sites where Environmental Management activities have been completed.

The majority of the requested FY 2010 funding increase is $28 million for an operating expense-funded project, the Pantex Renewable Energy Project (PREP) at the Pantex Plant, that will create a more flexible, more reliable, and environmentally friendly source of renewable energy that supports DOE/NNSA operating goals and missions. The PREP will generate surplus electrical energy, reduce greenhouse gas emissions at local power plants, enhance energy security, and create jobs. This modular, operating expense-funded project will play a key role in satisfying NNSA's renewable energy objectives consistent with DOE Order 430.2B, Departmental Energy, Renewable Energy and Transportation Management.

Defense Nuclear Security

The FY 2010 President's Request for Defense Nuclear Security is $749.0 million to support the base program and on sustaining the NNSA sites 2003 Design Basis Threat baseline operations, and implementing the Department's Graded Security Protection (GSP) policy. During FY 2010, the program will focus on eliminating or mitigating identified vulnerabilities across the nuclear security enterprise. Funding for one new construction start is requested for the Security Improvements Project (SIP). The SIP will install a new security system to manage and integrate personnel security and access control systems at the Y-12 National Security Complex.

Starting in FY 2009, there is no longer an "offset" in this account or the Departmental Administration Appropriation for the security charges associated with reimbursable work. In the FY 2010 Request, mission -driven activities will continue to be fully funded with direct appropriations, but security required for Work for Others will be covered as part of full cost recovery for these projects; an estimate of these recoveries is provided in the Overview. Institutional security activities will continue to be funded by indirect or general and administrative costs at each site.

Cyber Security

The Cyber Security program will sustain the NNSA infrastructure and upgrade elements that will counter cyber threats from external and internal attacks using the latest available technologies.

The FY 2010 Request for Cyber Security is $122.5 million, an increase of 1 percent over the FY 2009 appropriations. The Cyber Security program is in the process of a major five-year effort focused on revitalization, certification, accreditation and training across the NNSA enterprise. Revitalization enables NNSA to respond to its highest priorities and to address current and future risks; certification and accreditation assure proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Defense Nuclear Nonproliferation

The DNN program goal is to detect, prevent, and reverse the proliferation of Weapons of Mass Destruction (WMD). Our programs address the threat that hostile nations or terrorist groups may acquire weapons of mass destruction or weapons-usable material, dual-use production or technology, or WMD capabilities, by securing or eliminating vulnerable stockpiles of weapon-usable materials, technology, and expertise in Russia and other countries of concern.

The FY 2010 Request for the DNN appropriation totals $2.1 billion. The most significant FY 2010 and outyear increases relate to the request to move the funding for the MOX Fuel Fabrication Facility project

and the WSB back to NNSA's DNN Programs. The NNSA has funded MOX Fuel Fabrication Facility project and the WSB baseline increases within their proposed target funding for FY 2010 and the outyears. Other increases include International Materials Protection and Cooperation and Nonproliferation and International Security, both of which increase 38 percent over the FY 2009 levels.

The FY 2010 Request for GTRI is $353.5 million, a 10.5 percent reduction from the FY 2009 appropriations. Most of this decrease results from the completion of the Kazakhstan Spent Fuel work in CY 2010. The FY 2010 President's Request of $24.5 million for the EWGPP is the final increment of U.S. funding for this program. The significant reduction in the budget reflects close-out and completion of the construction activities for the Zheleznogorsk Project.

Funding in the INMP&C FY 2010 President's Request of $552.3 million is an increase of 38 percent over the FY 2009 appropriated level. This provides for sustainability support to Russian warhead and material sites with completed INMP&C upgrades, INMP&C upgrades to areas/buildings agreed to after the Bratislava Summit and the projects to assist the Russian Federation and other partner countries in establishing the necessary infrastructure to sustain effective MPC&A operations. In addition, the budget provides for the Second Line of Defense program and the installation of radiation detection equipment at 43 foreign sites and 15 Megaports.

The FY 2010 President's Request for the NIS program is $207.2 million, an increase of 38 percent over the FY 2009 appropriations. This supports the Next Generation Safeguards Initiative (NGSI), which aims to strengthen the international safeguards system and revitalize the U.S. technical base and the human capital that supports it; as well as nuclear disablement, dismantlement, and verification activities in North Korea; policy and technical support for U.S. efforts to address proliferation by Iran, North Korea and proliferation networks; and the implementation of nuclear arms reduction and associated agreements.

The Nonproliferation and Verification R&D program is requested at $297.3 million, a decrease from the FY 2009 level. This is sufficient to support long-term R&D leading to detection systems for strengthening U.S. capabilities to respond to current and projected threats to national and homeland security posed by the proliferation of nuclear weapons and diversion of special nuclear material. Almost a third of this funding is for production of operational nuclear detonation detection sensors to support the nation's operational nuclear detonation detection and reporting infrastructure through joint programs with DoD.

The President's Request for Fissile Materials Disposition is $701.9 million, reflecting the transfer of funding for the MOX Fuel Fabrication Facility project and WSB projects back to this program. In addition to these U.S. plutonium disposition activities, the program supports three other principal elements: efforts to dispose of U.S. HEU declared surplus to defense needs primarily by down-blending it into low enriched uranium; technical analyses and support to negotiations among the United States, Russia, and the International Atomic Energy Agency on monitoring and inspection regimes required by a 2000 U.S.-Russia plutonium disposition agreement; and limited support for the early disposition of Russia's plutonium in that country's BN-600 reactor including U.S. technical support to oversee work in Russia for early disposition of Russian weapon-grade plutonium in fast reactors. The U.S. and Russia began negotiations on amendments to the 2000 Agreement in 2008, and expect to complete the negotiations in 2009.

Naval Reactors

The NNSA continues to provide the United States Navy with safe, military effective nuclear propulsion plants and ensure their continued safe and reliable operation. The FY 2010 Request for Naval Reactors is $1,003.1 million, an increase of 21 percent over the FY 2009 appropriations.

This increase provides additional funding to initiate the new mission work for the design and delivery of a new reactor core and propulsion plant to support the next-generation submarine design, and refueling of the S8G Prototype, one of two land-based reactor plant prototypes that serves as a testing platform for nuclear technology. Significant outyear funding is required for both of these activities.

Office of the Administrator

This appropriation provides corporate direction, federal personnel, and resources necessary to plan, manage, and oversee the operation of the NNSA. It provides funding for all Federal NNSA staff in Headquarters and field locations except those supporting Naval Reactors and the Secure Transportation Asset agents and transportation staff.

The FY 2010 Request of $420.8 million reflects a decrease of $18.4 million that is attributable to Congressionally directed projects funded in FY 2009. Staffing increases in FY 2010 by 28 full time equivalents (FTEs) from 1,942 to 1,970 reflecting functional transfers and growth to accommodate mission program increases. The projected staffing level for FY 2010 is 1,970 and is maintained throughout the outyear period. The Historically Black Colleges/Hispanic Serving Institutions programs will continue through FY 2010 on grants made by appropriations provided in FY 2009 and through program funding. The FY 2010 budget request includes $4.1 million for the Massie Chairs and related activities only.

Site Estimates
(Dollars in Thousands)

	FY 2008	FY 2009	FY 2010				
Site	Omnibus	Omnibus	OA	WA	NN	NR	Total
Ames	625	—	—	—	401	—	401
ANL	29,235	61,446	—	2,297	42,459	—	44,756
BAPL	393,945	418,700	—	—	—	502,121	502,121
BNL	42,670	44,112	—	1,787	45,074	—	46,861
CH	37,244	45,664	—	28,358	—	—	28,358
GA	23,261	21,532	—	21,000	—	—	21,000
HQ	403,930	510,165	239,613	311,129	18,732	21,900	591,374
ID	1,178	1,237	—	1,299	2,397	—	3,696
INL	115,316	189,012	—	4,015	85,576	78,400	167,991
KAPL	288,214	302,800	—	—	—	382,412	382,412
KCP	414,775	413,551	—	463,745	1,510	—	465,255
KSO	5,984	6,275	6,485	—	—	—	6,485
LANL	1,575,349	1,516,350	—	1,226,418	202,963	—	1,429,381
LASO	22,914	19,429	20,489	—	—	—	20,489
LBNL	7,231	5,366	—	—	4,943	—	4,943
LEX	4,010	—	—	—	—	—	—
LLNL	1,099,637	1,099,299	—	987,421	117,683	—	1,105,104
LSO	18,203	19,034	19,667	—	—	—	19,667
NBL	1,190	1,200	—	210	5,115	—	5,325
NETL	4,206	161	—	500	—	—	500
NREL	330	330	—	—	368	—	368
NRL	22,105	9,961	—	294	—	—	294
NRLFO	—	—	—	—	—	18,300	18,300
NS	832,106	714,109	77,229	283,725	260,309	—	621,263
NTS	266,209	278,588	—	194,374	10,494	—	204,868
NVSO	129,328	101,088	18,512	80,425	—	—	98,937
OR	50	50	—	—	56	—	56
ORISE	13,108	13,608	—	14,293	4,655	—	18,948
ORNL	197,211	134,448	—	1,259	146,403	—	147,662
OSTI	81	606	—	774	—	—	774
PN	10,357	10,905	—	—	—	—	—
PNNL	288,834	232,811	—	16,090	247,720	—	263,810
PSO	12,300	12,501	12,693	—	—	—	12,693
PX	513,434	520,106	—	574,671	339	—	575,010
RL	1,328	1,286	—	1,350	—	—	1,350
RSL	90	90	—	—	100	—	100
SNL	1,160,502	1,158,490	—	959,643	195,901	—	1,155,544
SR	13,667	30,341	—	—	95,770	—	95,770
SR/MOX	—	—	—	—	494,238	—	494,238
SRNL	—	—	—	300	—	—	300
SRS	239,957	235,997	—	253,524	98,532	—	352,056
SRSO	29,121	31,273	6,439	2,821	—	—	9,260
SSO	13,808	14,425	14,710	—	—	—	14,710
ST	7,924	8,245	—	—	—	—	—
UR/LLE	59,150	55,031	—	55,001	—	—	55,001
Y-12	915,464	854,600	—	827,661	31,910	—	859,571
YSO	47,594	46,790	15,237	5,867	23,061	—	44,165
Pensions	—	—	—	64,180	—	—	64,180
WFO	-34,000	—	—	—	—	—	—
PYBal	-415,064	-11,418	-10,320	—	—	—	-10,320
Grand Total	8,814,111	9,129,594	420,754	6,384,431	2,136,709	1,003,133	9,945,027

The FY 2010 President's Request for NNSA includes a total of $122.0M to directly support defined-benefit contractor pension contributions. This funding is distributed in the Weapons Activities ($64.2 million) and Naval Reactors ($57.8 million) appropriations. The Naval Reactors funding is reflected in the site allocations for BAPL and KAPL. The Weapons Activities funding is undistributed.

Indirect Costs and Other Items of Interest

Institutional General Plant Projects

Institutional General Plant Projects (IGPP) provide for minor new construction of a general institutional nature at multi-program sites, funded out of Management and Operating Contractor indirect funds. IGPPs benefit multi-program users (e.g., NNSA and Office of Science) at a site. The following are planned IGPP funding projections:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Los Alamos National Laboratory	1,475	8,200	9,200	9,400	8,800	0	0
Lawrence Livermore National Laboratory	4,613	13,506	6,709	2,108	4,650	2,750	0
Sandia National Laboratories	10,554	4,280	4,500	870	8,300	1,400	5,400
Total Site IGPP	**16,642**	**25,986**	**20,409**	**12,378**	**21,750**	**4,150**	**5,400**

The three NNSA laboratories, LANL, LLNL and SNL, are funding general institutional projects that support multiple programs.

Facilities Maintenance and Repair

The Department's Facilities Maintenance and Repair activities are tied to its programmatic missions, goals, and objectives. Facilities Maintenance and Repair activities funded by NNSA are displayed below.

Indirect-Funded Maintenance and Repair

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Bettis Atomic Power Laboratory	6,513	6,370	6,571
Kansas City Plant	8,522	8,864	8,954
Knolls Atomic Power Laboratory	10,030	10,942	11,323
Lawrence Livermore National Laboratory	100,107	101,640	103,107
Los Alamos National Laboratory	54,449	54,449	54,449
Nevada Test Site	50,516	51,779	52,970
Pantex Plant	0	0	0
Sandia National Laboratories	86,402	92,142	94,086
Savannah River Site	1,594	1,647	1,701
Y-12 National Security Complex	21,627	22,189	22,744
Total, Direct-Funded Maintenance and Repair	**339,760**	**350,022**	**355,905**

Outyear Indirect-Funded Maintenance and Repair

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Bettis Atomic Power Laboratory	6,717	6,779	23,005	6,847
Kansas City Plant	10,915	10,547	6,140	5,005
Knolls Atomic Power Laboratory	11,991	12,127	11,139	9,707
Lawrence Livermore National Laboratory	104,550	106,014	107,498	109,003
Los Alamos National Laboratory	54,449	54,449	54,449	54,449
Nevada Test Site	54,135	55,326	56,543	57,787
Pantex Plant	0	0	0	0
Sandia National Laboratories	96,613	93,925	94,614	95,758
Savannah River Site	1,757	1,815	1,875	1,937
Y-12 National Security Complex	23267	23779	24,302	24,837
Total, Indirect-Funded Maintenance and Repair	**364,394**	**364,761**	**379,565**	**365,330**

Direct-Funded Maintenance and Repair

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Bettis Atomic Power Laboratory	9,459	7,594	9,592
Kansas City Plant	19,886	20,682	20,892
Knolls Atomic Power Laboratory	2,838	3,777	3,798
Lawrence Livermore National Laboratory	3,545	3,634	3,717
Los Alamos National Laboratory	44,541	44,541	44,541
Nevada Test Site	15,170	15,481	15,919
Pantex Plant	63,740	60,856	43,328
Sandia National Laboratories	11,147	5,283	5,335
Savannah River Site	25,100	28,811	26,259
Y-12 National Security Complex	16,925	13,578	11,005
Total, Direct-Funded Maintenance and Repair	**212,351**	**204,237**	**184,386**

Outyear Direct-Funded Maintenance and Repair

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Bettis Atomic Power Laboratory	8662	8178	9,917	9,442
Kansas City Plant	25,468	24,611	14,326	11,679
Knolls Atomic Power Laboratory	3971	4049	4,128	3,906
Lawrence Livermore National Laboratory	3,717	3,717	3,717	3,717
Los Alamos National Laboratory	44,541	44,541	44,541	44,541
Nevada Test Site	16,378	16,852	17,008	17,484
Pantex Plant	42,547	45,350	48,060	48,877
Sandia National Laboratories	4,719	8,440	4,493	4,547
Savannah River Site	27,609	34,887	35,194	34,631
Y-12 National Security Complex	11,247	11,495	11,747	12,006
Total, Direct-Funded Maintenance and Repair	**188,859**	**202,120**	**193,131**	**190,830**

Direct-Funded Deferred Maintenance Backlog Reduction [a,b]

(dollars in thousands)

	FY 2008 Curent Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Kansas City Plant	939	600	500
Lawrence Livermore National Laboratory	15,640	15,915	17,455
Los Alamos National Laboratory	25,390	25,513	28,122
Nevada Test Site	5,210	2,076	12,247
Pantex Plant	16,031	13,547	19,503
Sandia National Laboratories	289	2,766	6,312
Savannah River Site	3,748	600	2,821
Y-12 National Security Complex	9,687	3,417	39,202
Total, Direct-Funded Deferred Maintenance Backlog Reduction	**76,934**	**64,434**	**126,162**

Outyear Direct-Funded Deferred Maintenance Backlog Reduction[a,b]

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Kansas City Plant	500	500	500	0
Lawrence Livermore National Laboratory	17,015	17,128	17,329	0
Los Alamos National Laboratory	27,414	27,595	27,920	0
Nevada Test Site	11,939	12,017	12,159	0
Pantex Plant	19,012	19,137	19,363	0
Sandia National Laboratories	15,865	15,970	16,158	0
Savannah River Site	2750	2768	2,801	0
Y-12 National Security Complex	38,215	38,467	38,920	0
Total, Direct-Funded Deferred Maintenance Backlog Reduction	**132,710**	**133,582**	**135,150**	**0**

[a] FY 2009 FIRP Recapitalization and Planning Operations and Maintenance is shown as Direct Funded Deferred Maintenance Backlog Reduction (FIRP).

[b] Total excludes FIRP Line Items, FIRP Disposition, Roof Asset Management Program (RAMP) or other possible sources of repair and/or deferred maintenance funding. Excludes corporate facilities management and administrative activities such as FIMS, CAIS, FFC, DCAA, and E-gov.

Total Maintenance and Repair Dollars

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Bettis Atomic Power Laboratory	15,972	13,964	16,163
Kansas City Plant	29,347	30,145	30,345
Knolls Atomic Power Laboratory	12,868	14,719	15,121
Lawrence Livermore National Laboratory	119,292	121,189	124,279
Los Alamos National Laboratory	124,380	124,503	127,112
Nevada Test Site	70,896	69,336	81,136
Pantex Plant	79,771	74,403	62,831
Sandia National Laboratories	97,838	100,191	105,733
Savannah River Site	30,442	31,058	30,781
Y-12 National Security Complex	48,239	39,184	72,951
Total, Maintenance and Repair Dollars	**629,045**	**618,692**	**666,452**

Total Outyear Maintenance and Repair Dollars

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Bettis Atomic Power Laboratory	15,379	14,957	32,922	16,289
Kansas City Plant	36,883	35,658	20,965	16,684
Knolls Atomic Power Laboratory	15,962	16,176	15,267	13,613
Lawrence Livermore National Laboratory	125,282	126,859	128,544	112,720
Los Alamos National Laboratory	126,404	126,585	126,910	98,990
Nevada Test Site	82,452	84,195	85,710	75,271
Pantex Plant	61,559	64,487	67,423	48,877
Sandia National Laboratories	117,197	118,335	115,265	100,305
Savannah River Site	32,116	39,470	39,870	36,568
Y-12 National Security Complex	72,729	73,741	74,969	36,843
Total, Outyear Maintenance and Repair Dollars	**685,963**	**700,463**	**707,845**	**556,160**

In addition to the above, other costs such as line items, expense funded projects, and General Plant Projects can be attributed to Maintenance activities. However, these dollars have not been captured.

Maintenance of Facilities

To improve management and ensure a higher level of visibility of maintenance costs at its facilities, NNSA is implementing several changes. The definitions currently being used to define maintenance will be examined to ensure that all appropriate data is collected, and reported. Also, in addition to the quarterly reporting to NNSA/DOE through the Integrated Facility and Infrastructure (IFI) Report, financial tracking and reporting will be performed on a monthly basis to capture the amount of maintenance being conducted at each site. Unique Budget and Reporting codes will be established within Weapons Activities, Readiness in Technical Base, Operations of Facilities to capture these costs. This additional information will allow Program Managers and Site Office Managers to make more informed decisions to ensure that maintenance is properly defined, captured, and adequately funded.

Office of the Administrator

Office of the Administrator

Office of the Administrator

Proposed Appropriation Language

For necessary expenses of the Office of the Administrator in the National Nuclear Security Administration, including official reception and representation expenses not to exceed $12,000, [$439,190,000] *$420,754,000,* to remain available until expended.

Explanation of Change

The FY 2010 Request fully supports 28 additional full time equivalents (FTEs) to accommodate mission increases in defense nuclear nonproliferation and to support functional transfers from the Department of Energy's Office of Management and Office of Environmental Management. The new budget authority requested in FY 2010 has been offset by $10,320,000 through the planned use of prior year unobligated balances.

Office of the Administrator
National Nuclear Security Administration

Overview

Appropriation Summary by Program

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation [a]	FY 2010 Request [b]
Office of the Administrator			
Office of the Administrator	379,997	415,878	431,074
Congressional Directed Projects	22,140	23,312	0
Use of prior year balances	0	0	(10,320)
Total, Office of the Administrator	**402,137**	**439,190**	**420,754**

Public Law Authorization:
FY 2009 Omnibus Appropriations Act (P.L. 111-8)
National Nuclear Security Administration Act (P.L. 106-65), as amended

Outyear Appropriation Summary

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Office of the Administrator	**424,962**	**429,211**	**433,504**	**437,838**

Mission
The Office of the Administrator creates a well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital; enhanced cost-effective utilization of information technology; and greater integration of budget and performance data.

Benefits
The Office of the Administrator provides the Federal personnel and resources necessary to plan, manage, and oversee the operation of the National Nuclear Security Administration (NNSA). The Nation benefits from having a highly educated and skilled cadre of Federal managers overseeing the operations of the defense mission activities and performing many specialized duties including leading Emergency Response teams, nuclear nonproliferation coordination, and safeguards and security oversight.

[a] The FY 2009 Omnibus Appropriations Act report language states, "The Department is directed to transfer $10,000,000 from the Office of the Administrator to the Non-Defense Environmental Cleanup account for cleanup efforts at Argonne National Laboratory."

[b] The FY 2010 program level for the Office of the Administrator will be achieved through the planned use of prior year unobligated balances in the amount of $10,320,000.

Strategic Theme, Goals and the Secretary's Initiatives

A new Strategic Plan has not yet been established and approved by the Secretary of Energy. The Secretary has established major priorities and initiatives. The following chart aligns the current Strategic Plan with the Secretary's priorities:

Strategic Theme	Strategic Goal	Secretary's Priority	GPRA Unit	Title	Office
Nuclear Security	Nuclear Deterrent	National Security	25	Office of the Administrator	NNSA

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.0.25.00, Office of the Administrator											
Maintain the Office of the Administrator Federal administrative costs as a percentage of total Weapons Activities and Defense Nuclear Nonproliferation program costs at less than 6% (Efficiency)[a]	N/A	N/A	N/A	N/A	T: .5.9%	T: .5.9%	T: .5.9%	T: .5.9%	T: .5.9%	T: .5.9%	In keeping with OMB and DOE expectations that administrative costs be minimized, maintain the Office of the Administrator Federal administrative costs as a percentage of total Weapons Activities and Defense Nuclear Nonproliferation program costs at less than 6% .[a]
Cumulative percent of active NNSA projects managed by a Federal Project Director, certified at the appropriate level through the Project Management Career Development Program (Long-term Output)[a]	N/A	N/A	N/A	N/A	T: 74%	T: .80%	T: 85%	T: .90%	T: 95%	T: 100%	By 2014, 100% of NNSA Federal Project Directors will be certified at the appropriate level though the Project Management Career Development Program.[a]

[a] New measure developed for FY 2009.

Means and Strategies

The Office of the Administrator Program will use various means and strategies including collaborative activities to achieve its goals. The NNSA is working with the DOE to adopt enhanced business systems to make sure that we are excellent stewards of U.S. national nuclear security including the Standard Budgeting System. The NNSA has implemented a disciplined planning, programming, and budgeting process to assure taxpayers that these programs are integrated and cost effective. The program is also implementing information and acquisition management tools and practices for improved job performance and efficiency. The NNSA uses creative personnel practices to ensure the best talent is recruited, retained, and rewarded. All employees are accountable to the NNSA Administrator for achieving their elements of the NNSA's mission.

The Office of the Administrator budget is 72 percent Salaries and Benefits for NNSA Federal staff. Budget components for Information Technology, Space and Occupancy, International Offices, Travel, and Support Services, comprise the remaining 28 percent.

Validation and Verification

To validate and verify program performance, the NNSA will conduct various internal and external reviews and audits. The NNSA's programmatic activities are subject to review by the Congress, the Government Accountability Office, the Department's Inspector General, the National Security Council, the Defense Nuclear Facilities Safety Board, the Department's Office of Engineering and Construction Management, and the Department's Office of Independent Oversight and Performance Assurance. Each year, numerous external independent reviews are conducted of selected projects. Additionally, NNSA Headquarters senior management and field managers conduct frequent, in-depth reviews of cost, schedule, and scope to ensure projects are on-schedule and within budget.

The NNSA has established a comprehensive validation and verification process as part of its Planning, Programming, Budgeting and Evaluation (PPBE) system. Long-term performance goals are established/validated during the Planning Phase and linked to annual targets and detailed technical milestones. During the Programming Phase, budget and resource trade-offs and decisions are evaluated based on the impact to annual and long-term outcomes. These NNSA decisions are documented and used to develop the budget requests during the Budgeting Phase. Program and financial performance for each measure is monitored and progress verified during the Execution and Evaluation Phase.

The NNSA validation and verification activities during the PPBE Execution and Evaluation Phase include a set of tiered performance reviews to examine program management and corporate performance against long-term goals. This set of reviews includes: (1) NNSA Administrator Program Reviews; (2) the NNSA Mid-Year Finance and Performance Review; (3) quarterly reporting of progress through the Department's performance tracking system; and (4) the NNSA Administrator's Annual Performance Report.
The NNSA Administrator reviews each NNSA program during the NNSA Administrator Reviews. These reviews involve all members of the NNSA management council to ensure progress and recommendations are fully integrated for corporate improvement. The focus of these reviews is to ensure that NNSA programs are on schedule to meet their long-term goals and annual targets. The results of these reviews are reported quarterly in the Department's performance tracking system and annually in the NNSA Administrator's Annual Performance Report and the DOE Performance Accountability Report (PAR). These documents present the progress that NNSA programs are making toward achieving both annual targets and long-term goals; and help senior managers verify and validate progress toward NNSA and Departmental commitments.

Significant Program Shifts

- Staffing increases in FY 2010 by 28 full time equivalents (FTEs) from 1,942 to 1,970 in support of functional transfers from the Department of Energy's Office of Management and Office of Environmental Management; conversion of adjudicator positions at the Service Center; and mission increases in Defense Nuclear Nonproliferation (DNN).

- Beginning in FY 2010, there is a functional transfer of 6 FTEs for Long-term Stewardship (LTS) at the Service Center based upon completed NNSA sites. This corresponds to the transfer of LTS responsibility from the Office of Environmental Management to NNSA and the movement of 5 FTEs to site offices in FY 2009. (FY 2010: +$1,182,385)

- The FY 2009 National Defense Authorization Act and Senate Bill shift construction and operating funds for the Mixed Oxide (MOX) Fuel Fabrication Facility from the Office of Nuclear Energy to the NNSA DNN program. The associated program direction funding also shifts from the Office of Nuclear Energy to the Office of the Administrator Appropriation. The FY 2010 request reflects this funding shift. (FY 2010: +$5,000,000)

- Beginning in FY 2010, there is a functional transfer of 2 FTEs from DOE's Office of Management to NNSA's Office of the Administrator account for the Strategic and Critical Materials program. (FY 2010: +$345,000)

- Beginning in FY 2010, adjudicator positions at the Service Center will be converted to 6 Federal positions. Internal to NNSA, funds have been realigned from Defense Nuclear Security to the Office of the Administrator to support this conversion. (FY 2010: +$537,000)

Major Outyear Priorities and Assumptions

- The outyear projections for the Office of the Administrator account total $1,725,515,000 (FY 2011 through FY 2014). The NNSA plans to maintain a steady staffing level through the outyear period.

Historically Black Colleges and Universities (HBCU) Support

The NNSA has established a program to target research opportunities for HBCU institutions to increase their participation in national security-related research and to train and recruit qualified HBCU graduates for employment within the National Security Enterprise. In FY 2005, Congress established a research and education partnership program with the HBCUs and the Massie Chairs of Excellence that has been funded as Congressionally Directed Projects in the Office of the Administrator appropriation for FYs 2005, 2008, and 2009. In FY 2006, Congressionally directed funds were provided within the Office of the Administrator appropriation to partially cover HBCU program activities; contributions were also made by Defense Programs and Defense Nuclear Nonproliferation. The Omnibus Appropriations Act, 2009 (P.L.111-8), included $23.3 million in Congressionally Directed Projects in support of the HBCU programs within the Office of the Administrator account. In FY 2010, the Office of the Administrator appropriation requests approximately $4.1 million to support HBCU activities. Additionally, the Weapons Activities appropriation may provide up to $6 million; the Defense Nuclear Nonproliferation appropriation may provide up to $3 million; and the Naval Reactors program may fund up to $1 million of HBCU efforts in multiple research areas directly supporting program activities.

Office of the Administrator

Full Time Equivalents (FTEs)

	FY 2008 Actual	FY 2009 Appropriation	FY 2010 Request	FY 2010 Change
Office of the Administrator				
Headquarters				
Office of the Administrator	78	86	89	3
Defense Programs	181	184	180	(4)
Defense Nuclear Nonproliferation	219	247	255	8
Emergency Operations	89	100	101	1
Infrastructure and Environment	31	43	41	(2)
Management and Administration	84	100	101	1
Defense Nuclear Security	23	28	28	-
Future Leaders Program	54	57	56	(1)
Subtotal, Headquarters	759	845	851	6
NNSA Service Center	428	472	488	16
Livermore Site Office	96	95	95	-
Los Alamos Site Office	103	110	113	3
Sandia Site Office	82	85	84	(1)
Nevada Site Office	91	97	98	1
Pantex Site Office	77	78	79	1
Y-12 Site Office	82	83	82	(1)
Kansas City Site Office	43	40	41	1
Savannah River Site Office	33	37	39	2
Total, Office of the Administrator	**1,794**	**1,942**	**1,970**	**28**

Office of the Administrator
Funding by Site

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request	$ Change	% Change
NNSA Office of the Administrator					
Office of the Administrator					
Headquarters	207,946	231,615	239,713	+8,098	+3.5%
NNSA Service Center	67,916	73,678	77,588	+3,910	+5.3%
Livermore Site Office	18,203	19,034	19,643	+609	+3.2%
Los Alamos Site Office	17,167	19,429	20,202	+773	+4.0%
Sandia Site Office	13,808	14,425	14,585	+160	+1.1%
Nevada Site Office	17,774	17,847	18,410	+563	+3.2%
Pantex Site Office	11,800	12,501	12,946	+445	+3.6%
Y-12 Site Office	14,603	14,784	15,068	+284	+1.9%
Kansas City Site Office	5,984	6,275	6,500	+225	+3.6%
Savannah River Site Office	4,796	6,290	6,419	+129	+2.1%
Subtotal	**379,997**	**415,878**	**431,074**	**+15,196**	**+3.7%**
Use of Prior Year Balances	0	0	(10,320)	(10,320)	+0.0%
Total, Office of the Administrator	**379,997**	**415,878**	**420,754**	**+4,876**	**+1.2%**
Congressionally Directed Projects					
NNSA Service Center	22,140	23,312	**0**	(23,312)	-100.0%
Total, Congressionally Directed Projects	**22,140**	**23,312**	**0**	**(23,312)**	
Total, NNSA Office of the Administrator	**402,137**	**439,190**	**420,754**	**(18,436)**	**-4.2%**

Office of the Administrator
Funding by Object Class

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request	$ Change	% Change
NNSA Office of the Administrator					
Office of the Administrator					
Salaries and Benefits	256,383	289,314	310,894	21,580	7.5%
Travel	15,127	15,682	15,330	(352)	-2.2%
Support Services	28,491	22,844	22,141	(703)	-3.1%
Other Related Expenses					
Space and Occupancy Costs/WCF	41,227	38,926	41,220	2,294	5.9%
Information Technology	24,945	24,950	25,706	756	3.0%
Other Related Expenses	11,354	21,024	12,645	(8,379)	-39.9%
Training	2,470	3,138	3,138	0	0.0%
Subtotal, Other Related Expenses	79,996	88,038	82,709	(5,329)	-6.1%
Subtotal, Office of the Administrator	**379,997**	**415,878**	**431,074**	**15,196**	**3.7%**
Use of Prior Year Balances	0	0	(10,320)	(10,320)	
Total, Office of the Administrator	**379,997**	**415,878**	**420,754**	**4,876**	**1.2%**
Congressionally Directed Projects					
Other Related Expenses	22,140	23,312	**0**	(23,312)	-100.0%
Total, Congressionally Directed Projects	**22,140**	**23,312**	**0**	**(23,312)**	
Total, NNSA Office of the Administrator	**402,137**	**439,190**	**420,754**	**(18,436)**	**-4.2%**

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Salaries and Benefits	**256,383**	**289,314**	**310,894**

Provides support for the NNSA Federal staff under the NNSA's Pay for Performance Demonstration Project (1,970 FTEs in FY 2010). Funding includes annual cost of living adjustments, performance based salary increases, promotions, performance awards, severance costs, health and retirement benefits, workman's compensation payments, and other payroll adjustments.

Provides Salaries and Benefits funding to support the Future Leaders Program (the fifth class of NNSA interns is planned to come on board at the end of the 3rd quarter of FY 2009). The Future Leaders Program funds the interns for two years, during this time they are not counted against a site's managed staffing targets. After the two years, the interns are absorbed into the staffing allocations at the receiving locations.

Salaries consume approximately 80 percent of the estimate, leaving about 20 percent for benefits.

Travel	**15,127**	**15,682**	**15,330**

Supports domestic and foreign travel necessary to conduct NNSA business. Domestic travel provides management oversight, public outreach, and national security assistance and interface with the Site Offices, the Service Center, Headquarters, the laboratories and plants, and local governments. Domestic travel reflects efficiencies resulting from NNSA efforts to constrain travel expenses by increasing utilization of the existing video teleconferencing capabilities and reducing the number of employees on instances where travel is absolutely mission essential.

International travel is increasing with the DNN mission growth. It is a key element of the nonproliferation work with international agencies and the Former Soviet Union republics.

Support Services	**28,491**	**22,844**	**22,141**

Provides technical support for highly specialized analytical expertise required to address critical technical program issues in nonproliferation and national security including areas of security, facilities representatives, environment, safety and health, and project management (FY 2010: $7,962,975).

Administrative support includes the operation of mailrooms and maintenance of various databases in addition to clerical support (FY 2010: $11,655,291).

Funding request provides management support for studies and reviews of NNSA corporate policies and procedures concerning management operations and planning (FY 2010: $2,522,493).

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Other Related Expenses	**79,996**	**88,038**	**82,709**

Information Technology

Provides Information Technology (IT) support for the NNSA Federal staff, including network services, maintenance and equipment; help desk support; and user equipment and software, including support for Department-wide systems such as the financial information reporting systems.

The IT request for FY 2010 is $25,705,590 and provides minimal support for responding to deferred activities such as desktop and network equipment refresh, application consolidation; Energy Enterprise Solutions Service (EES) payments to the Department, and replacing sunset technology. Also included is support for implementation of NNSA's capital planning and acquisition management programs associated with IT investments at NNSA Management and Operating facilities.

Space and Occupancy/Working Capital Fund

Supports $41,220,194 in Space and Occupancy costs for Headquarters and the field including the NNSA contribution to the Working Capital Fund and overall operations and maintenance of both rented and federally owned space. The FY 2010 allocation for space and occupancy costs is comprised of the following areas and associated funding estimates:

- Rental payments $18,695,677
- Facilities and maintenance $7,093,436
- Utilities $6,649,319
- Office space – full cost recovery $2,842,444
- Internal Control $1,370,000
- I-MANAGE, Standard Accounting and Reporting System (STARS) $2,297,000
- Supplies and materials $1,270,968
- Equipment maintenance $626,233
- Printing and production $375,117

A component of the Space and Occupancy funding level is for the Working Capital Fund (WCF) located within Headquarters. The WCF provides a framework for managing certain common administrative services within the Department. An underlying goal is to give program office customers the opportunity, incentive, and information to make cost-effective decisions regarding their use of such services. A change in the FY 2010 WCF estimate is the addition of the Transit Subsidy charges to the Payroll and Personnel business line of $531,000. The following table outlines the specific funding levels within the Space and Occupancy category for WCF by Business Lines.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
	FY 2008 Current Appropriation	**FY 2009 Original Appropriation**	**FY 2010 Request**
Supplies	500	550	500
Mail Services	393	466	451
Copying Service	325	256	360
Printing and Graphics	311	277	299
Building Occupancy	15,417	15,841	15,728
CIO Operations	3,236	3,543	3,159
Procurement Management	127	186	153
Payroll and Personnel	1,024	998	1,554
Corporate Training Services	58	428	428
Project Management	210	220	201
I-MANAGE	2,143	2,435	2,297
Internal Control	1,428	1,792	1,370
Total, WCF at HQ	**25,172**	**26,992**	**26,500**

International Program

Requests $3,893,573 in FY 2010 for operational costs associated with the international offices in Moscow, Vienna, Tokyo, Kiev, Tbilisi, Astana, Islamabad, and Beijing; all critical to executing the Defense Nuclear Nonproliferation programs. The international office funding supports full operation of the mandatory entitlements for personnel, State Department Capital Security Cost Sharing (CSCS) charges, and the State Department's International Cooperative Administrative Support Services (ICASS) charges.

Training

Supports necessary training and skills maintenance of the NNSA Federal staff of $3,137,749. Includes Corporate Training funds managed by the NNSA Chief Learning Officer and training for the Future Leaders Program.

Historically Black Colleges and Universities (HBCU)

Requests $4,079,500 for the HBCUs and the Massie Chairs of Excellence Program.

Permanent Change of Station (PCS)

Requests $3,256,765 in support of PCS moves for Federal personnel.

Miscellaneous Other

Requests $1,404,293 for activities required for NNSA's Federal personnel, including minor procurements; the National Archives and Records Administration (NARA); Diversity program conferences and sponsorships; Small Business Administration activities; interpreting services; professional credentials; law library maintenance; NNSA Headquarters Going the Extra Mile (GEM) award program; and other miscellaneous activities.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010

Reception and Representation

Requests $12,000 for official reception and representation expenses for NNSA activities.

Subtotal, Office of the Administrator	**379,997**	**415,878**	**431,074**
Use of Prior Year Balance			**-10,320**
Total, Office of Administrator	**379,997**	**415,878**	**420,754**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
▪ **Salary and Benefits**	
Increase to support 28 additional FTEs; projected cost of living adjustments; benefit escalation; promotions; and performance based salary increases.	+21,580
▪ **Travel**	
Increase to expand the nonproliferation effort and mission; offset by planned efficiencies from efforts to constrain travel expenses by increased use of videoconferencing capabilities and travel only for mission essential activities. DNN travel accounts for 41 percent of the total travel request, an increase of approximately 5 percent.	-352
▪ **Support Services**	
Decrease for reductions to the burn rate of existing tasks and/or the elimination of other tasks in administrative, management, and technical support areas.	-703
▪ **Other Related Expenses**	
Decrease is principally attributed to a one-time congressional increase in FY 2009; offset by increases for inflation; HBCU activity; and support expenses for additional staff, including information technology and space and occupancy costs.	-5,329
▪ **Use of Prior Year Balances**	-10,320
Total Funding Change, Office of the Administrator	**+4,876**

Funding Profile by Category

	(dollars in thousands/whole FTEs)		
	FY 2008	FY 2009	FY 2010
Headquarters			
Salaries and Benefits	115,516	130,736	144,862
Travel	11,635	12,035	11,909
Support Services	15,551	14,038	14,138
Other Related Expenses	65,244	74,806	68,804
Total, Headquarters	207,946	231,615	239,713
Total, Full Time Equivalents	759	845	851
NNSA Service Center			
Salaries and Benefits	51,956	60,749	64,619
Travel	1,415	1,432	1,419
Support Services	6,948	4,166	4,113
Other Related Expenses	7,597	7,331	7,437
Total, NNSA Service Center	67,916	73,678	77,588
Total, Full Time Equivalents	428	472	488
Livermore Site Office			
Salaries and Benefits	14,937	16,173	16,814
Travel	288	374	315
Support Services	1,400	1,160	778
Other Related Expenses	1,578	1,327	1,736
Total, Livermore Site Office	18,203	19,034	19,643
Total, Full Time Equivalents	96	95	95
Los Alamos Site Office			
Salaries and Benefits	15,667	18,146	18,958
Travel	373	303	302
Support Services	578	443	408
Other Related Expenses	549	537	534
Total, Los Alamos Site Office	17,167	19,429	20,202
Total, Full Time Equivalents	103	110	113
Sandia Site Office			
Salaries and Benefits	11,693	12,768	13,004
Travel	250	250	230
Support Services	914	669	617
Other Related Expenses	951	738	734
Total, Sandia Site Office	13,808	14,425	14,585
Total, Full Time Equivalents	82	85	84

Funding Profile by Category (continued)

(dollars in thousands/whole FTEs)

	FY 2008	FY 2009	FY 2010
Nevada Site Office			
Salaries and Benefits	13,944	14,780	15,376
Travel	237	365	295
Support Services	1,397	871	822
Other Related Expenses	2,196	1,831	1,917
Total, Nevada Site Office	17,774	17,847	18,410
Total, Full Time Equivalents	91	97	98
Pantex Site Office			
Salaries and Benefits	10,762	11,516	12,090
Travel	235	243	233
Support Services	500	556	480
Other Related Expenses	303	186	143
Total, Pantex Site Office	11,800	12,501	12,946
Total, Full Time Equivalents	77	78	79
Y-12 Site Office			
Salaries and Benefits	12,022	12,690	12,935
Travel	275	275	253
Support Services	1,108	784	723
Other Related Expenses	1,198	1,035	1,157
Total, Y-12 Site Office	14,603	14,784	15,068
Total, Full Time Equivalents	82	83	82
Kansas City Site Office			
Salaries and Benefits	5,520	5,935	6,175
Travel	182	182	168
Support Services	34	7	6
Other Related Expenses	248	151	151
Total, Kansas City Site Office	5,984	6,275	6,500
Total, Full Time Equivalents	43	40	41
Savannah River Site Office			
Salaries and Benefits	4,366	5,821	6,061
Travel	237	223	206
Support Services	61	150	56
Other Related Expenses	132	96	96
Total, Savannah River Site Office	4,796	6,290	6,419
Total, Full Time Equivalents	33	37	39

Funding Profile by Category (continued)

(dollars in thousands/whole FTEs)

	FY 2008	FY 2009	FY 2010
Office of the Administrator			
Salaries and Benefits	256,383	289,314	310,894
Travel	15,127	15,682	15,330
Support Services	28,491	22,844	22,141
Other Related Expenses	79,996	88,038	82,709
Total, Office of the Administrator	379,997	415,878	431,074
Total, Full Time Equivalents	1,794	1,942	1,970

Support Services by Category

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Administrative support	14,854	12,235	11,655
Management support	3,415	2,518	2,523
Technical support			
Other technical support	2,819	2,291	2,243
Security support	3,503	2,748	2,568
ES&H technical support	1,184	974	916
Project management support	2,354	1,878	2,106
Facility representative support	362	200	130
Subtotal, Technical support	10,222	8,091	7,963
Total, Support Services	**28,491**	**22,844**	**22,141**

Other Related Expenses by Category

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Training	2,470	3,138	3,138
Space and Occupancy Costs			
Rental payments	17,881	16,238	18,696
Facilities and maintenance	6,933	6,240	7,093
Utilities	6,812	7,054	6,649
Office space - full cost recovery	3,452	2,761	2,843
Internal Control	2,101	1,792	1,370
I-MANAGE	1,351	2,435	2,297
Supplies and materials	1,419	1,396	1,271
Equipment maintenance	833	657	626
Printing and production	446	353	375
Subtotal, Space and Occupancy Costs	41,228	38,926	41,220
Other Expenses			
International Offices	3,293	3,265	3,894
HBCU/HSIs	3,463	3,300	4,079
Transfer to Argonne National Lab	-	10,000	-
PCS moves	2,543	3,126	3,257
Other Services	2,042	1,321	1,403
Reception and representation	12	12	12
Subtotal, Other Expenses	11,353	21,024	12,645
Subtotal, Other Related Expenses	52,581	59,950	53,865
Information Technology	24,945	24,950	25,706
Total, Other Related Expenses	**79,996**	**88,038**	**82,709**

Congressionally Directed Projects

Funding Profile by Subprogram

(dollars in thousands)

	Current Appropriation [a]	FY 2009 Original Appropriation	FY 2010 Request
Congressionally Directed Projects	22,140	23,312	0

Description

The FY 2009 Omnibus Appropriation Act (P.L. 111-8) included 7 congressionally directed projects within the Office of the Administrator account. Funding for these projects is appropriated as a separate line although projects relate to work in various programmatic areas.

The above table does not include all funding provided to Historically Black Colleges and Universities (HBCU) activity within the Office of the Administrator Appropriation. Including the Massie Chairs of Excellence, the total provided by the Office of Administrator is $25.6 million in FY 2008 and $26.6 million in FY 2009.

In FY 2010, support for HBCUs across NNSA appropriations is requested up to $14.1 million, of which $4.1 million is requested within the Office of the Administrator appropriation.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Congressionally Directed Projects			
• HBCU, ACE Program at Maricopa Community Colleges (AZ)	984	952	0
• HBCU, Morehouse College Energy Science Research and Education Initiative (GA)	1,968	1,903	0
• HBCU, South Carolina Math and Science Initiative (SC)	10,332	9,991	0
• HBCU, Wilberforce (OH)	1,476	1,427	0
• HBCU, Central State (OH)	1,476	1,427	0
• HBCU, Educational Advancement Alliance Graduate Program (PA)	3,936	4,757	0
• HBCU, Marshall Fund Minority Energy Science Initiative (MD)	1,968	2,855	0
Total, Congressionally Directed Projects	**22,140**	**23,312**	**0**

[a] Reflects a rescission of $360,000 as cited in the FY 2008 Consolidated Appropriations Act (P.L. 110-161).

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Congressionally Directed Projects	
Reflects a decrease due to the FY 2009 Omnibus Appropriations Act (P.L. 111-8) add-on for NNSA support for HBCU activities. The Office of the Administrator appropriation requests $4.1 million ($3.0 million for the Massie Chairs of Excellence and $1.1 million HBCU); the Weapons Activities appropriation may provide up to $6 million; the Defense Nuclear Nonproliferation appropriation may provide up to $3 million; and the Naval Reactors program may provide up to $1 million for HBCU efforts in FY 2010.	-23,312
Total, Congressionally Directed Projects	**-23,312**

Weapons Activities

Weapons Activities

Table of Contents

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 two passenger motor vehicles, and*] one ambulance;* [$6,380,000,000] *$6,384,431,000,* to remain available until expended.
[: *Provided,* That $19,300,000 is authorized to be appropriated for the 09-D-007 LANSCE Refurbishment, PED, Los Alamos National Laboratory, Los Alamos, New Mexico: *Provided further,* That, of the amount appropriated in this paragraph, $22,836,000 shall be used for projects specified in the table that appears under the heading ‘‘Congressionally Directed Weapons Activities Projects’’ in the text and table under this heading in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act).]

Explanation of Change

The FY 2010 Request is level with the FY 2009 appropriation. Funding for Science, Technology, and Engineering Infrastructure activities is maintained at the FY 2009 level. Increases are provided for Site Stewardship, a new Government Performance and Results Act (GPRA) unit, that combines infrastructure and environment activities, and for pension costs for the Management and Operating Contractors.

Weapons Activities

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Weapons Activities			
Directed Stockpile Work	1,405,602	1,590,152	1,514,651
Science Campaign	286,274	316,690	316,690
Engineering Campaign	168,548	150,000	150,000
Inertial Confinement Fusion Ignition and High Yield Campaign	470,206	436,915	436,915
Advanced Simulation and Computing Campaign	574,537	556,125	556,125
Pit Manufacturing and Certification Campaign	213,831	0	0
Readiness Campaign	158,088	160,620	100,000
Readiness in Technical Base and Facilities	1,635,381	1,674,406	1,736,348
Secure Transportation Asset	211,523	214,439	234,915
Nuclear Counterrorism Incident Response	158,655	215,278	221,936
Facilities and Infrastructure Recapitalization Program	177,861	147,449	154,922
Site Stewardship	0	0	90,374
Environmental Projects and Operations	17,272	38,596	0
Defense Nuclear Security	799,133	735,208	749,044
Cyber Security	105,287	121,286	122,511
Congressionally Directed Projects	47,232	22,836	0
Subtotal, Weapons Activities	**6,429,430**	**6,380,000**	**6,384,431**
Security Charge for Reimbursable Work	-34,000	0	0
Use of Prior Year Balances	-93,064	0	0
Total, Weapons Activities	**6,302,366**	**6,380,000**	**6,384,431**

Public Law Authorization:

FY 2008 Consolidated Appropriations Act (P.L. 110-161)
Omnibus Appropriations Act, 2009 (P.L. 111-8)
National Nuclear Security Administration Act, (P.L. 106-65), as amended

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Weapons Activities				
Directed Stockpile Work	1,522,230	1,485,842	1,531,408	1,553,468
Science Campaign	313,075	311,860	308,223	304,899
Engineering Campaign	118,630	118,170	116,792	144,415
Inertial Confinement Fusion Ignition and High Yield Campaign	431,927	430,251	425,234	420,648
Advanced Simulation and Computing Campaign	549,776	547,643	541,257	535,420
Pit Manufacturing and Certification Campaign	0	0	0	0
Readiness Campaign	84,029	83,704	82,728	81,835
Readiness in Technical Base and Facilities	1,736,779	1,770,867	1,736,475	1,694,224
Secure Transportation Asset	253,902	257,444	255,575	259,146
Nuclear Counterrorism Incident Response	223,178	222,914	222,508	222,300
Facilities and Infrastructure Recapitalization Program	156,764	154,750	154,687	0
Site Stewardship	89,915	91,636	91,261	245,729
Defense Nuclear Security	753,233	752,341	750,972	750,271
Cyber Security	123,197	123,050	122,826	122,711
Congressional Directed Projects	0	0	0	0
Total, Weapons Activities	**6,356,635**	**6,350,472**	**6,339,946**	**6,335,066**

Major Outyear Priorities and Assumptions

Major outyear considerations are described in each GPRA Unit.

Weapons Activities Summary

The National Nuclear Security Administration (NNSA) FY 2010-FY 2014 budget proposal continues significant efforts to meet Administration and Secretarial priorities for Weapons Activities with the following emphases:

- Ensuring that the nation's nuclear weapons are safe, secure and reliable, without the use of underground nuclear testing,

- Maintaining the W76 Life Extension Program (LEP) at FY 2009 levels of activity; production activities are continuing for all production plants to provide materials for production, and continue to rebuild activities,

- Working with the Department of Defense in transforming the nuclear weapons stockpile and infrastructure, while meeting (DoD) requirements, through the Nuclear Enterprise initiatives,

- Transforming the U.S. nuclear stockpile through the Stockpile Stewardship Program in partnership with the Department of Defense as directed by the national leadership in future Nuclear Posture Reviews,

- Transforming the NNSA nuclear security enterprise to a modernized, cost-effective endeavor with needed capabilities supported by the enterprise's physical infrastructure,

- Advancing the science and technology base that is the cornerstone of our country's nuclear deterrence and remains essential for long-term national security,

- Supporting Cyber Security revitalization, certification and accreditation, and education and training initiatives,

- Consolidating environmental, nuclear materials integration, energy projects (to meet Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management), facility deactivation and demolition, and potentially waste management activities into Site Stewardship,

- Providing nuclear emergency response assets in support of homeland security, and continuing Research and Development efforts for both the Render Safe Research and Development (R&D) and Stabilization Implementation Programs, in addition to concentration in collaborative roles in countering nuclear terrorism in support of national security, and

- Reducing the deferred maintenance backlog for critical facilities that will not be replaced and performing minimum maintenance on other facilities.

In the upcoming year, NNSA will participate in the national debate to lay out a vision for our nation's nuclear security and non-proliferation goals. This vision is based on the reality that the nuclear debate is not just about warheads and the size of the stockpile. The vision emphasizes that we must increase our focus on nuclear security, or, within the NNSA, of evolving from a Cold War nuclear weapons complex to a 21st century national security enterprise. We must ensure our evolving strategic posture places the stewardship of our nuclear arsenal, nonproliferation programs, missile defenses, and the international arms control objectives into one comprehensive strategy that protects the American people and our allies.

The nuclear strategy reviews will help inform the Congress and the Administration on a path forward that clearly defines NNSA's future direction. The Bipartisan Congressional Commission on the U.S. Strategic Posture was established by Congress to identify the basic principles for reestablishing a national consensus on strategic policy. The Commission is examining the role of deterrence in the 21st century, assessing the role of nuclear weapons in U.S. national security strategy, and making recommendations as to the most appropriate strategic posture for the U.S.

The Department of Defense (DoD) is expected to begin its Nuclear Posture Review (NPR) shortly. This effort is scheduled to culminate in a report to the Congress in early 2010. The NPR will provide an important opportunity to establish a consensus between the Administration and Congress on U.S. nuclear weapons policy and programs. In particular, the NPR will highlight how nuclear forces fit into a

broader national security framework, taking into account U.S. military strategy, planning, and programming, as well as providing a basis for arms control objectives and negotiating positions.

National Security Enterprise Transformation

The Department has just completed a programmatic decision process to guide restructuring of the physical infrastructure of the nuclear security enterprise. The Complex Transformation Supplemental Programmatic Environmental Impact Statement (SPEIS) process was completed in November 2008. This process defined a preferred alternative for what the complex should be in the future. Two records of decision (ROD) were then approved on December 16, 2008, and issued regarding aspects of this Preferred Alternative. While outlining a path forward for the enterprise, the RODs do not commit to a specific budget, timeline, size or capacity for any related facility. Enterprise transformation will support the Administration's strategic direction for our nation's nuclear security and non-proliferation goals that will be more fully articulated in the coming year.

The ROD: "Operations Involving Plutonium, Uranium, and the Assembly and Disassembly of Nuclear Weapons" decided that (1) manufacturing and research and development involving plutonium will remain at the Los Alamos National Laboratory (LANL); to support these activities NNSA will construct and operate the Chemistry & Metallurgy Research Replacement-Nuclear Facility (CMRR-NF) at LANL; (2) manufacturing and R&D involving uranium will remain at the Y-12 National Security Complex in Tennessee; NNSA will construct and operate a Uranium Processing Facility (UPF) at Y-12 as a replacement for existing facilities; and (3) assembly and disassembly of nuclear weapons and high explosives production and manufacturing will remain at the Pantex Plant in Texas. The second ROD, "Tritium Research and Development, Flight Test Operations, and Major Environmental Test Facilities" decided to (1) consolidate tritium R&D activities at the Savannah River Site (SRS) in South Carolina; (2) conduct flight testing in a campaign mode at the Tonopah Test Range (TTR) in Nevada under a reduced footprint permit; and (3) consolidate major environmental test facilities at Sandia National Laboratories (SNL) in New Mexico. The details for implementing these RODs are being formulated and corresponding plans of action will be developed through FY 2010.

Additional changes will continue the transformation process of the NNSA security enterprise as it marches forward, deeper into the 21st Century. Realigning capital and business infrastructure will take time and initial investments must be made in replacement facilities or business processes before significant savings are realized. In the long-term, this realignment will reduce staffing and overall costs with much less impact on capabilities by eliminating maintenance on buildings no longer needed, security on unnecessary fence lines, or inefficient business practices. Based on extensive business evaluations that have been shared with the public, this transformation path offers the lowest overall cost and risk going forward. Infrastructure changes where costs are not dependent on the size or composition of our future stockpile will be moved forward immediately. As the reports of the Bipartisan Congressional Commission on the U.S. Strategic Posture and subsequent Nuclear Posture Review are completed this year, opportunities to further reduce costs will be sought.

Maintenance of Facilities

To improve management and ensure a higher level of visibility of maintenance costs at its facilities, NNSA is implementing several changes. The definitions currently being used to define maintenance will be examined to ensure that all appropriate data is collected, and reported. Also, in addition to the quarterly reporting to NNSA/DOE through the Integrated Facility and Infrastructure (IFI) Report, financial tracking and reporting will be performed on a monthly basis to capture the amount of

maintenance being conducted at each site. Unique Budget and Reporting codes will be established within Weapons Activities, Readiness in Technical Base, Operations of Facilities to capture these costs. This additional information will allow Program Managers and Site Office Managers to make more informed decisions to ensure that maintenance is properly defined, captured, and adequately funded.

Site Stewardship

Site Stewardship is proposed as a new GPRA Unit that consolidates most activities managed by the Office of Infrastructure and Environment in recognition of the increased scope of programs in these areas. This GPRA unit encompasses activities currently conducted under Environmental Projects and Operations (EPO), and includes new subprogram elements for Nuclear Materials Integration (NMI) and selected stewardship line item construction projects. Integration of these related activities within a single site stewardship GPRA unit provides the NNSA with focus and flexibility in program management, priority-setting, and funding for these important activities, many of which are regulatory-driven.

Defense Nuclear Security Funding Approach

Starting in the FY 2009, there is no longer an offset in the Weapons Activities appropriation or the Departmental Administration account for Work for Others (WFO). Beginning in FY 2010, direct funding is requested for the mission base program for security, and costs of routine security for Work for Others will be provided via full cost recovery. Extraordinary security requirements for Work for Others projects will be direct charged to those customers. Site security activities that pertain to the institutional security requirements will be charged to either indirect or General and Administrative costs.

Contractor Defined-Benefit Pension Plans

The FY 2010 President's Request for Weapons Activities includes a total of $64.2 million to directly support defined-benefit contractor pension contributions. This funding is requested under Readiness in Technical Base and Facilities, Operations of Facilities, Institutional Site Support, and is not carried forward in FY 2011-FY 2014.

The requested funding will be used in part to reimburse the costs of DOE contractor contributions to defined-benefit (DB) pension plans as required by the Employee Retirement Income Security Act (ERISA), as amended by the Pension Protection Act of 2006 (PPA), and consistent with Departmental direction. The PPA amended ERISA to require accelerated funding of DB pension plans so that the plans become 100 percent funded in 2011. Most contractors that manage and operate DOE's laboratories, weapons plants, and execute environmental clean-up projects at various government owned sites and facilities are contractually required to assume sponsorship of any existing contractor DB pension plans for incumbent employees who work and retire from these sites and facilities. Increased contributions began to be required for some of these DB pension plans as a result of the downturn in investment values in FY 2009. Whether additional funding will be needed in future years will depend on the funded status of the plans based on plan investment portfolios managed by the contractors as sponsors of the DB pension plans.

Mission

The Weapons Activities mission is to ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile.

Benefits

The Weapons Activities program supports the DOE/NNSA mission by maintaining a robust infrastructure of people, programs, and facilities to provide specialized scientific and technical capability for stewardship of the nuclear weapon stockpile.

Strategic Themes, Goals, and the Secretary's Initiatives

A new Strategic Plan has not yet been established and approved by the Secretary of Energy. The Secretary has established major priorities and initiatives. The following chart aligns the current Strategic Plan with the Secretary's priorities:

Strategic Theme	Strategic Goal	Secretary's Priority	GPRA Unit	Title	Office
Nuclear Security	Nuclear Deterrent	National Security	26	Directed Stockpile Work	NNSA
Nuclear Security	Nuclear Deterrent	National Security	27	Science Campaign	NNSA
Nuclear Security	Nuclear Deterrent	National Security	28	Engineering Campaign	NNSA
Nuclear Security	Nuclear Deterrent	National Security	29	Inertial Confinement Fusion Ignition and High Yield Campaign	NNSA
Nuclear Security	Nuclear Deterrent	National Security	30	Advanced Simulation and Computing Campaign	NNSA
Nuclear Security	Nuclear Deterrent	National Security	32	Readiness Campaign	NNSA
Nuclear Security	Nuclear Deterrent	National Security	33	Readiness in Technical Base and Facilities (Operations)	NNSA
Nuclear Security	Nuclear Deterrent	National Security	34	Secure Transportation Asset	NNSA
Nuclear Security	Nuclear Deterrent	National Security	35	Nuclear Counterterrorism Incident Response	NNSA
Nuclear Security	Nuclear Deterrent	National Security	36	Facilities and Infrastructure Recapitalization Program	NNSA
Nuclear Security	Nuclear Deterrent	National Security	38	Environmental Projects and Operations	NNSA
Nuclear Security	Nuclear Deterrent	National Security	57	Defense Nuclear Security	NNSA
Nuclear Security	Nuclear Deterrent	National Security	58	Cyber Security	NNSA
Nuclear Security	Nuclear Deterrent	National Security	60	Site Stewardship	NNSA

Means and Strategies

The Weapons Activities Program will use various means and strategies to achieve its program goals. In particular the "NNSA Defense Programs Strategic Framework" sets forth 3 strategies to guide the portion of the enterprise that pertains to the Stockpile Stewardship Weapons Activities. The three strategies address (a) direct stewardship of the nuclear stockpile, (b) the enterprise's business practices and approaches, and (c) the broader range of national security issues to be resolved in partnership with other Federal entities. Various external factors may impact the ability to achieve these goals.

The NNSA will conduct research and a wide range of tests, experiments, and computational simulations to assess the continuing safety and reliability of the nation's nuclear weapons stockpile. Overall, technical reviews by the weapons laboratories of the stockpile will encompass laboratory and flight tests of materials, components, and warhead subsystems, as well as numerical simulations. Weapons analyses will utilize data archived from past underground nuclear tests, along with laboratory experiments that include dynamic experiments with plutonium and other materials. Working through its nuclear security enterprise, the NNSA will make deliveries of limited life and other weapon components for nuclear weapons stockpile management and refurbishment, according to schedules developed jointly by the NNSA and the DoD. Dismantlement activities are also carried out in support of this objective in concert with NNSA's commitment to a smaller stockpile and the corresponding transformation of the stockpile. Activities will be conducted with DoD, ranging from training in nuclear weapons field maintenance to partnerships in research supporting non-nuclear munitions.

The NNSA will continue with the use of Campaigns for activities that develop or mature critical capabilities needed to achieve weapons stockpile certification, develop certification processes to replace aged components that can no longer be reproduced, and develop modern safety and surety technologies for insertion in the stockpile. The Campaigns are forward-looking efforts with specific objectives and milestones, planned and executed by integrated teams from the laboratories, the Nevada Test Site (NTS), and production plants. The five campaigns are Science, Engineering, Inertial Confinement Fusion Ignition and High Yield, Advanced Simulation and Computing, and Readiness.

The NNSA will continue to oversee and maintain the physical plant infrastructure at government-owned, contractor-operated laboratories, NTS, and production plants, according to applicable statutes, laws, agreements, and standards. The NNSA is developing detailed cost models for selected facilities to ensure that mission critical requirements for readiness are maintained.

The NNSA will continue to institutionalize responsible and accountable corporate facilities management processes and incorporate best practices from industry and other organizations. This includes implementation of a planning process that results in the submission of Ten-Year Site Plans (TYSPs) that establish the foundation for the strategic planning of the facilities and infrastructure of the complex. The NNSA nuclear weapons complex is a government-owned, contractor-operated enterprise, with the exception of the Secure Transportation Asset (STA) program, which is government-owned and operated. The NNSA works proactively with its contractors, external regulators, and host communities to assure that facilities and operations are in compliance with all applicable statutes and agreements to preclude any adverse impact to the environment, safety, and health of workers and the public and to address emergency management issues while minimizing unscheduled disruption to program activities that could affect performance.

The NNSA will provide for enhancements to the STA program to meet increased operating and security standards, and will maintain nuclear emergency operations assets. Beginning in FY 2010, the STA will begin a three-year program to replace its aging fleet of DC-9 aircraft with newer 737-200s (one aircraft per year).

Defense Nuclear Security will partner with Defense Programs in the complex transformation process, to ensure seamless integration with operations and the security mission.

Some activities will be conducted with DoD, ranging from training in nuclear weapons field maintenance to partnerships in research for science and technology for nuclear security. Stockpile Stewardship activities are synergistic with Work for Others activity, sponsored principally by the DoD and Department of Homeland Security (DHS).

Validation and Verification

To validate and verify program performance, the NNSA will conduct various internal and external reviews and audits. The NNSA programmatic activities are subject to continuing review by the Congress, the U.S. Government Accountability Office, the Department's Inspector General, the National Security Council, the Defense Nuclear Facilities Safety Board, the Department's Office of Engineering and Construction Management, the Department's Office of Health, Safety and Security, and various scientific groups. Each year, numerous external independent reviews are conducted of selected program and projects. Additionally, the NNSA Headquarters senior management and field managers conduct frequent, in-depth reviews of cost, schedule, and scope to ensure projects are on-track and within budget.

The NNSA has established a comprehensive validation and verification process as part of its Planning, Programming, Budgeting, and Evaluation (PPBE) process. Long-term performance goals are established/validated during the PPBE Planning Phase and linked in a performance cascade to annual targets and detailed technical milestones. During the PPBE Programming Phase, budget and resource trade-offs and decisions are evaluated based on the impact to annual and long-term performance measures. These NNSA decisions are documented and used to develop the budget requests during Budgeting Formulation. Program and financial performance for each measure is monitored and progress verified during Budget Execution and the PPBE Evaluation Phase.

The NNSA validation and verification activities during the Budget Execution and the PPBE Evaluation Phase include a set of tiered performance reviews to examine a range of information from detailed technical progress to program management controls to corporate performance against long-term goals. This set of reviews includes the: (1) Budget Formulation Validation; (2) Independent Assessment process; (3) NNSA Administrator Program Reviews; (4) Program Manager Detailed Technical Reviews; (5) NNSA Mid-Year Finance and Performance Review; (6) Quarterly reporting of progress through the Department's performance tracking system; and (7) NNSA Administrator's Annual Performance Report.

The NNSA is performing internal self-assessments of the management strengths and weaknesses of each NNSA GPRA Unit/program. Among other things, this process helps NNSA ensure that quality, clarity, and completeness of its performance data and results are in accordance with standards set in the Government Performance and Results Act of 1993 and reinforced by the President's Management Agenda.

Each NNSA program is reviewed at least annually by the NNSA Administrator during NNSA Program Reviews. These reviews involve all members of the NNSA Management Council to ensure progress and recommendations are fully integrated for corporate improvement. The focus of these reviews is to verify and validate that NNSA programs are on track to meet their long-term goals and annual targets.

Periodic program reviews are conducted (e.g., critical programs such as the Life Extension Programs are reviewed monthly and quarterly program reviews are conducted for all programs). The focus of these reviews is to verify and validate that program managers are achieving technical programmatic milestones, within planned, scope, cost, schedule, and maintenance that result in progress toward annual targets and long-term goals. A more detailed program review is conducted by the program managers and for weapons programs, with DoD customers. The focus of these reviews is to verify and validate that NNSA contractors are achieving detailed technical milestones that support programmatic milestone and result in progress towards annual targets and long-term goals. The three types of reviews work together to ensure that NNSA managers are given advanced notice so that corrective actions can be implemented. The NNSA sites are responsible and accountable for accomplishing the verification and validation of their and their sub-contractors performance data and results prior to submission to NNSA Headquarters. During FY 2007, the NNSA developed and implemented an independent assessment process. The Cyber Security Program and Information Technology Program were assessed, and findings from this review are being addressed by each Program.

The results of all of these reviews are reflected quarterly in the DOE performance tracking system and annually in the NNSA Administrator's Annual Performance Report and DOE Performance and Accountability Report (PAR). Both of the latter documents help to measure the progress that the NNSA programs are making toward achieving annual targets en-route to long-term goals. These documents are at a summary level to help senior managers verify and validate progress towards the NNSA and Departmental commitments listed in the budget.

The NNSA performs validations of approximately 20 percent of its budget on an annual basis. A three-Phase process was implemented to validate the FY 2010 Budget Formulation process and estimate. This process consists of Phase I: Validation of the Need for the Program's Proposed Activities (Program Review), Phase II: Validation of the Budget Planning and Formulation Process (Budget Planning and Formulation Process Review), and Phase III: Pricing Validation of Selected Programs (Pricing Review). Budget validation efforts focus on determining consistency with NNSA strategic planning and program guidance, integration of planned activities/milestones with budget estimates, and reasonableness of budget estimates. During the FY 2010 process, the Directed Stockpile Work, the Inertial Confinement Fusion and High Yield Campaign, and the Facilities and Infrastructure Recapitalization Program participated in all three Phases. The review found the overall process for developing the budgets for FY 2010 satisfactory and the cost estimates were determined to be valid and reasonable.

Historically Black Colleges and Universities (HBCU) Support

The NNSA has established program to target research opportunities for HBCU institutions to increase their participation in national security-related research and to train and recruit qualified HBCU graduates for employment within the national security enterprise. The majority of the efforts directly support program activities, and programs funded in the Weapons Activities appropriation may fund research with the HBCU totaling up to approximately $6 million in FY 2010, in areas including engineering, material sciences, computational science, disaster modeling, and environmental sciences.

Directed Stockpile Work

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Directed Stockpile Work			
Life Extension Programs			
B61 Life Extension Program	57,013	2,123	0
W76 Life Extension Program	189,822	202,920	209,196
Subtotal, Life Extension Programs	**246,835**	**205,043**	**209,196**
Stockpile Systems			
B61 Stockpile Systems	64,125	78,021	124,456
W62 Stockpile Systems	2,122	1,596	0
W76 Stockpile Systems	65,212	66,365	65,497
W78 Stockpile Systems	36,880	42,049	50,741
W80 Stockpile Systems	27,342	31,073	19,064
B83 Stockpile Systems	23,959	24,986	35,682
W87 Stockpile Systems	53,199	36,073	51,817
W88 Stockpile Systems	54,250	48,358	43,043
Subtotal, Stockpile Systems	**327,089**	**328,521**	**390,300**
Reliable Replacement Warhead	**1,527**	**0**	**0**
Weapons Dismantlement and Disposition			
99-D-141-01 Pit Disassembly and Conversion Facility-SRS	22,447	24,883	0
99-D-141-02 Waste Solidification Building-SRS	33,600	40,000	0
Weapons Dismantlement and Disposition	55,408	57,238	84,100
Device Assembly Facility	14,713	0	0
Pit Disassembly and Conversion Facility-O&M	12,664	68,084	0
Subtotal, Weapons Dismantlement and Disposition	**138,832**	**190,205**	**84,100**
Stockpile Services			
Production Support	283,529	293,062	301,484
Research & Development Support	31,386	35,144	37,071
Research & Development Certification and Safety	173,609	187,574	143,076
Management, Technology, and Production	202,795	195,334	200,223
Plutonium Capability	0	155,269	0
Plutonium Sustainment	0	0	149,201
Subtotal, Stockpile Services	**691,319**	**866,383**	**831,055**
Total, Directed Stockpile Work	**1,405,602**	**1,590,152**	**1,514,651**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Directed Stockpile Work				
Life Extension Programs				
W76 Life Extension Program	206,808	206,005	203,603	236,403
Subtotal, Life Extension Programs	**206,808**	**206,005**	**203,603**	**236,403**
Stockpile Systems				
B61 Stockpile Systems	110,689	138,084	195,768	198,355
W62 Stockpile Systems	0	0	0	0
W76 Stockpile Systems	56,884	51,348	52,883	49,177
W78 Stockpile Systems	47,596	39,077	38,158	41,518
W80 Stockpile Systems	17,599	15,909	18,482	19,444
B83 Stockpile Systems	34,649	34,616	35,447	38,596
W87 Stockpile Systems	55,196	61,555	59,247	46,002
W88 Stockpile Systems	40,120	56,354	60,137	62,069
Subtotal, Stockpile Systems	**362,733**	**396,943**	**460,122**	**455,161**
Weapons Dismantlement and Disposition	**62,464**	**60,783**	**61,928**	**59,544**
Stockpile Services				
Production Support	317,074	295,307	277,715	272,016
Research & Development Support	39,494	35,904	35,517	36,378
Research & Development Certification and Safety	193,516	176,360	183,311	184,090
Management, Technology, and Production	198,387	206,980	201,499	203,590
Pit Manufacturing	0	0	0	0
Pit Manufacturing Capability	0	0	0	0
Plutonium Capability	0	0	0	0
Plutonium Sustainment	141,754	107,560	107,713	106,286
Subtotal, Stockpile Services	**890,225**	**822,111**	**805,755**	**802,360**
Total, Directed Stockpile Work	**1,522,230**	**1,485,842**	**1,531,408**	**1,553,468**

Description

The Directed Stockpile Work (DSW) ensures the nation's nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile. DSW provides evidence of success through its bi-annual weapons reliability reports to the Department of Defense (DoD) and the Annual Assessment process. In addition, DSW is responsible for the dismantlement and disposition of retired weapons and weapon components, and the sustainment of the plutonium enterprise.

From the Nuclear Weapons Stockpile Plan (NWSP), DSW ultimately derives its nuclear weapons stockpile requirements. The NWSP drives ongoing maintenance activities, warhead life extension needs, stockpile surveillance and assessment, and research and development of new technologies needed to support the stockpile now and in the future. Specifically, DSW will, in coordination with the DoD: (1) provide unique people, skills, equipment, testers, and logistics support to perform nuclear weapons operations; (2) produce and replace limited life components; (3) conduct scheduled weapons maintenance; (4) conduct evaluations to assess weapons reliability and to detect/anticipate potential weapon issues, mainly from aging; (5) quantify margins and uncertainties in order to better assess and

certify the nuclear stockpile; (6) develop concepts and programs which provide enhanced safety, security, and reliability for insertion into Life Extension Programs/Modifications/Alterations; (7) efficiently refurbish weapons by installing the life extension solutions and other authorized modifications to correct technical issues and enhance safety, security, and reliability; (8) sustain the plutonium infrastructure to meet enduring national requirements unique to this special nuclear material; and, (9) dismantle and disposition weapons and components for systems retired from the stockpile.

In FY 2009, DSW incorporated two Pit Campaign activities Pit Manufacturing and Pit Manufacturing Capability. In the FY 2009 Omnibus Appropriation Bill, Congress directed these two subprogram elements be combined into one element named Plutonium Capability, which will be renamed Plutonium Sustainment in FY 2010. The overarching goal of the Plutonium Sustainment program is to maintain the set of capabilities in the use and handling of plutonium. In order to accomplish this goal, the program is focused on transitioning and consolidating the remaining functions required to process and recycle plutonium; manufacture parts and components supporting certification experiments; support surveillance of pits within the stockpile for continued weapon viability; perform refurbishments of pits in the active stockpile as necessary; and maintain the technical plutonium capability for the nation that can respond to future national security challenges. The suite of processes sustained through this program form the core of the U.S.'s capability and technical knowledge base to handle and use plutonium. Complementary to this, the Plutonium Sustainment program supports the plutonium facility infrastructure on a cost recovery basis to ensure the facilities can support the variety of programs requiring the use and handling of plutonium above the base capability supported by Readiness in Technical Base and Facilities (RTBF).

Within DSW, there are four major activities that make unique contributions to the Government Performance and Reporting Act (GPRA) Unit Program Goal 2.1.26.00: (1) Life Extension Programs (LEPs); (2) Stockpile Systems; (3) Weapons Dismantlement and Disposition; and (4) Stockpile Services, which includes Production Support; Research and Development (R&D) Support; R&D Certification and Safety; Management, Technology and Production (MTP); and Plutonium Sustainment. Obligations and costs are reported at lower levels, e.g., R&D and Stockpile Management for each weapon type, and discrete categories under Stockpile Services.

Life Extension Programs (LEPs) enable the nation's nuclear weapons stockpile and the supporting nuclear security enterprise to respond to threats of the 21st century. The W76 LEP extends the life of the W76 nuclear warhead for another 30 years and exists as a path finder in energizing the revitalization and restructuring of the NNSA nuclear security enterprise. Production of the W76 LEP enables NNSA and the DoD to replace the 1970's vintage W76 warhead with a more modern, safe, and reliable warhead without reliance on underground testing.

Stockpile Systems directly supports the needs of the enduring stockpile and includes weapon-specific R&D, assessment and certification activities, limited life component exchange activities, surveillance activities, maintenance, feasibility and safety studies, and military liaison work for the B61, W62, W76, W78, W80, B83, W87, and W88 weapon systems. Enduring stockpile maintenance and evaluation provide the basic foundation for the NNSA assessment that stockpile stewardship is working and that there is no need to resume nuclear testing. In addition, Stockpile Systems includes limited weapon refurbishments approved by the Nuclear Weapons Council, but below the threshold for separate reporting as a life extension program and refurbishment studies prior to approval of full-scale engineering development. The B61 Phase 6.2/6.2A Refurbishment study marks the start of an evaluation to maintain the long-term viability of extended nuclear deterrence. The study will provide

options to address aging, reliability, surety improvements, and the consolidation of numerous modifications. Efforts that affect multiple systems are currently reported under Stockpile Services.

Weapons Dismantlement and Disposition (WDD) activities enable the elimination of retired weapons, reducing the security and maintenance burden of legacy warheads and bombs. WDD includes the dismantlement and disposition of retired weapons, weapon components, and supporting functions. Plutonium components are segregated further into materials for processing into oxides for the fabrication of MOX fuel. Success of the WDD program relies heavily on the Secure Transportation Asset, Production Support, and RTBF to provide the base capability for all WDD activities.

Stockpile Services provides the foundation for all DSW operations. Specifically, Stockpile Services provides research, development, and production support base capabilities for multiple warheads and bombs; certification and safety efforts; quality engineering and plant management, technology, and production services; investigates options for meeting DoD requirements. Stockpile Services also invests in sustaining the plutonium enterprise to achieve a cost-effective, modern plutonium capability.

DSW has developed interrelationships within Defense Programs to provide the necessary tools and capabilities to assess the reliability and performance of an aging stockpile. These include the Science, Engineering, Inertial Confinement Fusion Ignition and High Yield, Readiness, and Advanced Simulation and Computing Campaigns. RTBF supports DSW infrastructure sustainment and facility modifications. Secure Transportation Asset supports DSW through the movement of weapons and components. DSW also works with Defense Nuclear Security to ensure that personnel, facilities, nuclear weapons, and information are protected from a full spectrum of threats, and with the Cyber Security program in their efforts to implement a flexible, comprehensive, and risk-based cyber security program that adequately protects the NNSA information and information assets. With the addition of the Plutonium Sustainment program, there is an increased programmatic interrelationship beyond Weapon Activities, including Non-proliferation, Nuclear Energy, Environmental Management, the standards community, and Homeland Security. These programs leverage technical capabilities that are maintained under the Plutonium Sustainment program.

Part of the interrelationship between DSW and other Programs is the sustainment a plutonium "enterprise" that provides the integrated planning of programs, campaigns, facilities, and the technical base (personnel and skills) associated with the use of plutonium and provides a means to maintain the necessary stability between all elements required for mission success. DSW sustains and retains the technical skills and infrastructure critical to the nation's ability to work with plutonium material across a spectrum of applications. These applications include programs such as Pu-238 Heat Source production for the National Aeronautics and Space Administration, Advanced Nuclear Fuels development, production of parts and shapes for scientific experimental purposes, nuclear forensics support, weapon dismantlement demonstration related to Mixed Oxide feed for plutonium disposition, and support to International Standards serve broad national purposes and rely upon the skills and infrastructure historically retained by the weapons program.

Planning and Scheduling

The DSW Implementation Plans contain cost, scope, and schedule for work activities. More detailed classified schedules are contained in the site Research & Development (R&D) and production documents. The Production and Planning Directive (P&PD) and the Stockpile Life Extension Options Component Description Document delineate current stockpile maintenance, refurbishment, and life

extension efforts. These requirements are further promulgated to the national security enterprise through individual weapon Program Control Documents (PCDs) and the Master Nuclear Schedule (MNS).

Weapon Systems Cost Data
A classified annex, which contains the Selected Acquisition Report (SAR) for the W76-1 LEP, supplements the Weapons Activities portion of the budget.

Major FY 2008 Achievements

Life Extension Programs
- Delivered B61-7/11 LEP units to the Air Force on time having completed 100% of planned retrofits for FY 2008 at Pantex and 100% of production activity at Y-12 for the program;
- Completed W76-1 SS-21 Authorization for D&I;
- Completed down-selection of W76-1 Canned Sub-Assembly (CSA) – with decision to proceed with original design;
- Completed W76-1 Draft Final Weapons Development Report for delivery to the DoD DRAAG
- Completed W76-1 CSA First Production Unit (FPU);
- Completed W76-1 Major Assembly Release;
- Completed W76-1 LANL Certification Letter;
- Achieved W76-1/Mk4A Reentry Body Assembly FPU, and
- Received W76-1 unconditional Phase 6.5 Authorization.

Reliable Replacement Warhead
- Completed close-out activities as directed by the FY 2008 Consolidated Appropriations Act (P.L. 110-161).

Stockpile Systems
- Within all Systems (B61, W62, W76, W78, W80, B83, W87, W88):
  - Delivered all scheduled Limited Life Components (LLC) (PCD requirements and quantities) and alteration kits to the DoD;
  - Produced 933 reservoirs at Kansas City Plant (KCP);
  - Filled 825 reservoirs at Savannah River Site (SRS);
  - Produced 356 Neutron generators at Sandia National Laboratories (SNL);
  - Shipped 1524 Group Ten kits to DoD used in field maintenance;
  - Shipped 793 Alt 900 kits for reservoir removal;
  - Completed all Annual Assessment Reports, and
  - Completed all requirements for certification of the stockpile without nuclear testing.
- Exceeded B61-3/4 Alt 356 production quantities of new spin rocket motors by 12% and completed 100% of planned spin rocket motor retrofits for B61-7/11 ALT 358;
- Completed W76-0 1E33 Detonator Cable Assembly (DCA) life of program production and shipments;
- Completed W78 MC4381 Neutron Generator (NG) FPU;
- Completed W87 JTA4 FPU and delivered to the Air Force;
- Completed Nuclear Explosive Safety Study and Reauthorization of W88 SS-21 Bay operations;
- Completed rebuilds of W88 Cell Operations Restart Project units;
- Completed W88 JTA2 telemetry refresh FPU, and
- Achieved approval of W88 SS-21 Cell Hazard Analysis Report.

Weapons Dismantlement & Disposition

- Exceeded scheduled weapon dismantlement quantities at Pantex (PX) by over 10%, a 20% increase over FY 2007, and
- Exceeded scheduled CSA dismantlement quantities at Y-12 by 41%.

Stockpile Services

- Met scheduled Surveillance requirements:
  - Completed 98% of surveillance plan (50 assembly/disassembly, 28 test-bed builds at Pantex);
  - Completed 100% (20) of scheduled flight tests;
  - Completed 97% of scheduled Test-bed Evaluations at Weapon Evaluation Testing Lab (SNL/PX);
  - Completed 100% of CSA destructive and non-destructive planned tests at Y-12;
  - Completed 103% of planned gas transfer system (GTS) evaluations at SRS, and
  - Completed 100% of planned DCA evaluations at Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL).
- Completed Product Realization Integrated Digital Enterprise key deliverables per the FY 2008 Program Plan:
  - Delivered an enterprise-wide production infrastructure, establishing a common Product Data Management System that enables sites to manage and share Computer Aided Design Definition and reduce design cycle times and product definition release rates;
  - Delivered Master Nuclear Schedule two-site (SNL & KCP) upgraded system development, leveraging integrated data exchange within the Weapon Information System and Program Control Document System, and
  - Completed migration of legacy weapons information/data to new database thus reducing data loss risk from antiquated equipment.
- Developed FY 2008 Joint Hydrodynamic Test Plan;
- Executed Y-12 Throughput Improvement Plan thereby increasing CSA deliverables;
- Launched Requirements Modernization Integration (RMI) Explorer Portal as the single site for accessing DSW business requirements and processes in August 2008;
- Released Integrated Phase Gate, Technology Readiness Level and Manufacturing Readiness Level assessment checklists on RMI Portal for B61 Phase 2A Study and Complex-wide stockpile support.
- Manufactured 6 pits and qualified 7 pits for acceptance;
- Completed the installation and initiated operation of an interim high energy radiography capability at LANL;
- Completed installation of 5 pieces of equipment for support of the sustainment of the plutonium technical base at LANL;
- Demonstrated new casting technology for better efficiency and reduced wastes, and
- Completed studies for a modern turning center that can perform multiple operations in support of several programs.

Major Outyear Considerations

The outyear projections for DSW total $6,092,948,000 for FY 2011 through FY 2014. During this period, DSW, in coordination with the DoD, will complete phase 6.2/6.2A Refurbishment study, and if authorized, initiate phase 6.3 engineering development activities for the new B61 refurbishment. DSW will continue to provide a safe, secure, and reliable stockpile by supporting major deliverables to include: continued support of the W76 LEP production; completion of the B61 spin rocket motor refurbishment program in FY 2012; and, stockpile assessment and sustainment activities. In addition,

DSW will continue to support the reduction of the nation's nuclear weapons stockpile through the dismantlement and disposition of retired weapons.

The budget request for Plutonium Sustainment reflects the costs to maintain the plutonium technical base; complete the W88 pit build requirements for surveillance support; upgrade the plutonium equipment infrastructure where the equipment and supporting elements (controllers and machine parts) are no longer supported; equipment development to reduce wastes, radiation exposure, and increase efficiency to operations. This request also funds a share of plutonium facilities costs that are above the base supported by RTBF. This funding is critical for supporting infrastructure investments that ensure both near term availability of facilities as well as ensure long term viability of the plutonium infrastructure as a national asset. Approximately 15 to 20 percent of the Plutonium Sustainment program funding currently supports this effort.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.26.00, Directed Stockpile Work											
Annual percentage of warheads in the Stockpile that are safe, secure, reliable, and available to the President for deployment (Annual Outcome)	R: 100% T: 100%	R: 100% T: 100%	R: 100% T: 100%	R : 100% T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	Annually, maintain 100% of the warheads in the stockpile as safe, secure, reliable, and available to the President for deployment.
Annual percentage of items supporting the Enduring Stockpile Maintenance completed (Annual percentage of prior-year non-completed items completed) (Annual Output)	R: 44% (85%) T: 95% (100%)	R: 84% (100%) T: 95% (100%)	R : 95% (100%) T: 95% (100%)	R : 95% (100%) T: 95% (100%)	T: 95% (100%)	T: 95% (100%)	T: 95% (100%)	T: 95% (100%)	T: 95% (100%)	T: 95% (100%)	Annually, complete at least 95% of all scheduled maintenance activity (100% of prior-year non-completed items).
Cumulative percentage of progress in completing Nuclear Weapons Council (NWC)-approved W76-1 Life Extension Program (LEP) activity (Long-term Output)	R: 29% T: 29%	R: 34% T: 34%	R:38% T: 39%	R : 44% T: 44%	T: 48%	T: 52%	T: 56%	T: 61%	T: 65%	T: 69%	By 2021, complete NWC-approved W-76-1 LEP.
Cumulative percentage of progress in completing NWC-approved B61-7/11 LEP activity (Long-term Output)	R: 27% T: 30%	R: 37% T: 40%	R: 70% T: 70%	R : 90% T: 90%	T: 100%	T: N/A	N/A	N/A	N/A	N/A	By 2009, complete NWC-approved B61-7/11 LEP.
Cumulative percent reduction in projected W76 warhead production costs per warhead from established validated baseline, as computed and reported annually by the W76 LEP Cost Control Board (Efficiency)	N/A	R: Baseline T: Baseline	R: 0.39% T: 0.50%	R: 0.78% T: 1.0%	T: 1.0%	T: 2.0%	T: 2.0%	T: 2.0%	T : 2.0%	T : 2.0%	By 2010, reduce the projected W76-1 LEP warhead production costs per warhead from established validated baseline by 2.0%.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Life Extension Program (LEP)	**246,835**	**205,043**	**209,196**

The NNSA developed the LEP to extend the expected stockpile lifetime of a warhead or warhead components at least 20 years with a goal of 30 years. The NNSA, in conjunction with DoD, executes a LEP following the procedural guidelines of the Phase 6.x process. The activities include the research, development, and production work required to ensure weapons will continue to meet national security requirements.

- **B61 Life Extension Program** **57,013** **2,123** **0**

  The B61 LEP was completed in FY 2009 with the refurbishment of the B61 Modifications 7 and 11 Canned Subassemblies (CSA). The refurbishment was designed as Alteration (ALT) 357 and also replaced associated seals, foam supports, cables and connectors, the group X kit (e.g., washers, o-rings, etc.), and limited life components. This budget element did not include any work associated with the non-nuclear refurbishment of the B61 or nuclear refurbishment of the B61 Modifications 3, 4, and 10, which is a follow-on program in Phase 6.2/6.2A Refurbishment Study funded under Stockpile Systems.

  In FY 2010, there are no programmatic activities associated with this LEP.

- **W76 Life Extension Program** **189,822** **202,920** **209,196**

  The W76 LEP will extend the life of the W76 for an additional 30 years with the first production unit (FPU) completed in FY 2008. The W76-1 is the warhead integrated into the Trident II D5 Strategic Weapon System. It is part of the Submarine Launched Ballistic Missile (SLBM) force. The W76-1/Mk4A is completed by NNSA as a reentry body assembly and delivered to the DoD.

  FY 2010 funding supports work associated with the improved manufacturability of the components including the nuclear explosive package; the Arming, Fuzing, and Firing system; gas transfer system; and associated cables, elastomers, valves, pads, cushions, foam supports, telemetries, and miscellaneous parts to support production. Activities are continuing, for production plants to provide materials for production and continue rebuild activities. The disassembly of W76-0 for the LEP will continue. DSW will continue to use cost control measures where practical. The LEP workload will include: providing laboratory and management support to the Project Officer's Group (POG) and DoD Safety Studies; supporting resolution of Significant Finding Investigations (SFIs); submission of data for surveillance cycle reports; SS-21 maintenance activities at Pantex, disassembling and inspecting the Retrofit Evaluation System Test (REST) and stockpile surveillance flight and laboratory samples; conducting component laboratory tests and flight tests for REST and stockpile evaluation supported by producing Joint Test Assemblies and test beds. Additionally, the National Laboratories will provide production liaison support at the plants including systems design support for production of piece parts and final assembly by the production plants, support of the disassembly of W76-0 for the LEP, initiate necessary production definition changes to improve manufacturability and reuse, and disposition instructions for production and disassembly issues.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Stockpile Systems	**327,089**	**328,521**	**390,300**

Each weapon type in the stockpile requires ongoing assessment and certification activities, routine maintenance, periodic repair, cyclical replacement of limited life components, surveillance, required alterations, modifications, and safety studies, resolution of SFIs; and other support activities. The sections below describe those specific activities by weapon-type.

- **B61 Stockpile Systems** **64,125** **78,021** **124,456**

  The B61 aircraft delivered gravity bombs are the oldest weapons in the enduring stockpile. The B61 family includes five modifications with two distinct categories. The strategic category includes the B61 Modifications 7 and 11, with the Modification 11 being the only active earth penetrating weapon. The non-strategic category includes the B61 Modifications 3, 4, and 10 supporting our extended nuclear commitment.

  The B61 Stockpile Systems activities have been separated into two subcategories: (1) System Sustainment and (2) Phase 6.2/6.2A Refurbishment Study. Detailed description of work activities included in each sub category and associated funding levels are provided below.

  - **B61 System Sustainment** **64,125** **78,021** **59,456**

    In FY 2010, activities will be prioritized as follows: (1) all necessary maintenance and limited life component exchanges to keep active stockpile bombs operationally deployed per NWSP requirements; (2) stockpile evaluation activities including disassembly and inspections, system level laboratory and joint flight testing, material and component evaluations, and significant finding investigations; funding levels will be managed by prioritizing component, material and evaluation testing; (3) laboratory assessment and certification activities including analysis and testing supporting annual Weapon Reliability and Annual Assessment Reports, laboratory and management support for POG and DoD safety studies, laboratory support for trainer refurbishments; support will be managed by prioritizing funding for new studies, analysis and hydrodynamic testing, and (4) on-going retrofits kits, container procurements for field component exchanges, KCRIMS requalification support and development activities to upgrade or replace aging surveillance capabilities.

  - **B61 Phase 6.2/6.2A Refurbishment Study** **0** **0** **65,000**

    In FY 2010, the B61 Phase 6.2/6.2A Refurbishment Study will focus on the feasibility and cost analysis associated the authorized Nuclear Weapons Council (NWC) refurbishment scope which includes options to replace end of life components, increase reliability, extend service life, implement enhanced surety and evaluate Modification consolidation to reduce NNSA and DoD life cycle costs. Depending on the refurbishment option selected in the future, a separate LEP funding profile may be added to the appropriate budget submittal.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
▪ **W62 Stockpile Systems**	**2,122**	**1,596**	**0**

The W62 is a warhead used in the Air Force's Mk-12 re-entry vehicle on the Minuteman III intercontinental ballistic missile (ICBM).

In FY 2010, a final annual assessment report and dismantlement activities will be accomplished under the Weapon Dismantlement and Disposition Program.

▪ **W76 Stockpile Systems** **65,212** **66,365** **65,497**

The W76-0 is the warhead integrated into the Trident II D5 Strategic Weapon System. It is part of the Submarine Launched Ballistic Missile (SLBM) force. The W76-0/Mk4 is completed by NNSA as a Reentry Body Assembly and delivered to the DoD.

In FY 2010, enduring stockpile workload efforts will include: supporting the annual assessment and certification process; providing laboratory and management support to the POG and DoD Safety Studies; limited life component exchange activities; supporting resolution of some SFIs; submission of data for surveillance cycle reports; SS-21 maintenance activities at Pantex, disassembling and inspecting the stockpile flight test and selected laboratory test samples; conducting component laboratory tests and stockpile flight tests for stockpile evaluation supported by producing Joint Test Assemblies and test beds, and continuing production of the 1X reservoir and MC4380A Neutron Generator (NG).

▪ **W78 Stockpile Systems** **36,880** **42,049** **50,741**

The W78 is a warhead used in the Air Force's Mk-12A re-entry vehicle on the Minuteman III ICBM.

In FY 2010, enduring stockpile workload efforts will include: production of the MC 4381 NG and the LF7A Gas Transfer System Reservoir and limited life component exchange activities. This will include programmatic activities for the stockpile laboratory test units, the stockpile flight test units (including an extended range flight test), and component laboratory tests necessary to meet the technical program requirements for surveillance. The weapon reliability and annual assessment are funded. Annual assessment and certification activities will be accomplished with additional program risk and uncertainty. The plan leading to closure of the SFI on LANL components will be adjusted as necessary.

▪ **W80 Stockpile Systems** **27,342** **31,073** **19,064**

The W80 is a warhead used in the Air Launched Cruise Missile deployed by the Air Force and the TLAM-N deployed by the Navy.

In FY 2010, this activity will include activities for W80 efforts that support safety studies and limited life component production. NNSA will accept risk to the W80 stockpile system by limiting funding only to safety studies and limited life component production. This will be managed by prioritization of yearly planned flight testing activities, and adjusting laboratory and component testing.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
▪ **B83 Stockpile Systems**	**23,959**	**24,986**	**35,682**

The B83 is an aircraft delivered, strategic gravity bomb deployed by the Air Force.

The FY 2010 funded activities include: (1) necessary maintenance and limited life component exchanges to keep active stockpile bombs operationally; (2) stockpile evaluation activities including disassembly and inspections, system level laboratory and joint flight testing, material and component evaluations, and significant finding investigations; required component testing will managed by prioritizing funding; (3) laboratory assessment and certification activities including analysis and testing supporting annual Weapon Reliability and Annual Assessment Reports, laboratory and management support for POG and DoD safety studies, laboratory support for DoD H1347 bomb hand carts and trainer refurbishments; adjusting support for new studies, analysis and hydrodynamic testing; (4) prioritizing initiation of development activities to replace the B83 gas transfer system (GTS) and neutron generator (NG) and funding for KCRIMS requalification activities.

▪ **W87 Stockpile Systems**	**53,199**	**36,073**	**51,817**

The W87 is a warhead used in the Air Force's Mk-21 re-entry vehicle on the Minuteman III ICBM.

In FY 2010, programmatic activities include: supporting the annual assessment process and certification activities; providing laboratory and management support to the POG and DoD Safety Studies; limited life component exchange activities; supporting resolution of SFIs; conducting material, component, and system level testing; evaluating performance and safety characteristics; production of Mechanical Safe and Arm Detonators (MSAD), environmental sensing devices, firing sets, and lightning arrestor connectors in support of surveillance rebuilds; design and testing in support of the Neutron Generator First Production Unit in 2012; conducting disassemblies and inspections of stockpile laboratory test units and stockpile flight test units; production of joint test assemblies and test beds; and providing range support and data collection of W87 stockpile flight tests. In addition, repairs on a number of weapons at the Pantex plant will be performed.

▪ **W88 Stockpile Systems**	**54,250**	**48,358**	**43,043**

The W88 is integrated into the Trident II D5 Strategic Weapon System. It is part of the Submarine Launched Ballistic Missile (SLBM) force. The W88-0/Mk5 is completed by NNSA as Reentry Body Assembly and delivered to the DoD.

In FY 2010, activities include: providing laboratory and management support to the POG and DoD Safety Studies; limited life component exchange activities; supporting resolution of SFIs; submitting data for surveillance cycle reports; conduct integrated experiments as stated in the approved baseline plan; supporting the annual assessment and certification process; conducting disassembly and inspection of stockpile laboratory tests and stockpile flight test samples; conducting component laboratory tests and stockpile flight tests for stockpile evaluation supported by producing Joint Test Assemblies and test beds; maintenance activities at Pantex; continuing production of 4T reservoir and forging procurements; and, rebuild of W88/Mk5 warheads.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Reliable Replacement Warhead	**1,527**	**0**	**0**

No funding is requested for the RRW program.

Weapons Dismantlement and Disposition	**138,832**	**190,205**	**84,100**
▪ **Weapons Dismantlement and Disposition**	**55,408**	**57,238**	**84,100**

Weapons Dismantlement and Disposition (WDD) is a critical element of NNSA's integrated effort to transform the complex and the stockpile. The WDD includes activities that support or perform tasks to reduce the quantity of retired weapons or retired weapon components, including interim storage, surveillance, and complete disposition of retired weapons and weapon components. Specific activities include weapon dismantlement, characterization of components, disposition of retired warhead system components, and surveillance of selected components from retired warheads. Other supporting activities specific to retired warheads include: conducting hazard assessments; issuing safety analysis reports; conducting laboratory and production plant safety studies; procuring shipping and storage equipment; providing oversight of testers; and supporting the Tri-laboratory office efforts on dismantlement activities. In addition, for WDD to be successful, supporting programs must receive balanced funding: including Production Support for shipping, receiving, and equipment maintenance; RTBF for infrastructure sustainment and containers; and Secure Transportation Asset for movement of weapons and components.

In FY 2010, dismantlement activities include maintaining the throughput of weapon dismantlements at Pantex and CSA disassembly at Y-12. At Pantex, the WDD program plans include activity for portions of the W62, B61, B83, and B53 in addition to SS-21 activities for the W84. Other activities include continued use of multi-shift operations to ensure maximum throughput and utilization of resources. Activities at Y-12 include continued increases in Component/Canned Subassembly (CSA) disassembly and disposition to reduce the footprint for Enriched Uranium storage and processing. An additional activity to be accomplished in FY 2010, on the W62 is a final assessment by the laboratories culminating in an annual assessment report. The WDD will in particular maintain associated component disposition and when the scope exceeds the base capability provided by RTBF, support the recycling, recovery and storage of nuclear material. The funding requested reflects resources required to complete the dismantlement workload consistent with the accelerated dismantlement schedule submitted to Congress. Weapons Dismantlement and Disposition Program will maintain current rates at Pantex and Y-12 for dismantlement and CSA disposition. Component Characterization and Disposition activities will operate at adjusted rates necessary to prevent storage problems across the Enterprise in 2015 and beyond. Ultimate disposition of pits and resultant plutonium material relies upon a sustained plutonium infrastructure and the technical capabilities being retained under the Plutonium Sustainment program.

▪ **Device Assembly Facility**	**14,713**	**0**	**0**

In the FY 2008 Omnibus Appropriations Bill, Congress placed funding in WDD for upgrading the Device Assembly Facility (DAF) at the Nevada Test Site (NTS) for additional activities. No additional funding was requested or provided by Congress in FY 2009 and no funding is requested in FY 2010.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
▪ **Pit Disassembly and Conversion Facility – O&M**	**12,664**	**68,084**	**0**
• **Pit Disassembly and Conversion Facility (PDCF) (OPC)**	**7,664**	**43,089**	**0**
In FY 2010, PDCF has been moved to RTBF.			
• **Waste Solidification Building (WSB) (OPC)**	**5,000**	**0**	**0**
In FY 2010, WSB has been moved to Defense Nuclear Nonproliferation's (DNN) Fissile Materials Disposition (FMD) Program			
• **Supporting Activities**	**0**	**24,995**	**0**
▪ **Surplus Plutonium Storage and Transportation**	**0**	**22,000**	**0**
In FY 2009, NNSA continued to operate the Advanced Recovery and Integrated Extraction System (ARIES) at LANL to demonstrate pit disassembly and plutonium conversion technology while at the same time produce plutonium oxide feedstock for the MOX Facility before PDCF comes on line. In FY 2010, this activity has been moved to RTBF.			
▪ **National Environmental Policy Act (NEPA)**	**0**	**500**	**0**
In FY 2010, this activity has been moved to RTBF			
▪ **Common Technologies and Integration**	**0**	**2,495**	**0**
In FY 2010, this activity has been moved to RTBF.			
▪ **Construction**	**56,047**	**64,883**	**0**
• **99-D-141-01, Pit Disassembly and Conversion Facility (PDCF)**	**22,447**	**24,883**	**0**
In FY 2010, PDCF has been moved to RTBF			
• **99-D-141-02 Waste Solidification Building (WSB)**	**33,600**	**40,000**	**0**
In FY 2010, WSB has been moved to DNN/FMD			
Stockpile Services	**691,319**	**866,383**	**831,055**

Stockpile Services provides the foundation for the production capability and capacity within the Nuclear Security Enterprise. All enduring systems, LEPs, and dismantlements rely on Stockpile Services to provide the base production and logistics capability needed to meet program requirements. In addition, Stockpile Services funds research, development and production activities that support two or more weapon-types, work that is not identified or allocated to a specific weapon-type, and those activities where the association of the cost to a specific weapons system is classified.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
▪ **Production Support**	**283,529**	**293,062**	**301,484**

Production Support includes those activities that directly support each internal site-specific production activity including, site-specific personnel and routine functional activities associated with maintaining the basic site capability and work capacity to meet current production requirements, while modernizing the production capabilities to meet established future requirements. Production activities include weapon assembly, disassembly, component production, and safety and reliability testing.

In FY 2010, work scope includes support of the Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS), an initiative to move the Kansas City Plant to a smaller, more efficient production facility. Other areas of work include the modernization of production plant capabilities to achieve more agile manufacturing. Ongoing activities focus on: sustaining and modernizing engineering and manufacturing operations; quality supervision and control; tool, gauge, and test equipment procurement, maintenance, and inspection; purchasing, shipping, and material support; increasing production efficiency; and developing and maintaining electronic product-flow information systems. Collectively, these activities directly support implementation of systems engineering concepts, production integration, cost-effective plant manufacturing operational improvements, and improved activity-based costing.

▪ **Research & Development (R&D) Support**	**31,386**	**35,144**	**37,071**

R&D Support includes ongoing activities that directly support the internal design laboratory site-specific R&D activities, including stockpile studies and programmatic work that provide the necessary administrative or organizational infrastructure. In FY 2010, activities include: R&D infrastructure support, providing the understanding and integration of DSW, Campaigns, and RTBF requirements, and support of quality assurance programs for multiple systems.

▪ **R&D Certification and Safety**	**173,609**	**187,574**	**143,076**

R&D Certification and Safety provides the core competencies and capabilities for R&D efforts not directly attributable to a single specific warhead system, and take place at design laboratories and NTS. These activities include the basic research required for developing neutron generators and gas transfer systems, surveillance activities, and the base capability for conducting hydrodynamic experiments. Also included is an experimental program for plutonium and sub-critical experiments.

In FY 2010, activities include: performing nuclear safety R&D studies and weapons effects studies; preparing and providing the infrastructure for conducting hydrodynamic tests in support of enduring stockpile systems and the W76 LEP; continuing to support neutron generator development (electronic and small generator types); designing gas transfer systems; continuing to develop digital and analog arming and firing subsystems; conducting qualification/certification and computer modeling and simulation activities that are required; continuing primary, secondary, chemistry, materials, systems analysis in support of the stockpile, Annual Assessments, and support of the Dynamic Plutonium Experiment program.

▪ **Management, Technology, and Production**	**202,795**	**195,334**	**200,223**

Management, Technology, and Production (MTP) activities are those activities that sustain and improve stockpile management, develop and deliver weapon use control technologies, and production of weapon components for use in multiple weapons systems. Additionally, MTP includes those

activities that benefit the security enterprise as a whole, as opposed to Production Support activities which only support internal site-specific production only.

In FY 2010, MTP will: improve safety and use control technologies; conduct use control and independent assessments; and procure and deliver multi-use weapon components, material, and support equipment. Moreover, MTP will: continue to implement the stockpile Surveillance Transformation Project of the adjusted surveillance testing and advanced diagnostics deployment and gravity weapon flight testing to continue the evaluation of aging weapons to discover problems earlier; implement and maintain Enterprise-wide integrated product-realization digital information systems for DSW for design, engineering, manufacturing and quality control releases; deploy new diagnostics delivered by the Enhanced Surveillance Campaign; maintain access to and archive technical knowledge, engineering practices, weapon design, safety, and operating procedure information; and support and conduct activities that deploy, maintain, and evaluate stockpile multi-use components, instrumentation, and ancillary equipment.

- **Plutonium Capability** **0** **155,269** **0**

The Plutonium Capability for FY 2009 (renamed as Plutonium Sustainment in FY 2010) provides the essential capabilities to manufacture pits and to support other programmatic requirements for producing plutonium materials and shapes in limited quantities; to maintain plutonium technical base; and to improve equipment and processes involved in the use and handling of plutonium.

- **Plutonium Sustainment** **0** **0** **149,201**

In FY 2010, activities will be focused on sustaining the pit manufacturing infrastructure and manufacturing W88 pits to meet stockpile surveillance requirements. Upgrades of equipment necessary to not only support pit manufacturing, but other programs involving the use and handling of plutonium will continue. Technology development will be focused on equipment that involves operational efficiencies and cost reductions in support of several plutonium programs. Some funding will be used to support disassembly and removal of outdated equipment and glove-boxes to free-up limited space within the plutonium facility to provide greater flexibility in supporting a variety of plutonium programs and responsiveness to any future emerging requirements involving the use and handling of plutonium. A portion of Plutonium Sustainment (~$24 million) will provide additional facility infrastructure support required beyond RTBF base funding. Many programs, beyond Defense Programs, leverage the technical capabilities retained under the Plutonium Sustainment program including Non-proliferation, Nuclear Energy, Environmental Management, standards community, and Homeland Security.

Total, Directed Stockpile Work	**1,405,602**	**1,590,152**	**1,514,651**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Life Extension Programs (LEP)	
▪ **B61 Life Extension Program**	
The decrease is due to completion of LEP activities in December of 2008 and the closeout of the program at all sites.	-2,123
▪ **W76 Life Extension Program**	
The increase represents funding for production in FY 2010. Also includes engineering support from the National Laboratories to support manufacturing and productivity improvements. In addition, this funding increase includes resources required to support the requalification and pre-build at the KCP in support of Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS).	+6,276
Total, Life Extension Programs	**+4,153**
Stockpile Systems	
▪ **B61 Stockpile Systems**	
The increase reflects the funds being allocated to complete the Phase 6.2/6.2A Refurbishment study addressing end of life components, aging and reliability.	+46,435
▪ **W62 Stockpile Systems**	
The decrease reflects reduced W62s operations. In FY 2010, a final annual assessment report and dismantlement activities will be accomplished under the Weapon Dismantlement and Disposition Program.	-1,596
▪ **W76 Stockpile Systems**	
The FY 2010 request is essentially level with FY 2009.	-868
▪ **W78 Stockpile Systems**	
The increase reflects funding required for peak production of two Limited Life Components: the MC 4381 Neutron Generator (NG) and the LF7A Reservoir planned for FY 2010; and a higher level of annual surveillance including an increase in Stockpile Lab Tests.	+8,692
▪ **W80 Stockpile Systems**	
The decrease results from the decision to cease all but limited life component support to active weapons and conduct the minimal assessment and certification necessary to ensure the safety of the W80 weapon. To the extent possible, impacted engineering and production personnel will be reassigned.	-12,009

	FY 2010 vs. FY 2009 ($000)
▪ **B83 Stockpile Systems** The increase reflects the funds to support additional limited life component activities, stockpile surveillance requirements including life of program buys for the stockpile flight test program, and funding for the development of gas transfer and NG replacements.	+10,696
▪ **W87 Stockpile Systems** The increase represents the funding required to support the full stockpile surveillance of the W87 in 2010. The increase also supports design and pre-production efforts for the new NG first production unit scheduled for 2012. In addition, the increase will be used to pursue SFIs, develop and improve models used for annual assessment, and improvements in W87 specific application of Qualifications of Margins and Uncertainties (QMU).	+15,744
▪ **W88 Stockpile Systems** The decrease reflects the completion of the SS-21 activities in FY 2009.	-5,315
Total, Stockpile Systems	**+61,779**
Total , Reliable Replacement Warhead	**0**
Weapons Dismantlement and Disposition	
▪ **Weapons Dismantlement and Disposition (WDD)** The increase supports efforts to increase weapon and Component/Canned Subassembly (CSA) dismantlements. Additionally, the increase will maintain associated component disposition and some weapon specific support for the recycling, recovery and storage of nuclear material that is a by product of increases in weapon dismantlements. Funding supports ongoing weapon and CSA dismantlement component disposition at Pantex and Y-12 essential for continued dismantlement throughput. At Pantex, funding also supports SS-21 for the W84.	+26,862
▪ **Pit Disassembly and Conversion Facility (PDCF) – O&M** The decrease reflects the transfer of PDCF O&M to RTBF Operations of Facilities and WSB to DNN/FMD.	-68,084
▪ **Pit Disassembly and Conversion Facility – Construction** The decrease reflects the transfer of PDCF Construction to RTBF Construction and WSB to DNN/FMD.	-64,883
Total, Weapons Dismantlement and Disposition	**-106,105**

	FY 2010 vs. FY 2009 ($000)
Stockpile Services	
▪ **Production Support**	
The increase also supports improvements to plant operations and agile manufacturing capabilities, surveillance operations, plant manufacturing information systems, and activities aligned with initiatives that consolidate plant operations to smaller, more cost-effective facilities.	+8,422
▪ **Research & Development Support**	
Increased funding supports efforts to prepare DSW for the Kansas City Plant's transition to a new facility as described in the KCRIMS transformation plan and laboratory support to the production agencies.	+1,927
▪ **Research & Development Certification and Safety**	
The decrease results from the decision to cease all but limited life component support on the W80 and conduct minimal certification and safety assessments. Also reflects reduced component development and general research and development support. In addition, the decrease reduces vulnerability studies for primary and secondary assessments.	-44,498
▪ **Management, Technology, and Production**	
Increased funding supports the maintenance of equipment and facilities to support non-specific Flight Testing including; Flight Test equipment engineering support necessary for qualification of multi-system test equipment, testing support, and engineering support for Flight Test equipment maintenance and readiness. Increased funding also supports further development and implementation of integrated Enterprise-wide digital information systems and additional component and material testing.	+4,889
▪ **Plutonium Capability**	
Plutonium Capability has been renamed Plutonium Sustainment.	-155,269
▪ **Plutonium Sustainment**	
Plutonium Sustainment, renamed from Plutonium Capability in the FY 2009 Omnibus Appropriation Bill. The funding continues to focus on completing the manufacture of W88 pits, initiates upgrades in equipment, decommissions old equipment and glove boxes to better support the plutonium program in its entirety and provide better program flexibility in use of space within the plutonium facility at Los Alamos for both weapon and non-weapon programs. A portion of the funding (~$24 million) will provide additional infrastructure support necessary for program activities and infrastructure investments beyond RTBF base funding.	+149,201
Total, Stockpile Services	**-35,328**
Total Funding Change, Directed Stockpile Work	**-75,501**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	247	252	258
Capital Equipment	18,384	18,788	19,201
Total, Capital Equipment	**18,631**	**19,040**	**19,459**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	264	270	276	282
Capital Equipment	19,623	20,055	20,496	20,947
Total, Capital Equipment	**19,887**	**20,325**	**20,772**	**21,229**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2008	FY 2009	FY 2010	Unappro-priated Balance
99-D-141-01, Pit Disassembly Conversion Facility	TBD	192,039	22,447	24,883	0	TBD
99-D-141-02, Waste Solidification Building	200,469	10,649	33,600	40,000	0	95,720
Total, Construction		**202,688**	**56,047**	**64,883**	**0**	

[a] Funds are appropriated for Operations and Maintenance, including operating expenses, capital equipment and general plant projects. The program no longer budgets separately for capital equipment and general plant projects, therefore FY 2009 and FY 2010 funding reflects estimates based on FY 2008 obligations.

Major Items of Equipment *(TEC $2 million or greater)*
(dollars in thousands)

Major Item of Equipment	Total Project Cost (TPC)	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2008	FY 2009	FY 2010	Completion Date
New Vehicle, Y-12 National Security Complex	6,419	5,419	0		1,048	3,000	2012
6 New Ovens #1, Y-12 National Security Complex	7,030	6,378	0	1,050	3,539	1,465	2011
6 New Ovens #2, Y-12 National Security Complex	6,972	6,320	0	1,030	3,489	1,477	2011
QE Environmental Chamber, Y-12 National Security Complex	3,234	2,722	0	876	1,008	628	2011
Gas Mass Spectrometer, Y-12 National Security Complex	2,613	2,513	0	2,100	413	0	2010
LTTD Oven, Y-12 National Security Complex	3,511	3,011	0			1,670	2012
Total Major Items of Equipment	**29,779**	**26,363**	**0**	**5,056**	**9,497**	**8,240**	

Science Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Science Campaign			
Advanced Certification	14,866	19,400	19,400
Primary Assessment Technologies	61,844	80,181	80,181
Dynamic Plutonium Experiments	0	23,022	0
Dynamic Materials Properties	95,978	83,231	86,617
Academic Alliances	0	0	30,251
Advanced Radiography	30,282	28,535	22,328
Secondary Assessment Technologies	78,399	76,913	77,913
Test Readiness	4,905	5,408	0
Total, Science Campaign	**286,274**	**316,690**	**316,690**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Science Campaign				
Advanced Certification	19,316	19,104	18,881	18,678
Primary Assessment Technologies	79,835	78,958	78,038	77,195
Dynamic Plutonium Experiments	0	0	0	0
Dynamic Materials Properties	86,243	85,296	84,301	83,392
Academic Alliances	30,120	29,790	29,442	29,125
Advanced Radiography	19,984	21,987	21,731	21,497
Secondary Assessment Technologies	77,577	76,725	75,830	75,012
Test Readiness	0	0	0	0
Total, Science Campaign	**313,075**	**311,860**	**308,223**	**304,899**

Description

The Science Campaign develops improved scientific capabilities and experimental infrastructure to assess the safety, security, reliability, and performance of the nuclear explosives package (NEP) portion of weapons without reliance on further underground testing. It focuses efforts around the development of fundamental knowledge gained through improved experimental capabilities needed to assess the age-aware behavior of the primary and secondary components of the NEP. The development of this capability is needed to predict performance of the NEP under natural aging or life extension changes. The capability is driven by improvements in our science and technology base to continually address and reduce uncertainties, and to provide an objective quantitative measure of confidence in weapons performance. Beginning in FY 2010, the responsibility for the maintenance of infrastructure and physical assets of Test Readiness at the Nevada Test Site (NTS), transfers to the Readiness in Technical Base and Facilities (RTBF) program. However, the Science Campaign will provide RTBF with the technical readiness data associated with the capabilities exercised through the Science Campaign experiments and assessments.

Within Weapons Activities, the Science Campaign focuses scientific and technical efforts to develop and maintain critical capabilities that will sustain the stockpile for the long term. The Science Campaign deliverables support: (1) annual legacy stockpile assessments, (2) certification statements for Life

Extension Programs and potential future weapon modifications, (3) reduced response times for resolving stockpile issues (e.g. Significant Findings Investigations), (4) certified warhead replacement components that meet the goals of responsive infrastructure, and (5) along with Advanced Simulation and Computing (ASC) Campaign, supports the development of improved predictive capability that is important to the Quantification of Margins and Uncertainties (QMU).

The Science Campaign improves the understanding of important phenomena, provides confidence that failure modes and margins are properly identified, and reduces uncertainties in predictive capabilities. Another important aspect of the Science Campaign is to ensure that peer-reviewed academic research is supported in disciplines that are of unique interest to the stockpile stewardship program. Topical areas include materials under dynamic conditions, low-energy nuclear science, and high-energy-density science. These disciplines form the core disciplines needed by the future stewards of our nuclear stockpile.

The Science Campaign integrates budget and performance by setting Campaign performance targets and national level milestones for primary and secondary predictive capability underpinning stockpile assessments and certifications that reflect national program priorities. The QMU is a developing methodology that is applied to stockpile assessment issues, and communicates assessments within a common framework. Margins and uncertainties can be used to define the goals and success criteria of the science efforts. As experience is gained in the development and application of QMU, the results are increasingly being used to identify technical areas requiring improvement and to prioritize resources. The Science Campaign and ASC have principal responsibility for the continued development of the QMU methodology and improved predictive capability, while Directed Stockpile Work (DSW) applies these tools to stockpile assessments.

Within the Science Campaign, the Primary Assessment Technologies, Dynamic Plutonium Experiments, Academic Alliances, Dynamic Material Properties, Advanced Radiography, Secondary Assessment Technologies, and Advanced Certification subprograms each make unique contributions to the Government Performance Report Act (GPRA) Unit Program Goal 2.1.27.00.

The *Primary Assessment Technologies* subprogram, in conjunction with the ASC Campaign, develops the tools, methods, and knowledge required to certify the nuclear safety and nuclear performance of any aged or rebuilt primary to required levels of accuracy without nuclear testing.

The *Dynamic Material Properties* subprogram focuses on utilizing experiments to foster the development of detailed understanding and accurate modeling of the properties and behavior of materials used within the nuclear explosives package.

Academic Alliances supports graduate student fellowships and university research programs around the country. These programs provide stockpile stewardship relevant science and training opportunities for future stewards of the stockpile.

The *Advanced Radiography* subprogram develops technologies for three-dimensional imagery of imploding mock primaries and simplified experimental geometries with sufficient spatial and temporal resolution to experimentally validate computer simulations of the implosion process and associated physics phenomena so as to tie these results to prior data obtained from full-scale underground nuclear tests.

The *Secondary Assessment Technologies* subprogram develops the tools, methods, and knowledge required to certify the nuclear performance of secondaries without nuclear testing.

The *Advanced Certification* subprogram integrates certain scientific and technological advances from the stockpile stewardship programs along with input from continuing studies and workshops, to improve the weapons certification process, refine computational tools and methods, promote the advancement of the physical understanding of surety mechanisms, ensure further exploration of failure modes, conduct manufacturing process assessments, and provide for study of strategic system-level requirements.

The Science Campaign provides experimental data to validate the models in the ASC simulation codes, as well as numerical methodologies to use in the codes. These physical data and methodologies lend confidence to calculations performed to meet DSW commitments to understand the impact of aging on weapon systems, close Significant Finding Investigations (SFIs), and to perform annual assessments and certifications, as required. The pace of work under the Science Campaign is timed to support an ASC Campaign milestone to release substantially improved simulation codes for primaries and secondaries. This shared code-release milestone will require the incorporation of improved physics models, which require the experimental validation provided by the Science Campaign. These improved physics models include validated models for plutonium equation-of-state (EOS) and constitutive properties, use of the Dual Axis Radiographic Hydrodynamic Test (DARHT) Facility 2nd axis as a validation tool for mock primaries, and the use of the High Energy Density Physics (HEDP) facilities.

The Science Campaign supports scientific research activities in partnership with other national and international sponsors. During FY 2009, the Science Campaign pursued various collaborations, such as with the Office of Science Basic Energy Sciences for the, application of the Advanced Photon Source (APS) and the Linac Coherent Light Source (LCLS) for stockpile relevant science. This approach has and will continue to extend our responsive science capability without requiring major investments in new facilities.

Major FY 2008 Achievements

Primary Assessment Technology

- Implemented the Boost Initiative;
- National Hydrotest Plan updated to include the DARHT second axis, and
- First SSP experiment on the refurbished Z facility.

Dynamic Materials Properties

- Re-instated isentropic compression Capability for ZR, and
- Completed planned experiments at the Big Explosive Experiment Facility (BEEF).

Advanced Radiography

- DARHT 2nd Axis Project completed with all requirements met or exceeded.

Secondary Assessment Technologies

- Completed the FY 2008 "Getting the Job Done" milestone by including physics-based energy balance in two assessment models, and
- Established accuracy and reproducibility criteria for initial and high precision Secondary Assessment Technologies experiments on Z Refurbishment.

Test Readiness

- Finalized the strategy to move legacy uranium-233 material to a safe secure storage location;
- Down selected to a single legacy emplacement vehicle for testing, and
- Finished the design and development of an advanced rack design to hold both the device to be tested and the diagnostic suite towards the bottom of the vertical test hole.

Dynamic Plutonium Experiments (DPE)

- Completed development of the test bed for the Large Bore Powder Gun (LBPG) site at the U1a facility;
- Instituted the redesign of the LBPG explosively driven valve and containment system following failures during the integrated testing program, and
- Developed a systematic prioritization of plutonium data requirements for the initial conditions for boost and started development of a resource loaded DPE plan based on the changes required by the delay in availability of the LBPG.

Advanced Certification

- Developed an Advanced Certification implementation plan;
- Developed an evaluation of QMU addressing the question of how much margin is "enough", and
- Identified future certification activities related to historic and existing stockpile systems which are opportunities to deploy advanced certification techniques.

Major Outyear Priorities and Assumptions

The outyear projections for the Science Campaign total $1,238,057,000 for FY 2011 through FY 2014. The Campaign's goal is to have an improved predictive capability sufficient for NEPs in the current stockpile by FY 2020. The major steps on this path include: fundamental multi-phase Pu EOS and constitutive properties models for primary implosions by FY 2012; models for full primary operation by FY 2015; and models of full secondary performance in FY 2018.

The Science Campaign is planning future integrated activities to answer key questions on time scales consistent with Complex Transformation. NNSA will likely have to address the following high-level issues, such as: LANSCE refurbishment; the challenging program related to initial conditions for boost (2015); a critical decision point for whether to execute DynEx (scheduled for 2015); continuation of JASPER and other operations at NTS; the requirement to maintain test readiness capabilities as directed by Congress and activities subject to the Complex Transformation (high explosives research across the complex, plutonium R&D activities in Superblock at Lawrence Livermore National Laboratory, and the balance between research and manufacturing activities at TA-55.)

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.27.00, Science Campaign											
Cumulative percentage of progress in development of the Quantification of Margins and Uncertainties (QMU) methodology to provide quantitative measures of confidence in the performance, safety, and reliability of the U.S. nuclear weapons stockpile (Long-term Outcome)	R: 25% T: 25%	R: 40% T: 40%	R: 55% T: 55%	R : 70% T: 70%	N/A	N/A	N/A	N/A	N/A	N/A	By 2008, complete development of 70% QMU methodology to apply quantitative measures of confidence in the performance, safety, and reliability of the nuclear weapons stockpile.
Cumulative percentage of progress in replacing key empirical parameters in the nuclear explosive package assessment with first principles physics models assessed by validation with experiment (Long-term Outcome)	N/A	N/A	T: 36% R: 36%	T: 42% R: 42%	T: 50%	T: 60%[a]	T: 63%	T: 66%	T: 69%	T: 69%	By 2020, use modern physics models in assessment calculations to replace the major empirical parameters affecting weapon performance.
Cumulative percentage of progress towards completing the Dual-Axis Radiographic Hydrotest Facility (DARHT) to provide data required to certify the safety and reliability of the U.S. nuclear weapons stockpile (Long-term Outcome)	R: 25% T: 25%	R: 70% T: 60%	R: 95% T: 80%	R: 100% T: 100%	N/A	N/A	N/A	N/A	N/A	N/A	By 2008, complete the DARHT facility to provide data required to certify the safety and reliability of the U.S. nuclear weapons stockpile.
Readiness, measured in months, to conduct an underground nuclear test as established by current NNSA policy (Long-term Outcome)	R:24 T:24	R:24 T:24	R:24-36 T:24-36	R: 24-36[b] T:24-36	N/A	N/A	N/A	N/A	N/A	N/A	Sustain a 24- to 36-month underground nuclear test readiness through 2009.
Annual percentage of hydrodynamic tests completed in accordance with the National Hydrodynamics Plan, to support the assessment of nuclear performance (Annual Output)	R: 75% T: 75%	R: 75% T: 75%	R: 75% T: 75%	R : 75% T: 75%	N/A	N/A	N/A	N/A	N/A	N/A	Annually, complete at least 75% of all scheduled hydrodynamic tests in accordance with the National Hydrodynamics Plan.

[a] Joint Performance Indicator with the Inertial Confinement Fusion Ignition and High Yield Campaign beginning in FY 2010.

[b] Beginning in FY 2010, the Test Readiness-related performance indicator will also be moved from the Science Campaign to RTBF.

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Annual average cost per test, expressed in terms of thousands of dollars, of obtaining plutonium experimental data on the Joint Actinide Shock Physics Experimental Research (JASPER) facility to support primary certification models (Efficiency Measure)	T: $405K R: $405K	T : $380K R : $308K	T: $360K R: $360K	T: $340K R: $340K	T: $340K	N/A	N/A	N/A	N/A	N/A	By 2009 reduce the annual average cost of obtaining plutonium experimental data on JASPER to $340K (80% of the 2004 baseline cost of $425K).
Cumulative percentage of progress towards creating and measuring extreme temperature and pressure conditions for the FY 2013 stockpile stewardship requirement. (Long-term Outcome)	T: 68% R: 68%	T: 70% R: 70%	T: 70% R: 70%	T: 75% R: 75%	N/A	N/A	N/A	N/A	N/A	N/A	By 2008, create and measure 75% of the extreme conditions so High Energy Density Physics facilities can be used to provide stockpile stewardship data.
Cumulative percentage of progress towards achievement of key extreme experimental conditions of matter needed for predictive capability for nuclear weapons performance. (Long-term Outcome)	N/A	N/A	T:13% R:13%	T: 18% R:18%	T:25%	T: 35%	T: 55%	T: 75%	T: 85%	T: 90%	By 2015, achieve a greater than unity value of the average of the ratio of achieved conditions to needed conditions.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Advanced Certification	**14,866**	**19,400**	**19,400**

The Advanced Certification Campaign will eliminate systemic gaps in the NNSA certification process through the application of stockpile stewardship campaign work products. It will integrate the scientific and technological advances from stockpile stewardship with input from continuing studies, to improve the weapons certification process, refine computational tools and methods, advance the physical understanding of surety mechanisms, understand failure modes, assess new manufacturing processes, and study system requirements. The focus is on large changes, or aggregations of smaller changes in the future stockpile, as opposed to the individual small changes already assessed by the current programs. Advanced Certification will fill the gaps not presently covered under the existing stockpile program. Advanced Certification will develop a rigorous connection between performance effects resulting from changes in such areas as pit modification (including pit re-use), component or manufacturing changes. Specific activities will include modeling and experiments that address failure modes, as well as the development of a rigorous, peer-reviewed linkage of system level requirements to the associated certification needs for the weapons lifecycle under all relevant conditions.

Primary Assessment Technologies	**61,844**	**80,181**	**80,181**

Primary Assessment Technologies (PAT) will commence the performance of experiments on the DARHT 2nd Axis that will acquire multiple images of an imploding system. This data complements data obtained through experiments to be performed at LLNL's Site 300, proton radiography experiments at LANSCE. These experiments will be used along with data collected from past underground tests to understand and reduce the uncertainties on the empirically defined parameters that are typically used in legacy weapon performance models. The NNSA has a goal to eliminate one such parameter and to replace it with more physics-based models by 2015. The resulting improvements to our models will be used to improve the scientific basis for NNSA annual assessments and address stockpile issues. NNSA will also continue with planned experiments on the PHOENIX. The evaluation of aging effects on the predicted certifiable service lifetime of pits will continue with contributions from Primary Assessment Technologies and DSW. Our current state of understanding of the boost process will be documented by both LLNL and LANL in a set of classified, peer-reviewed reports which will subsequently be published in the archival classified weapons physics journal Defense Research Review (DRR). Finally, the primary assessment plan will be updated to reflect the significant progress of the past two years achieved by the Campaign.

Dynamic Plutonium Experiments (DPE)	**0**	**23,022**	**0**

In FY 2010, all activities will be consolidated under Dynamic Material Properties.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Dynamic Materials Properties	**95,978**	**83,231**	**86,617**

Dynamic Materials Properties develops the fundamental knowledge and physics-based models that describe and predict the behaviors of weapon materials in environments of extreme conditions of temperature, stress, strain, and strain rates. Dynamic Materials Properties will have the responsibility for developing the aging and process-aware fundamental plutonium multi-phase EOS and, along with the DPE sub-effort, its constitutive properties. These experiments will be conducted at ICF facilities, as well as at DOE/Science synchrotron radiation national user facilities. It may also include the establishment of a dedicated beamline to perform dynamic compression experiments on a sector of the APS at the Argonne National Laboratory. In FY 2010, the former DPE program will focus on obtaining the plutonium EOS data on the LBPG. A series of tests will be executed on various LBPG samples in different pressure regimes and with different loading characteristics to provide information important to the improvement of EOS models. FY 2010 efforts will also include proton radiography experiments at LANSCE and collaborative experiments with the UK. An experiment is also being planned using the Cygnus radiograph capability at the U1a facility at the NTS, which will further examine fundamental behavior properties of plutonium.

Other major milestones will include conducting the first isentropic compression experiments to 5 Mbar on Z, completing nuclear cross section measurements on plutonium-239 at LANSCE, and completing high fidelity simulations of shock initiation of high explosives at the grain scale by LLNL.

Academic Alliances	**0**	**0**	**30,251**

The graduate fellowship program, the Stewardship Science Academic Alliances (SSAA) Program and the High Energy Density Plasmas (HEDP) Joint Program will be funded through this new subprogram. University programs were previously funded under the Primary Assessment Technologies, Dynamic Materials Properties and Secondary Assessment Technologies subprograms.

SSAA provides financial assistance to academic institutions in two areas of relevance to weapons science: low-energy nuclear science and materials under extreme conditions The HEDLP Joint Program supports high-energy density laboratory plasma science.

Advanced Radiography	**30,282**	**28,535**	**22,328**

Advanced Radiography will be transforming the methods used by the complex to perform radiographic and dynamic materials experiments. The majority of the work will be accomplished at DARHT, Site 300, Sandia Area 4, and Proton Radiography (pRad) at LANSCE. Containment of explosively-driven experiments will be a continuing focus and will enable these experiments to have a minimal impact on the environment. The development of radiographic requirements and advances in the analysis and use of radiographic information will be pursued. In FY 2010, this subprogram will continue to support the early stages of development of pulsed-power technologies, advanced compact radiography capabilities and the continued refinement and utilization of the pRad facility at LANSCE.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Secondary Assessment Technologies	**78,399**	**76,913**	**77,913**

The highest priority for Secondary Assessment Technologies is the implementation of a new physics-based energy balance model. The work will be further refined by performing experiments thru FY 2012 and is expected to lead to a revision of the model by FY 2015. Ongoing experiments will focus on additional secondary performance issues with an improved physics model for these additional issues implemented by 2020. Many experiments that support model development rely on availability of the ICF facilities, NIF, Z, and Omega, facilities and a significant effort goes toward target fabrication. Secondary assessment also supports improved tools for modeling of weapon outputs.

Test Readiness	**4,905**	**5,408**	**0**

Beginning in FY 2010, the responsibility for the maintenance of infrastructure and physical assets at the Nevada Test Site transfers to the Readiness in Technical Base and Facilities (RTBF) program.

Total, Science Campaign	**286,274**	**316,690**	**316,690**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Advanced Certification	
No change.	0
Primary Assessment Technologies	
No change from FY 2009. FY 2009 increase is maintained.	0
Dynamic Plutonium Experiments (DPE)	
The funding and scope transferred into the Dynamic Material Properties.	-23,022
Academic Alliances	
This new subprogram consolidates the funding sources for university grants, including graduate fellowships, the Stewardship Science Academic Alliances (SSAA) and the High Energy Density Laboratory Plasmas (HEDLP) Joint Program. Part of the funding to support this subprogram was transferred from the Dynamic Materials Properties.	+30,251
Dynamic Materials Properties	
Reflects the transfer of funding and scope from the Dynamic Plutonium Experiments subprogram and an offset due to the transfer of funding to support the Academic Alliances subprogram directly.	+3,386
Advanced Radiography	
Decrease reflects reallocation of funding to support other priorities within Defense Programs	-6,207
Secondary Assessment Technology	
Increase reflects the focus on predictive capability for secondaries.	1,000
Test Readiness	
Reflects transfer of funding and scope to Readiness in Technical Base and Facilities.	-5,408
Total Funding Change, Science Campaign	**0**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	0	0	0
Capital Equipment	7,457	7,621	7,789
Total, Capital Equipment	**7,457**	**7,621**	**7,789**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	0	0	0	0
Capital Equipment	7,960	8,135	8,314	8,497
Total, Capital Equipment	**7,960**	**8,135**	**8,314**	**8,497**

[a] Funds are appropriated for Operations and Maintenance, including operating expenses, capital equipment and general plant projects. The program no longer budgets separately for capital equipment and general plant projects, therefore FY 2009 and FY 2010 funding shown reflects estimates based on FY 2008 obligations.

Engineering Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Engineering Campaign			
Enhanced Surety	34,137	46,112	42,000
Weapon Systems Engineering Assessment Technology	18,814	16,592	18,000
Nuclear Survivability	8,644	21,100	21,000
Enhanced Surveillance	78,573	66,196	69,000
Microsystems and Engineering Sciences Applications (MESA) Other Projects Cosrs (OPC)	7,485	0	0
08-D-806, Ion Beam Laboratory Refurbishment Construction	9,911	0	0
01-D-108, Microsystems and Engineering Sciences Applications (MESA) Construction	10,984	0	0
Total, Engineering Campaign	**168,548**	**150,000**	**150,000**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Engineering Campaign				
Enhanced Surety	43,431	45,101	44,770	50,064
Weapon Systems Engineering Assessment Technology	13,850	16,938	15,572	20,218
Nuclear Survivability	17,922	9,454	8,760	10,590
Enhanced Surveillance	43,427	46,677	47,690	63,543
MESA OPCs	0	0	0	0
MESA Construction	0	0	0	0
Total, Engineering Campaign	**118,630**	**118,170**	**116,792**	**144,415**

Description

The goal for the Engineering Campaign is to develop capabilities to assess and improve the safety, reliability, and performance of the non-nuclear and nuclear explosive package engineering components in nuclear weapons without further underground testing. Additionally, the purpose is to increase our ability to predict the response and have confidence in the design of all components and subsystems to external stimuli (large thermal, mechanical, and combined forces and extremely high radiation fields); the effects of aging; and to develop essential engineering capabilities and infrastructure.

The Engineering Campaign provides the Nuclear Security Enterprise with modern tools and capabilities in engineering sciences and technologies to ensure the safety, security, reliability and performance of the current and future U.S. nuclear weapon stockpile without further underground testing, and provides a sustained basis for stockpile certification and assessments throughout the lifecycle of each weapon. Specific Campaign objectives are enabled by the improved capability for weapon design and engineering assessment including:

- Incorporation of enhanced surety features independent of any threat scenario meeting the requirements of National Security Presidential Directive 28 (NSPD-28).

- Quantification of margins and uncertainties (QMU), using state-of-the-art design and assessment tools that rely on Advanced Simulation and Computing codes and experimental facilities acquired in support of the Stockpile Stewardship Program.
- Predictive capability for the effect of aging on performance and lifetime assessments.
- Support consolidation of Category I/II Special Nuclear Material (SNM) in response to Complex Transformation by providing alternative capabilities and tools.
- Qualification Alternatives to the Sandia Pulse Reactor (QASPR) project to evaluate threats or vulnerabilities more responsively than traditional radiation testing.
- Establishment of responsive lifecycle engineering at demonstrated lower costs.
- World class staff and program in engineering science research & development (R&D).

The Engineering Campaign is comprised of four focused subprograms. Each subprogram is a unique contributor to Government Performance and Results Acts (GPRA) Unit Program Goal 2.1.28.00, and each subprogram's contributions are summarized below:

Enhanced Surety – Provides the most modern surety (safety, security, and use control) by developing advanced initiation, use-denial, and power management options and integrated surety solutions for consideration in scheduled stockpile refurbishments, life extension programs (LEP), and future stockpile strategies.

Weapon Systems Engineering Assessment Technology – Provides the scientific understanding, experimental capability, diagnostic development and data required to develop and validate engineering computational models and develop assessment methodology for weapon design, manufacturing, qualification, and certification that are needed by the Directed Stockpile Work (DSW) R&D subprogram to maintain the legacy stockpile, refurbish weapons and transform the stockpile, as required.

Nuclear Survivability – Provides the tools and technologies needed to design and qualify components and subsystems to meet requirements for radiation, space, and other hostile environments; develops radiation-hardening approaches and hardened components; and modernizes tools for weapon outputs.

Enhanced Surveillance – Provides component and material lifetime assessments to support weapon replacement or refurbishment decisions and develops advanced diagnostics and predictive capabilities for early detection and assessment of stockpile aging concerns, and for cost effective surveillance transformation.

The Engineering Campaign activities are closely integrated with Directed Stockpile Work (DSW), Advanced Simulation and Computing (ASC) Campaign, the Science Campaign, Inertial Confinement Fusion (ICF) Campaign, and Readiness in Technical Base and Facilities (RTBF). For instance, DSW provides the requirements for modeling and simulation capability and establishes the corresponding schedule for Engineering Campaign deliverables that support the LEPs. Related to the interface with DSW, many of the scientific models that are to be developed or improved as input to the ASC Campaign come from the engineering research within the Engineering Campaign. The ASC Campaign also provides the validation and verification (V&V) requirements for the advanced codes so that the Engineering Campaign can properly design and conduct the required experiment to validate the code for use in the complex. The engineering science basis for enhanced surveillance and nuclear survivability assessments depends on some information about the aging and relevant changes in material properties provided by the Dynamic Materials Properties subprogram of the Science Campaign. Along with

baseline data and related test and analysis methods, the Science Campaign input includes margin/uncertainty criteria and sensitivities of performance to material properties used to develop aging models and lifetime assessment tools. Integration of the Engineering Campaign and RTBF is vital to ensure that the proper investment is made in experimental and computational infrastructure needed to meet the Campaign's milestones. Examples of these facilities include the Test Capability Revitalization, the Ion Beam Laboratory, and the Microsystems and Engineering Sciences Applications facility.

Major FY 2008 Achievements

Enhanced Surety

- An Optical Initiation Firing Set prototype was designed, developed, and delivered.
- Two thermoelectric transducer prototypes, fabricated last fiscal year, for use in future weapon systems were performance tested.
- A third prototype for the highest priority surety sensor technology was developed based on a new technology.
- Designed, fabricated, assembled, bench-top and environmentally tested Dual Stronglink Mechanism prototype hardware.
- Parametric material studies on Multi-Point Safety (MPS) options were conducted at Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL).
- Under the Enhanced Collaboration effort with the United Kingdom, the subprogram shares the load and cost of experimental activities through facility leveraging and exhibits complementary development of certification tool calculation capability, internationally expanding stockpile safety applications.

Weapon Systems Engineering Assessment Technology

- Four datasets to include Beryllium creep properties at elevated temperatures; creep of PBX 9501 – a joint effort between test labs at LANL and LLNL examining material and test facilities' impact on observed creep behaviors; 3D Digital Image Correlation (DIC) data analysis; and coefficient of Thermal Expansion tests of PBX 9501.
- Developed an effective thermal conductivity characterization tests sensitive to repeatability of the assembly.
- Identified the transferability of embrittlement properties from coupon tests to geometries of interest and identified the critical stainless steel material inputs for the fracture code underdevelopment by the University of Illinois.
- Successfully scaled up the new technique for ground-based testing of flight and re-entry environments combining acceleration, vibration, and spin.
- Provided performance assessment validation data on the highest priority surety component characterizing the mechanical and thermal, response of material over a range of environments.
- Published the 1st edition of a Joints Handbook consolidating the results of computational, theoretical, and experimental programs in support of the W76-1 LEP to foster the transition from R&D to Stockpile Applications.

Nuclear Survivability

- Developed and demonstrated protocol specifying methods to establish margins impacting design and qualification of most electronic circuits for reentry systems.
- Developed methodology for studies of age-related changes in device hardness, enabling dose-rate sensitivity changes to be observed.

- Focused System Generated Electromagnetic Pulse (SGEMP) research on radiation induced conductivity in gases, with an emphasis on time-dependent effects collecting data at SPHINX and the ISIS facility at Idaho State University to ascertain existence of short time scale phenomena that could significantly alter SGEMP response models.
- Developed methods to significantly reduce the uncertainty set to a limited number of critical leverage parameters under radiation effects science.

Enhanced Surveillance

- Completed an Enhanced Surveillance stockpile aging assessment report to support the annual assessment process.
- Completed selected aging and lifetime assessments for canned sub-assemblies (CSA), metals, polymers and ceramic materials in non-nuclear components, neutron tube, mechanical safe and arming devices, getters, silicone elastomers and polyurethane for nuclear explosive package, and B61 non-nuclear parts.
- Completed initial characterization of representative samples to assess longevity of newly manufactured pits.
- Developed improved component aging models for CSAs, polymers, high explosives, and initiation systems which support lifetime assessments and developed initial framework for inputting aging signatures into quantitative predictive models for assessing uncertainties.
- Provided initial framework for integrating component aging model information into an analytical toolset for predicting system reliability and demonstrated its application on neutron generators.
- Established initial component and material evaluation capabilities to respond to the new challenges associated with reduced reliance on system-level testing.
- Down-selected most promising embedded sensor technologies that could be applied to nuclear explosive packages for future stockpile applications. Developed and deployed an embedded stockpile integrated evaluation prototype for field testing. Performed functional demonstration of test bed prototype and documented the results.
- Provided updated aging and lifetime assessments to support future weapon refurbishment or replacement options for sufficient longevity of materials and components.
- Brought offline Solid Phase Micro-extraction technology to Test Readiness Level 6 and demonstrated on the W87 warhead.
- Completed demonstration in an operating environment of the development version of the Photonic Doppler Velocimeter for surveillance of high explosives.

MESA

MESA facilities continue to produce War Reserve-qualified, radiation hardened, application-specific integrated circuits at Sandia National Laboratories for the W76-1.

Major Outyear Considerations

The outyear projections for Engineering Campaign total $498,007,000 for FY 2011 through FY 2014. The decreases in FY 2011 through FY 2013 are due to the reallocation of funding to support other priorities within Stockpile Stewardship, as well as, the decreasing trend in the baseline for the Qualification Alternative to Sandia Pulsed Reactor (QASPR) scheduled for completion in FY 2014. The increase FY 2014 supports accelerating the maturation of surety technologies and surveillance activities.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.28.00, Engineering Campaign											
Cumulative percentage of the Microsystems and Engineering Sciences Applications (MESA) facility project completed (total project cost), while maintaining a Cost Performance Index of 0.9-1.15 (Efficiency)	R: 65% T: 50%	R: 88% T: 65%	R: 95% T: 75%	R : 100% T: 100%	N/A	N/A	N/A	N/A	N/A	N/A	MESA project construction was completed May 2008 and the contract closeout was completed August 2008.[a]
Cumulative percentage of progress towards an improved initiation system to meet detonation safety requirements for future alterations or modifications to stockpiled weapons, measured by the number of milestones, in the implementation plan, completed (Long-term Output)	R: 60% T: 60%	R: 70% T: 65%	R: 70% T: 70%	R: 75% T: 75%	T: 35%	T: 41%[c]	T: 47%	T:53%	T: 59%	T: 64%	By 2020, complete the development of threat-insensitive technologies that meet the safety and security requirements and goals of NSPD-28 and the safety acceptance criteria established by the DOE and the DoD.[b]
Cumulative percentage of progress towards completion of aging models and assessments, diagnostics, and tools needed for science-based lifetime predictions of specific weapon components and for transformation to more predictive stockpile surveillance, measured by the number of milestones, in the implementation plans, completed (Long-term Output)	R: 24% T: 24%	R: 32% T: 32%	R: 40% T: 40%	R: 47% T: 47%	T: 53%	T: 57%	T: 60%	T: 64%	T: 68%	T: 71%	By 2022, complete the aging models and assessments, diagnostics, and tools needed to achieve science-based lifetime predictions and stockpile surveillance transformation.[c]

[a] Rebaselined in 2007 for 2009 completion, based on current results to date, priorities, and available resources. Project closeout achieved early, in 2008 vs 2009.

[b] The scope for the Enhanced Surety Subprogram was redefined in 2008 includes additional features anticipated to be required for weapon systems with a first production unit (FPU) date of FY 2020. Therefore, the annual targets for FY 2009 and beyond, were recomputed and the endpoint target changed to FY 2020.

[c] The Endpoint Target for the Enhanced Surveillance Subprogram was redefined in 2009 from a 2020 to a 2022 completion, hence the annual targets for FY 2009 and beyond were recomputed.

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Cumulative percentage of progress towards system engineering methodology for assessing and predicting the effects of large thermal, mechanical, and combined forces on nuclear weapons for future alterations or modifications, measured by the number of experimental data sets, in the implementation plan, completed. (Long-term Output)[a]	R: 26% T: 55%	R: 37% T: 37%	R: 45% T: 45%	R: 53% T: 53%	T: 54%	T: 61%	T: 71%	T: 81%	T: 90%	T: 100%	By 2014, complete the development of system engineering methodology for assessing and predicting the effects of large thermal, mechanical, and combined forces on nuclear weapons for future alterations or modifications stockpiled weapons.
Cumulative percentage of completion of design and qualification tools for meeting requirements for survivability in intense radiation environments needed for future alterations or modifications to replace the existing proof-testing approach that uses significant amounts of highly enriched uranium, measured by the number of milestones, in the implementation plan, completed. (Long-term Output)	R: 24% T: 24%	R: 27% T: 27%	R: 40% T: 40%	R : 48% T: 48%	T: 56%	T: 65%	T: 69%	T: 78%	T: 86%	T: 100%	By 2014, complete the replacement of relevant design and assessment technologies for weapon components allowing future alterations or modifications to meet requirements for survivability in intense radiation environments.
Cumulative percentage of the Ion Beam Laboratory (IBL) project completed (total project cost), while maintaining a Cost Performance Index of 0.9-1.15 (Efficiency)[b]	N/A	N/A	N/A	N/A	T:31%	T:62%	T:86%	T:95%	T:100%	N/A	By 2013, complete 100% of the IBL project while maintaining a Cost Performance Index of 0.9-1.15. (IBL line item construction funding completed in FY 2010).[b]

[a] In 2006, during the OMB PART evaluation, this performance indicator was redefined and rebaselined. As a result, the Engineering Campaign extended the endpoint target and recomputed annual targets for FY 2007 and beyond; and FY 2005-2006 results are recomputed against new baseline targets.

[b] The IBL efficiency measure was introduced in 2009. Since then, the scope and funding has been shifted to the RTBF program. A new efficiency metric will be developed in the very near future to replace this performance measure.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Enhanced Surety	**34,137**	**46,112**	**42,000**

Enhanced Surety pursues a multi-technology approach to develop viable options for insertion meeting weapon system designers' specifications during stockpile alterations, modifications, and transformations. This approach will also address other future refurbishments and stockpile improvement projects needed, meeting both NNSA and Department of Defense (DoD) requirements. Multi-technology development and integration opens the design space and offers opportunity for synergistic improvements to other weapon components.

In FY 2010, the focus is on three multi-site development efforts. Sandia National Laboratories (SNL) along with the Savannah River Site and Savannah River National Laboratory will continue to mature power management options with the intent to deliver a near-term viable option for the next insertion opportunity. SNL will continue to mature security sensor technologies ultimately producing prototypical hardware units for production at the Kansas City Plant. Los Alamos National Laboratory and Lawrence Livermore National Laboratory will continue to develop multi-point safety options working in collaboration with the United Kingdom with the intent to apply system integration through SNL into viable options for the next insertion opportunities. The subprogram, aside from the three multi-site efforts, will develop integrated surety solutions, which integrate external surety elements with the weapon, thus allowing the weapon to have the capability to better react to external activities addressing current threat scenarios.

Weapon Systems Engineering Assessment Technology	**18,814**	**16,592**	**18,000**

The Weapon Systems Engineering Assessment Technology (WSEAT) subprogram uses engineering computational models in collaboration with the Advanced Simulation and Computing (ASC) Campaign to predict weapon system response to three Stockpile-to-Target Sequence environments: normal, abnormal, and hostile. The activity also supports manufacturing development of critical components and subsystems; e.g., neutron generators, gas transfer systems, and microsystems. The subprogram objective is to establish the capability to predict engineering margins by integrating numerical simulations with experimental data. Validated computational tools are required to explore the operational parameter space of the nuclear weapons stockpile. Exploration of operational parameter space identifies failure modes and boundaries, thus establishing engineering margins.

In FY 2010, the subprogram will focus on producing data sets for code validation in support of current weapon alterations and modifications and legacy stockpile support. Combined efforts between the ASC Verification and Validation, and Physics and Engineering Models programs is a key principle of WSEAT and provides validated modeling and simulation capability for multi-scale and multi-physics problems encountered in qualification and certification activities. Work will continue on non-intrusive instrumentation and high explosive structural property measurements supporting model development for improved assessments of structural response, and margins for insensitive high explosive main charge materials.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Nuclear Survivability	**8,644**	**21,100**	**21,000**

The tools and technologies developed by the Nuclear Survivability subprogram are required to assess changes made to the stockpile through scheduled refurbishments; weapon replacement activities; surveillance discoveries; natural aging; or the introduction of new materials, technologies, or designs. The scope of the activity includes developing scientific models for understanding radiation effects; generating experimental data to validate computational tools; understanding radiation-hardened design strategies; evaluating new and evolving stockpile candidate technologies for radiation hardness capabilities in a generalized, weapon-relevant configuration; studying radiation hardening aging phenomena for the long-term stockpile; and improving laboratory radiation sources and diagnostics to support code validation and hardware qualification experiments. The subprogram also develops, in conjunction with the DoD, the tools to calculate the output and performance of modern weapons needed to define some of the most stressing and damaging nuclear environments. This computational capability is critical to the DoD threat assessments and effectiveness assessments as required by the Atomic Energy Act. These improvements in modeling are transformational, in that they allow quicker response in analyzing both threats and warhead survivability issues.

In FY 2010, planned activities include development of tools and technologies to support a QASPR, which supports future strategic systems or alterations/modifications to the enduring stockpile; development of scientific models for understanding radiation effects phenomenology; and generating experimental data to validate computational tools which may be used to determine the effectiveness of stockpile weapons, life extension warheads, or future replacement systems.

Enhanced Surveillance	**78,573**	**66,196**	**69,000**

This subprogram provides stockpile aging and lifetime assessments and develops aging models and technologies needed for early identification of stockpile aging concerns. Enhanced Surveillance conducts the lifetime assessments to provide the technical basis for enduring stockpile refurbishment planning. The subprogram evaluates new and reused materials to be used in refurbished weapons to support age-aware LEP design and certification and increase longevity for a more sustainable stockpile. Enhanced Surveillance develops new diagnostics and methods, including non-destructive techniques and new component and material evaluation. The subprogram develops embedded sensor and communication to achieve timely, less invasive and more cost-effective surveillance. Finally, the subprogram contributes current weapon aging information for the annual assessment reports.

In FY 2010, the subprogram will provide updated results on weapon aging for the annual assessment reports; conduct planned experiments and modeling to support lifetime estimates; provide initial nuclear explosive package component lifetimes for two weapon types; deliver improved aging models, experimental methods, and predictive tools for selected materials and components; and continue work to understand aging mechanisms and effects for the earliest possible detection of aging changes that could impact weapon performance, reliability, and safety. Emphasis will be placed on acceleration of continued work of a particular aging phenomenology of a special material in addition to long-term investment needs that enable a science-based surveillance

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010

methodology. The subprogram will also continue efforts in development and maturation of surveillance diagnostics as well as embedded sensor technology.

Microsystems and Engineering Sciences Applications (MESA) Other Project Costs	**7,485**	**0**	**0**
The MESA Complex was completed in August 2008			
08-D-806, Ion Beam Laboratory	**9,911**	**0**	**0**
Funding for construction was provided under RTBF in FY 2009.			
Microsystems and Engineering Sciences Applications (MESA) Construction (01-D-108)	**10,984**	**0**	**0**
Total, Engineering Campaign	**168,548**	**150,000**	**150,000**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Enhanced Surety	
The decrease reflects a reduction in scope applicable to Advanced Initiation, including technologies such as the optical stronglink. Funding was redirected and scope was reduced beginning in FY 2009 to accommodate near-term high priority surety insertion opportunities through secure transportation assets, sooner than could be realized through a Life Extension Program (LEP).	-4,112
Weapon Systems Engineering Assessment Technology	
The increase is consistent with the acceleration of high-priority work within the Weapon Systems Engineering Assessment Technology, while other activities targeted for future LEPs or replacement systems will be conducted at appropriate pace.	+1,408
Nuclear Survivability	
The slight decrease reflects a planned shift of program priorities within the Qualification Alternative to the Sandia Pulsed Reactor (QASPR) program. Specifically, within the fiscal year, technology thrusts will shift from a legacy material based methodology to an assessment of 21st century semiconductor materials. As legacy material efforts approach completion, the methodology of QASPR will be applied to accelerate material evaluations aimed at answering questions of practicality in continuing exploration of non-legacy materials in FY 2011and beyond. The goal of the Nuclear Survivability program remains to develop a major deliverable essential to provide the capability to assess the affects of radiation on nuclear weapons and components without underground testing or test facilities using Category I or II SNM on a time frame consistent with projected DSW needs.	-100
Enhanced Surveillance	
The increase reflects the continued development for stockpile surveillance diagnostics, non-destructive techniques, component and material evaluation methods, joint test assembly technology, and embedded evaluation sensors and instrumentation. Additionally, emphasis will be placed in FY 2010 on activities that represent long-term investment needs that enable a science-based surveillance methodology. This subprogram will continue to support high priority stockpile aging and lifetime assessments to support critical issues for annual assessment, significant finding investigations, stockpile refurbishment and transformation planning.	+2,804
Total Funding Change, Engineering Campaign	**0**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	360	368	376
Capital Equipment	1,344	1,374	1,404
Total, Capital Equipment	**1,704**	**1,742**	**1,780**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	384	392	401	410
Capital Equipment	1,435	1,467	1,499	1,532
Total, Capital Equipment	**1,819**	**1,859**	**1,900**	**1,942**

Construction Projects[b]

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior-Year Appro-riations	FY 2008	FY 2009	FY 2010	Unappro-priated Balance
08-D-806, Ion Beam Laboratory Refurbishment	34,813	0	9,911	0	0	0
01-D-108, Microsystems and Engineering Sciences Application (MESA)	455,322	0	10,984	0	0	0
Total, Construction	490,135	0	**20,895**	**0**	**0**	

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, the program no longer budgets separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

[b] For FY 2008, the Congress authorized $9,911,000 to be appropriated for the Ion Beam Laboratory Refurbishment project (08-D-806) as part of the Engineering Campaign. The capital acquisition procurement process was initiated in FY 2008. In FY 2009 and beyond, however, the program will be funded and executed as a Line Item Construction project under the Readiness in Technical Base and Facilities (RTBF) program.

Inertial Confinement Fusion Ignition and High Yield Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Inertial Confinement Fusion Ignition and High Yield Campaign			
Ignition	103,029	100,535	106,734
Support of Other Stockpile Programs	0	0	0
NIF Diagnostics, Cryogenics, and Experimental Support	68,107	66,201	72,252
Pulsed Power Inertial Confinement Fusion	10,241	8,652	5,000
Joint Program in High Energy Density Laboratory Plasmas	3,152	3,053	4,000
Facility Operations and Target Production	112,012	203,282	248,929
Inertial Fusion Technology	29,426	0	0
NIF Assembly and Installation Program	134,294	55,192	0
High-Energy Petawatt Laser Development	0	0	0
96-D-111, National Ignition Facility	9,945	0	0
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	**470,206**	**436,915**	**436,915**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Inertial Confinement Fusion Ignition and High Yield Campaign				
Ignition	111,173	94,773	74,410	71,479
Support of Other Stockpile Programs	0	13,102	29,495	29,177
NIF Diagnostics, Cryogenics, and Experimental Support	74,370	75,395	74,921	71,348
Pulsed Power Inertial Confinement Fusion	4,978	4,924	4,866	4,814
Joint Program in High Energy Density Laboratory Plasmas	3,983	3,939	3,893	3,851
Facility Operations and Target Production	237,423	238,118	237,649	239,979
Inertial Fusion Technology	0	0	0	0
NIF Assembly and Installation Program	0	0	0	0
High-Energy Petawatt Laser Development	0	0	0	0
96-D-111, National Ignition Facility	0	0	0	0
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	**431,927**	**430,251**	**425,234**	**420,648**

Description

The ICF Campaign provides the scientific understanding to assess the safety, security, and reliability of the nation's nuclear weapons without nuclear testing, through the development and use of advanced experimental tools, including state-of-the-art laser and pulsed power facilities. Science-based weapons assessments and certification requires that these advanced experimental tools have the capability to create and study matter under extreme conditions that approach the high-energy density (HED) environments found in a nuclear explosion.

The ICF Campaign is a vital component of the National Nuclear Security Administration's (NNSA) responsive infrastructure. The Campaign supports NNSA's Stockpile Stewardship Program (SSP) through three strategic objectives:

- Achieve thermonuclear ignition in the laboratory and develop it as a routine scientific tool to support stockpile stewardship[a].

- Develop advanced capabilities including facilities, diagnostics, and experimental methods that can access the high energy density (HED) regimes of extreme temperature, pressure, and density required to assess the nuclear stockpile.

- Maintain the U.S. preeminence in HED science and support broader national science goals.

The importance of thermonuclear ignition to NNSA's weapons program was identified in the early 1990s. In 2004, its role in the SSP as providing "the much needed understanding of the most important remaining questions in weapons physics" was reaffirmed by the Defense Science Board.

With the main objective of achieving thermonuclear ignition in the laboratory, a major focus of the ICF Campaign over the past decade has been the construction of the National Ignition Facility (NIF). The NIF, located at the Lawrence Livermore National Laboratory (LLNL), is a 192 beam, high-energy, high-power laser system capable of delivering up to 1.8 megajoules of energy in a single pulse. The NIF construction project was completed on schedule in March, 2009 and will provide NNSA extraordinary opportunities for significant scientific progress and discovery in the areas of thermonuclear ignition and matter under extreme conditions. Creating laboratory conditions of extreme densities and temperatures relevant to HED phenomena occurring in nuclear detonation is one of the most challenging requirements for science-based weapons certification.

Other advanced HED experimental capabilities within the ICF Campaign include the pulsed power Z-machine at the Sandia National Laboratories (SNL) and the OMEGA Laser Facility at the University of Rochester's Laboratory for Laser Energetics (LLE). Both facilities have recently undergone significant improvements. The Z-machine was refurbished and upgraded to provide more shot capacity and higher current. At LLE, a high-energy, short pulse capability, OMEGA Extended Performance (EP) laser[b] was added to the existing 60 beam, 30 kilojoule OMEGA compression laser system. The OMEGA EP can produce high energy x-rays which are required for the advanced radiography capability needed in many weapons physics experiments.

In 2005, the ICF Campaign established a multi-site integrated effort, the National Ignition Campaign (NIC), to focus on achieving ignition and thermonuclear burn in the laboratory. The partners in the NIC

[a] Thermonuclear ignition is an explosive, self sustained nuclear fusion reaction that once initiated, continues until the fuel is exhausted ("burned") or dispersed. Thermonuclear ignition is often referred to as ignition and thermonuclear burn or fusion ignition. Nuclear fusion reactions are at the core of the processes that power the Sun and other stars. Achieving ignition by compressing and heating deuterium (D) and tritium (T) atoms (i.e. the thermonuclear fuel) to millions of degrees Celsius has never been demonstrated in the laboratory.

[b] The OMEGA EP laser system includes four NIF-like beamlines that can produce up to 6.5 kilojoules of energy in the ultraviolet. Two of these beamlines can be operated a high-energy, short-pulse lasers producing up to 2.6 kilojoules of energy in a 10 picosecond pulse.

include LLNL, LLE, Los Alamos National Laboratory (LANL), SNL, and General Atomics. The NIC has two primary objectives: (1) Perform the first ignition experimental campaign on the NIF beginning in FY 2010, and; (2) Transition the NIF from project completion to routine facility operations at the end of FY 2012.

Because of the importance of the NIC, NNSA designated it as an Enhanced Management Program requiring adherence to a rigorous set of project management standards including a formal execution plan. The execution plan describes the multi-year NIC scope, schedule, and budget baseline. Project milestones, earned value reporting, and a formal change control process are among the management tools used to track progress against the NIC baseline. Quarterly progress reports on the status of completion of the NIF and technical program to achieve ignition (NIC) are provided to Congress.

The NIC execution plan was submitted to Congress in late FY 2005. In 2005 an extensive review of ignition planning was conducted by the JASONs. The 2005 JASON review concluded that "the scientific and technical challenges in such a complex activity suggest that success in the early attempts at ignition in 2010, while possible, is unlikely" although they agreed that the ignition plan provided a "reasonable roadmap for progress toward ignition after the initial attempts." A new JASON review of NIC was conducted in 2009 to assess progress since the last review and to evaluate preparations for the first ignition experiments in FY 2010. The review concluded that impressive, steady progress has been made but substantial scientific and technical challenges remain.

Early experimental work at NIF will focus on assessing uncertainties in the physics understanding of ignition and adjusting or "tuning" the important parameters to achieve the best set of ignition conditions. Early experiments will provide information such as the coupling efficiency of the laser energy to the target, the timing of the shocks used to compress and heat the fuel, and the ablation rate and symmetry of the capsule as the implosion proceeds. The first ignition campaign will begin in late FY 2010 and will be followed by two additional campaigns that will vary the important parameters and obtain data to validate physics models in the burning plasma regime. This will further the understanding of ignition and allow a reproducible ignition platform to be optimized for SSP applications by the end of FY 2012.

For the stockpile stewardship program, ignition and thermonuclear burn will allow routine access to physical regimes hitherto unavailable in the laboratory. In addition, the demonstration of thermonuclear ignition will be of major importance for the Department of Energy's (DOE) energy and fundamental science missions. With respect to energy applications, the achievement of ignition will be an extremely important step in validating the Inertial Fusion Energy (IFE) approach to practical energy production.

Within the ICF Campaign, there are 7 subprograms, each of which makes a unique contribution to Government Performance and Results Act (GPRA) Unit Program Goal 2.1.29.00.

- The Ignition subprogram includes advanced theoretical modeling, systems engineering, target design, and experiments on ICF facilities;

- The Support of Other Stockpile Programs subprogram develops experimental capabilities in the HED regime and applies the tools and methodologies to resolve important stockpile questions;

- The NIF Diagnostics, Cryogenics, and Experimental Support subprogram provides experimental infrastructure and equipment, including target diagnostics engineering and construction systems, beam conditioning optics required for various experiments, and systems to field cryogenic targets, and to protect personnel and the environment;

- The Pulsed Power Inertial Confinement Fusion subprogram supports the assessment of Z-pinches for achieving fusion ignition and high yield;

- The Joint Program in High Energy Density Laboratory Plasmas (HEDLP) subprogram funds joint activities with the Office of Science to steward the study of laboratory HED plasma physics. Both the HED physics activities within the Stockpile Stewardship Academic Alliances and the National Laser User Facility (NLUF) program at LLE, previously funded under the University Grants/Other ICF Support budget category, are now funded within the Joint Program. The NNSA portion of the joint program is funded via both the ICF and the Science Campaigns;

- The Facility Operations and Target Production subprogram supports operations at NIF, OMEGA, and Z, as well as activities at the target fabrication subcontractor(s). This subprogram also supports outside reviews and direct technical;

- The High-Energy Petawatt Laser Development subprogram supports technology development for and construction of high-energy, short pulse (petawatt) lasers. The construction of the OMEGA EP was funded within this subprogram.

In concert with the Science Campaign, the ICF Campaign provides experimental data required to validate weapons-relevant physics models that form the basis of weapons simulation design codes. These codes along with the advanced, high-performance computing platforms developed within the Advanced Simulation and Computing (ASC) Campaign are used within the Stockpile Stewardship Program (SSP) for the required annual assessment and certification of the U.S. nuclear stockpile. Coordination of the efforts of the Science, ICF, and ASC Campaigns is achieved through the Predictive Capability Framework planning tool used by the Office of Defense Programs to prioritize and schedule activities. The data, methodologies, models and simulation codes developed by the Defense Programs' science effort also lend confidence to and support the calculations performed to meet Directed Stockpile Work's commitments, which include understanding the impact of aging weapon systems, closing Significant Findings Investigations (SFIs) identified from surveillance or other sources, and certifying refurbished devices resulting from life extension programs (LEPs).

In addition to supporting NNSA's national security mission, these capabilities also serve DOE's missions to develop advanced energy systems (Office of Fusion Energy Sciences) and to further our understanding of fundamental science (Office of Basic Energy Sciences).

Major FY 2008 Achievements

- **National Ignition Campaign (NIC)**:
  In FY 2008, the physics requirements were refined for the initial ignition target design and validated through high-performance computer simulations as well as extensive reviews of recent experimental data obtained on OMEGA and Z. The beryllium (Be) and plastic (CH) ignition target designs were

also re-optimized and both have a reasonable probability to ignite and burn the thermonuclear fuel using a nominal ~ 1.3 megajoule laser pulse from the NIF.

Prototype ignition target components were successfully fabricated, assembled, and tested at General Atomics and LLNL. Cryogenic DT fuel ice layers of the required thickness and roughness were formed and characterized using x-ray imaging techniques. Target production capabilities were established and shown to be able to consistently assemble leak-tight cryogenic ignition layering targets. Lastly, considerable progress was made to increase the throughput of the target production capabilities to deliver quality, high precision ignition targets meeting the ignition point design specifications in the quantity consistent with the NIC experimental schedule.

- **NIF Project**
  At the end of FY 2008, NIF was over 99 percent complete. Over 95 percent of the more than 6200 Line Replaceable Units (LRUs) had been installed, with 100 percent of the equipment installed in the Laser Bays. All twenty-four bundles of eight laser beams each (i.e. all 192 laser beams) in the Laser Bays had been performance qualified and NIF demonstrated the capability to produce 4.2 megajoules of infrared laser light at a wavelength of 1.053 μm (micrometers), over thirty-five times more energy than any previous laser system. The first bundle of eight laser beams was successfully commissioned to target chamber center.

- **OMEGA Extended Performance (EP)**
  The OMEGA Extended Performance (EP) Laser Project was completed in FY 2008. It significantly extended the research capabilities and added flexibility to the existing 60-beam line.

- **Z Refurbishment**
  SNL completed commissioning the refurbished Z pulsed power facility. Full capability has been achieved; for example the maximum current was increased from 18 to 26 mega-amperes. The refurbished Z has improved shot-to-shot reproducibility (within +/- 0.5 percent for the current pulse shape), more precise current shaping, and a longer, variable pulse length.

- **Other ICF Accomplishments:**
  SNL, in collaboration with LANL, completed the first Stockpile Stewardship experiment on the refurbished Z-machine obtaining pressure-density data for a metal (tantalum) at pressures up to 4 megabars. The refurbished Z also provided data on the strength of beryllium, an important material used in both ICF capsules and other defense applications.

  In the area of pulsed power ICF, SNL made progress on two different approaches to achieve ignition and high yield. One approach used z-pinch x-rays to implode a fusion capsule and the other, magnetic pressure to compress the fuel directly. As part of this effort, SNL conducted the first neutron-producing fusion experiments on the refurbished Z. The SNL also used complex, multi-dimensional computer codes to provide insight in to how to scale z-pinches to high current as a potential path to fusion ignition and high yield.

  The LLNL High-Average Power Laser (HAPL) group activated an advanced front end injection and pulse shaping system on their diode-pumped, solid-state Mercury laser system. The system has

operated at the 55 joule energy level at a repetition rate of 10 hertz for 70 minutes of planned operations. The resulting shot total was 0.3 million.

- **Joint Program in High Energy Density Laboratory Plasmas (HEDLP)**
  In FY 2008, the joint program issued a solicitation that supports academic and national laboratory research in HEDP. Over 135 proposals were received indicating a strong interest in the field. In FY 2008, the National Laser User Facility Program (NLUF) at the University of Rochester issued a separate solicitation.

Major Outyear Priorities and Assumptions

The outyear projections for the ICF Campaign total $1,708,060,000 for FY 2011 through FY 2014. The achievement of ignition and thermonuclear burn and its application to address the major unresolved issue in weapons physics will remain the highest priority within the ICF Campaign. Once NIC has successfully achieved ignition and thermonuclear burn in the laboratory subsequent experiments will be designed to provide a reproducible ignition platform that can be exploited by the SSP to address important weapons physics questions.

In the FY 2011-2012 period, NIC has plans for two additional ignition campaigns to explore and define ignition performance parameters and methodology defined by the current physics knowledge base and a third campaign to develop an initial platform for ignition application experiments. The optimal experimental sequence for these campaigns will be dictated by the measurements and analysis of results from each of the previous ignition experiments. The experimental plans will be modified as required and will include appropriate peer review to ensure the highest probability of success. During this time, the NIC will continue to support Science Campaign activities that include SSP-relevant experimental campaigns on NIF to understand energy balance and initial conditions for boost.

After the completion of NIC at the end of FY 2012, NIF will be capable of supporting routine operations for ignition and HED experiments in support of SSP. Capabilities will include: certified data systems supporting experimental operations; optics and targets management systems; target production capability for the baseline ignition platform and some HED targets for SSP experiments; a second operational cryogenic target positioner; an initial set of radiation-hardened diagnostics; and a third set of continuous phase plates. In FY 2013 and beyond, further activities, integrated with both the Science and ASC Campaigns will focus developing and applying additional capabilities such as enhanced ignition and non-ignition platforms to obtain model validation data in key weapons science areas. These areas include materials dynamics, plutonium equation of state (EOS) and constitutive properties, complex hydrodynamics, x-ray opacities, and understanding the boost process.

The ICF Campaign will continue to provide the funding for the operations of its HED physics capabilities (facilities and technical expertise) and put in place investment strategies to enable new capabilities (e.g. fast ignition, operation of NIF at a wavelength of 527 nanometers, polar drive on NIF, the next generation high yield devices, etc.) to support emerging and future needs of the NNSA's national security mission. These HED physics capabilities also will continue to serve other DOE' missions in advanced energy systems development and fundamental science. Following the achievement of thermonuclear ignition, the Department anticipates that the relative importance of these

missions and the role of the various ICF Campaign program elements and facilities in supporting these missions will be reevaluated and modified to meet national needs and priorities.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.29.00, Inertial Confinement Fusion Ignition and High Yield Campaign											
Cumulative percentage of progress towards demonstrating ignition (simulating fusion conditions in a nuclear explosion) at the National Ignition Facility (NIF) to increase confidence in modeling nuclear weapons performance (Long-term Outcome)	R: 65% T: 67%	R: 71% T: 73%	R: 80% T: 80%	R : 86% T: 86%	T: 93%	T: 100%	N/A	N/A	N/A	N/A	By 2010, complete first attempt to demonstrate ignition on the NIF.
Cumulative percentage of construction completed on the 192-laser beam NIF (Long-term Output)	R: 81% T: 81%[a]	R: 88% T: 87%	R: 94% T: 94%	R : 99% T: 98%	T: 100%	N/A	N/A	N/A	N/A	N/A	By 2009, complete NIF construction.
Cumulative percentage of equipment fabricated to support ignition experiments at NIF (Long-term Output)	R: 21% T: 26%	R: 45% T: 45%	R: 63% T: 63%	R : 82% T: 82%	T: 95%	T: 100%	N/A	N/A	N/A	N/A	By 2010, complete fabrication of cryogenics and diagnostics equipment to support ignition experiments on the NIF.
Annual number of days available to conduct stockpile stewardship experiments, totaled for all ICF facilities (Annual Output)[a]	R: 700 T: 500	R: 691 T: 400	R: 403 T: 270	R : 558 T: 240	T: 200	N/A	N/A	N/A	N/A	N/A	By 2009, increase ICF facility availability to 200 total days per year.
Annual average hours per experiment required by the operational crew to prepare the Z facility for an experiment (Efficiency)	R: 10.8 T: 9	R: 10.3[b] T: 11	R: 0 T:11	R : 10.59 T: 11	T: 9.5	N/A	N/A	N/A	N/A	N/A	By 2009, reduce the operational crew preparation time per Z facility experiment to 9.5 hours. (2004 Baseline equivalent of 11 hours/experiment)

[a] Fluctuations in numbers result from termination of Nike Operations at NRL in 2009, refurbishment of ZR at SNL in 2007 (no shots), and availability of NIF beginning in 2010.

[b] Additional radiation safety procedures required revision of annual and endpoint targets by +2 hours in 2006. Facility did not operate in 2007 due to due to major refurbishment.

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Cumulative percentage of progress in replacing key empirical parameters in the nuclear explosive package assessment with first principles physics models assessed by validation with experiment (Long-term Outcome)[a]	N/A	N/A	N/A	N/A	N/A	T : 60%	T: 63%	T: 66%	T:69%	T:69%	By 2020, use modern physics models in assessment calculations to replace the major empirical parameters affecting energy balance, boost initial conditions, amount of boost, secondary performance, and weapons output. (Share with Science Campaign.)
Cumulative percentage of progress towards achievement of key extreme experimental condition of matter needed for predictive capability for nuclear weapons performance (Long-term Outcome)[a]	N/A	N/A	N/A	N/A	N/A	T : 35%	T: 55%	T: 75%	T: 85%	T: 90%	By 2015, achieve greater than unity value of the average of the ratio of achieved conditions to needed conditions. (Share with Science Campaign)
Cumulative percentage of operating cost reduction from 2009, adjusted for inflation, utility costs, and laboratory indirect costs, all ICF facilities combined (Efficiency)[b]	N/A	N/A	N/A	N/A	N/A	T : 1%	T: 2%	T: 3%	T: 4%	T: 5%	By 2019, achieve a 10% cost reduction in combined ICF facilities.
Annual percentage of shots/experimental implosions in which the facility and diagnostics meet the minimum requirements for obtaining data in high particle and radiation environments (Annual Output)[c]	N/A	N/A	N/A	N/A	N/A	T: 30%	G: 40%	T: 50%	T: 60%	T: 70%	By 2017, 95% of the shots conducted annually will meet the minimum data requirements.
Annual percentage of data points that are provided by experimental capabilities meeting the requirements of model development for measuring properties of high-Z materials under weapons-relevant conditions (Annual Output)[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	T: 30%	T: 60%	By 2016, 100% of the data points for high-Z material will meet the model development requirements.

[a] Joint Performance Indicator with Science Campaign developed during 2008 OMB PART Review.

[b] New Efficiency Measure developed during OMB PART Review in 2008.

[c] New Performance Indicator developed during OMB PART Review in 2008.

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Annual percentage of fusion ignition shots that are provided by experimental capabilities meeting the yield and yield variation requirements consistent with weapons physics models and uncertainty analyses. (Annual Output)[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	T: 50%	T: 70%	By 2015, 80% of the shots will meet the yield and yield variation requirements.
Annual percentage of data points that are provided by experimental capabilities meeting the model development and validation requirements to understand degradation of ignition yield due to hydrodynamics effects (Annual Output)[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	T: 30%	By 2017, 100% of the data points will meet the model development and validation requirements.

[a] New Performance Indicator developed during OMB PART Review in 2008.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Ignition	**103,029**	**100,535**	**106,734**

Supports research and development and experimental activities aimed at optimizing prospects for achieving indirect-drive inertial confinement fusion ignition. Applies Advance Simulation Computing-derived capabilities to ignition target design calculations in both two and three dimensions. Includes research, development, validation of ignition target fabrication and assembly methods, development of target diagnostic techniques, computer modeling and systems engineering improvements essential to ignition efforts.

In FY 2010, emphasis will continue on critical path activities required to achieve indirect-drive ignition and current experimental activities that support this campaign. Experiments in support of the ignition goal will continue to be carried out on OMEGA. These experiments will be used to address some of the physics issues underlying ignition as well as serve as an important staging platform for continued development, testing and calibrating diagnostics that will be used on NIF. This subprogram will continue to support early experiments on NIF that focus on investigating the impact of laser plasma instabilities on drive temperature and implementing techniques to measure capsule symmetry, shock timing, and capsule material ablation rate. This work will be followed by a systematic "tuning" campaign to optimize the set of ignition parameters through utilizing layered THD capsules that are duded with hydrogen replacing most of the deuterium. Finally, funding from this subprogram will support the first ignition campaign that will attempt to compress, implode and ignite a layered DT capsule with a ~1.3 megajoule energy pulse from the NIF.

NIF Diagnostics, Cryogenics and Experimental Support	**68,107**	**66,201**	**72,252**

This effort supports technologies needed for the first ignition experiments and for execution of other HEDP experiments on the NIF. This category of work includes: design activities and initial procurements for the personnel and environmental protection systems (e.g., shielding and tritium processing); engineering and fabrication of the NIF diagnostics; design and construction of the NIF cryogenic target system; development and activation of optics processing capabilities required to produce the necessary smoothing optics for ignition experiments and subsequent campaigns; and integration and experimental commissioning of the NIF target area. This also includes development and deployment of experimental campaign management software, including data repositories and visualization tools.

The major emphasis will continue to be placed on preparation for the FY 2010 NIF ignition experiments and in particular on commissioning and calibrating the laser and target diagnostic systems. This includes the full target illumination diagnostics and the diagnostics for both, target performance and ignition implosion experiments as well as the associated information technology subsystems needed for data acquisition, storage, retrieval, visualization, and analysis. This subprogram also supports the installation qualification of the cryogenic target system, the assembly and testing of the opposed port shroud remover, the first set of continuous phase plates, user optics, and the installation

qualification of both the tritium handling system and personnel and environmental protection systems necessary to support the target performance and first ignition experiments.

Pulsed Power Inertial Confinement Fusion **10,241** **8,652** **5,000**

This subprogram funds computational target design, experiments, and experimental infrastructure to assess pulsed power as a means to achieve thermonuclear fusion in the laboratory. The program also advances the science and technology of megajoule-class pulsed power systems to improve efficiency, reliability, precision and repetition rate, and to reduce costs. In addition, experiments in pulsed power advance fundamental research in high-energy-density plasmas, laboratory astrophysics, and planetary science. In FY 2010, the focus will be on performing the first Z experiments using high-resolution neutron imaging which is used to measure the fusion fuel parameters.

Joint Program in High Energy Density Laboratory Plasmas (HEDLP) **3,152** **3,053** **4,000**

HEDLP is a joint program with the Office of Science to support basic high energy density physics research. This subprogram provides support for external users at the University of Rochester Omega facility as well as a joint solicitation for HEDLP research to be preformed at universities and DOE laboratories. For FY 2010, NNSA will contribute funding from the ICF and Science Campaigns.

Facility Operations and Target Production **112,012** **203,282** **248,929**

This subprogram supports operations of ICF facilities, including NIF, OMEGA, and Z, in a safe, secure manner.

The FY 2010 budget request provides $28,761,000 for Z facility operations (ICF provides a total of $35,000,000 for operation and use of Z at SNL). All Readiness in Technical Base and Facilities (RTBF) funds for Z were moved to the ICF account in FY 2009.

During FY 2010, this subprogram will include the funds for the operation of the NIF (LLNL), the OMEGA Laser Facility (LLE) including EP, and the refurbished Z-machine (SNL). Funding is also provided for ICF target development, production, and delivery by the target fabrication support contractor and miscellaneous HQ support for the campaign including external reviews. The major activities in FY 2010 include efforts that support the operation, maintenance, and management of NIF and its supporting infrastructure. Initial funding for the staffing, training, and procedures for NIF operations, essential for the continuing transition of NIF from a construction project to fully capable experimental facility, were provided under this subprogram after project completion in FY 2009. This includes support for shot directors and operational staff, sustaining engineering, staff supporting the final optics inspections system and its associated optics conditioning, initiation, and mitigation processes to increase the lifetime of optics exposed to ultraviolet light. For FY 2010, the first full year of funding for the operation of NIF, a shot program of 300 shots is planned. This subprogram also includes partial funding in FY 2010 for the Trident laser at LANL.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Inertial Fusion Technology	**29,426**	**0**	**0**

This subprogram supported the development of high repetition rate laser and pulsed-power devices and associated technologies required to advance inertial confinement fusion as an energy technology. No funds were provided in the FY 2009 appropriation and no funds are requested for FY 2010.

NIF Assembly and Installation Program	**134,294**	**55,192**	**0**

This funding element supported the activities associated with integration, planning, assembly, installation, and activation of the NIF. The NIF Assembly and Installation Program also provided the staffing, training, and procedures for the NIF operations; work essential to deliver a facility ready for transition from construction project to fully capable experimental facility. Following project completion in FY 2009, this effort was transferred to the Facility Operations and Target Production subprogram in FY 2010.

NIF Construction	**9,945**	**0**	**0**

96-D-111, National Ignition Facility, LLNL. Supported construction of the NIF per the baseline schedule approved in June 2005. FY 2008 was the last year of NIF Construction funding. There was no funding requested in FY 2009 and beyond.

Total, Inertial Confinement Fusion Ignition and High Yield Campaign	**470,206**	**436,915**	**436,915**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Ignition	
Increase supports the first ignition campaign on NIF in FY2010.	+6,199
NIF Diagnostics, Cryogenics, and Experimental Support	
Increase the first ignition campaign on NIF in FY2010.	+6,051
Pulsed Power Inertial Confinement Fusion	
As the ICF Campaign focuses on the first ignition campaign on NIF in FY 2010, the development of advanced fusion capabilities will be slowed to accommodate this prioritization.	-3,652
Joint Program in High Energy Density Laboratory Plasmas	
FY 2010 request continues joint program established in FY 2008.	+947
Facility Operations and Target Production	
The funding increase is needed for preparatory work required for execution of the first ignition experiment in 2010 in accordance with baseline planning. During FY 2010, the bulk of the increase in funding is required to continue the transition of NIF to routine operations and to support operations for a shot program on NIF of 300 shots in FY 2010. This is the first year support is required for a full year of operations on NIF. Efforts begun in FY 2009 under the NIF Assembly and Installation subprogram to provide the staffing, training, and procedures for the NIF operations; work essential for the transition of the NIF from construction to experimental operations moved to this subprogram following project completion in March 2009. Smaller increases in funding reflect partial operation of the OMEGA EP facility and the development of innovative methods for production of ignition capsules.	+45,647
NIF Assembly and Installation Program	
Decrease is in accordance with established project baseline planning. This subprogram budget supports assembly, installation, testing and commissioning required for project completion. The FY 2009 was the last year of NIF Assembly and Installation Program funding.	-55,192
Total Funding Change, Inertial Confinement Fusion Ignition and High Yield Campaign	**0**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	1500	1533	1567
Capital Equipment	7,656	7,824	7,996
Total, Capital Equipment	**9,156**	**9,357**	**9,563**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	1,601	1,636	1,672	1,709
Capital Equipment	8,172	8,352	8,536	8,724
Total, Capital Equipment	**9,773**	**9,988**	**10,208**	**10,433**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2008	FY 2009	FY 2010	Unappro-priated Balance
96-D-111, National Ignition Facility	2,094,897		9,945	0	0	0
Total, Construction			**9,945**	**0**	**0**	

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects. The program no longer budgets separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

Basic and Applied R&D Coordination
Joint Program in High Energy Density Laboratory Plasmas

Description

In 2007, the National Nuclear Security Administration and the DOE Office of Science established a joint program in high energy density laboratory plasmas (HEDLP), which is a major sub-area within the discipline of high energy density physics (HEDP). The field of HEDP originated in the nuclear weapons program and is an essential element of stockpile stewardship. The purpose of the joint program is to steward effectively HEDLP within the DOE, while maintaining the interdisciplinary nature of this area of science. HEDP is best advanced within the context of current agency missions. This program will advance the basic science that underlies nuclear weapons and inertial fusion energy; it will also strengthen ties with academia, grow critical skills, and train students. The program was formed out of existing programs, including the Stockpile Stewardship Academic Alliance (SSAA) and the National Laser Users Facility (NLUF) program. Funding for the program is shown below.

(dollars in thousands)

Budget Category	FY 2008[a]	FY 2009	FY 2010
Office of Science- Office of Fusion Energy Sciences	**15,942**	**24,636**	**24,500**
NNSA- Office of Defense Programs	**12,295**	**10,147**	**12,569**
ICF Campaign- Joint Program in High Energy Density Laboratory Plasmas	3,152	3,147	4,000
Science Campaign- Joint Program in HEDLP	9,143	7,000	8,569
TOTAL	**28,237**	**34,783**	**37,069**

Program Overview

The Joint Program in HEDLP funds joint activities with the Office of Science required to steward the study of laboratory high energy density plasma physics within DOE. This includes individual investigators (grants) and research center activities (cooperative agreements) in high energy density physics funded under the NNSA Stewardship Science Academic Alliances Program. It also includes user programs such as the National Laser User Facility Program at the University of Rochester. Within the Office of Science's Fusion Energy Sciences Program, the joint program includes work in fast ignition, heavy ion fusion, high Mach number plasma jets, magneto-inertial fusion and dense plasmas in high magnetic fields. The scientific program will evolve with inputs from the scientific community through advisory committee, workshops, conferences, etc. Research grants will be awarded through competitive peer reviews, taking into account other factors, including balance and program priorities. For FY 2010, NNSA will contribute $4,000,000 from the ICF Campaign and $8,569,157 from the Science Campaign for a total of $12,589,157. The joint program was established in 2007 and separately identified in the budget in FY 2008. Further details are contained in the budget narrative for the Office of Fusion Energy Sciences within the Office of Science.

[a] The FY 2008 amounts for HEDLP-related activities are included for reference. In addition, the HEDLP-related activities funded by the ICF Campaign in FY 2007 were included in the University Grants/Other ICF Support subprogram.

Advanced Simulation and Computing Campaign

Funding Schedule by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Advanced Simulation and Computing Campaign			
Integrated Codes	151,984	138,917	138,475
Physics and Engineering Models	65,049	49,284	58,762
Verification and Validation	49,606	50,184	49,781
Computational Systems and Software Environment	185,637	156,733	150,833
Facility Operations and User Support	122,261	161,007	158,274
Total, Advanced Simulation and Computing Campaign	**574,537**	**556,125**	**556,125**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Advanced Simulation and Computing Campaign				
Integrated Codes	137,975	137,975	137,975	137,975
Physics and Engineering Models	54,798	58,762	58,762	58,762
Verification and Validation	49,781	49,781	49,781	49,781
Computational Systems and Software Environment	150,833	150,833	150,833	150,833
Facility Operations and User Support	156,389	150,292	143,906	138,069
Total, Advanced Simulation and Computing Campaign	**549,776**	**547,643**	**541,257**	**535,420**

Description

The goal of the Advanced Simulation and Computing (ASC) Campaign is to provide leading edge, high-end simulation capabilities to meet weapons assessment and certification requirements including weapon codes, weapons science, computing platforms, and supporting infrastructure. The ASC Campaign serves as the computational surrogate for nuclear testing to determine weapon behavior.

As such, ASC simulations are central to our national security. Our ability to model the extraordinary complexity of nuclear weapons systems is essential to establish confidence in the performance of our aging stockpile. The ASC tools enable comprehensive understanding of the entire weapons lifecycle, from design to safe processes for dismantlement. The ASC simulations play an essential role in simulating device performance to ensure that systems in the stockpile meet all specifications in the "stockpile-to-target sequence." In the absence of testing, only through ASC simulations can the National Nuclear Security Administration (NNSA) determine the effects of changes to current systems, as well as calculate confidence levels of future untested systems.

The ASC tools are also used to address areas of national security beyond the U.S. nuclear stockpile. Through coordination with other government agencies, ASC plays an important role in supporting nonproliferation, emergency response, nuclear forensics and attribution activities. Resources have been used to characterize special nuclear material (SNM) threat materials and devices. The ASC simulation capabilities have been used by Department of Homeland Security (DHS) to assess various mitigation strategies, and the results have been published in peer-reviewed journals. There is a growing effort to enhance the capabilities of these tools, such as the identification of a perpetrator or supporting state through forensic analysis of post-explosion radionuclide debris.

The ASC Campaign is comprised of five subprograms that support activities in the areas of weapon codes, weapon science, computational infrastructure, and computing center operations. Each subprogram is a unique contributor to Governmental Performance and Results Act (GPRA) Unit Program Goal 2.1.30.00.

The ASC Program's major customer is Directed Stockpile Work (DSW). ASC codes and computing infrastructure are the means by which DSW work such as design; analysis, baselining, and Significant Findings Investigations (SFI) closure are performed. Stockpile work, science and simulation are bound together through the Predictive Capability Framework roadmap. In the context of simulation, predictive capability can best be understood by contrast with the Baseline Models that were based on the underground test results and were sophisticated approaches to interpolating within the underground data or extrapolating a very small amount. A predictive capability enables accurate simulations of device behavior outside the parameter space spanned by the underground test data. Historically, the codes were carefully calibrated to give results consistent with the diagnostics fielded in Nevada. As long as the calculated configurations were close to the as-tested regime, one could be confident in the results. When aging or flaws in the as-built reality are added into the mix, the simulations must depart from the parameter space spanned by the baseline. Then we must have recourse to models and numerical representations of the physics and engineering that capture reality. We must be able to simulate behavior, to predict responses and performance outside the range of the test data, the last of which were collected 17 years ago.

The Predictive Capability Framework (PCF) is an integrated roadmap that leads the Nuclear Security Enterprise to the responsive scientific capabilities needed to deliver a predictive capability. Participants of the PCF include Defense Science, ASC, Engineering, DSW R&D, and NIC/ICF Campaigns. The PCF identifies a list of long-term integrated goals. In addition, the PCF links the progress in the predictive capabilities to the progress in the five enabling capabilities, four of which (theory/model capabilities, code/algorithm capabilities, computational facilities, and QMU and V&V capabilities) are developed by the ASC program. With the pending completion of major new experimental facilities and entry into peta-scale high performance computing, the PCF represents a new phase of science-based stockpile stewardship – one better aligned to the challenges of an aging and changing stockpile.

The ASC program and the Office of Science have many common interests in computing and other scientific areas. The Office of Science laboratories are key players in developing tools to make high-performance computing systems more usable and efficient and we are developing ways to formalize our interactions. The two organizations have formed two institutes, the Institute for Advanced Architectures with Sandia and Oak Ridge, and the BALL (Berkeley, Argonne, Lawrence Livermore) institute to capitalize on the expertise across the complex in advanced systems and computational sciences. We also are engaged in the SciDAC (Scientific Discovery through Advanced Computing) program to capitalize on the Office of Science investments in new ideas advanced by academia and other laboratories.

For example, a significant fraction of the Red Storm compute time in FY 2008 was dedicated to an urgent, classified National Security project requested by HQ/NNSA. This project was the collaboration of Secure Transportation Asset (STA), DSW, ASC and the Engineering Campaign. ASC provided the computational simulation technology and compute resources. The Engineering Campaign provided phenomenology experiments and diagnostics for sub-scale validation tests. DSW/STA funded the test hardware. Critical contributions from each of these programs resulted in a successful proof of concept,

with rapid design and fabrication of prototype hardware. Conceptual design and testing of this hardware is now underway.

Major FY 2008 Achievements

The major management challenge for the ASC program is to focus and apply resources effectively and efficiently while maintaining scientific creativity and nurturing innovation. The ASC program office has done extensive planning to ensure that the long-term goals and directions are widely understood and accepted, and it is actively involved in the management of the overall program. The planning activity has manifested itself in several published documents including the ASC Strategy, which articulates principles and high-level goals that guide the program's directions and emphases for the next ten years, the ASC Business Model, which emphasizes the need for advocacy, transparency, integration and effective federal management, the ASC Roadmap, which lays out the goals and schedules for major deliverables to ensure the scientific integrity of the program, and the Platform Strategy, which describes the principles and directions for the future use and acquisition of high-end computer systems.

Adoption of the ASC Modern Codes

- Added 3D Lagrangian adaptive mesh refinement capability to a LLNL code with multi-material zones, strength of materials, and reactive flows;
- Developed a sub-grid model in the modern full-system capability to support energy balance resolution;
- Completion of the first-generation Modern ASC baseline models for three of four LANL stockpile systems. These baselines are actively being used for closure of SFI related to these three systems;
- Implemented geologic material properties in an LLNL engineering code supporting non-traditional applications. Improved performance for contact surfaces to support impact applications, and
- Implemented relevant physics and engineering models needed to support safety calculations of a weapon in a fire.

Reduced Reliance on Calibration

- Delivered a materials model to a modern code supporting a physical model for the initial conditions for boost;
- Validated an improved predictive high explosives detonation model based on chemical equilibrium and kinetics;
- Developed an advanced material strength model via a multiscale modeling approach;
- Completed analyses for five anomalous-performance nuclear tests, and
- Completed a one-year study to identify uncertainties inherent in the ability to simulate weapon hydrodynamic experiments at the Dual-Axis Radiographic Hydrodynamic Test (DARHT) facility using Modern ASC codes.

ASC Impact on Significant Finding Investigations (SFI) Closures

- A particular thermo-mechanical model was calibrated for use in support of a specific SFI;
- Assessed and closed four SFIs based on extensive calculations with the Modern ASC codes, and
- In conjunction with DSW, an initial assessment of an Alternate Material Option for a critical component for a stockpile Life Extension Program was completed.

Code Efficiency

- Developed a strategy for large-scale debugging to ensure LLNL applications run correctly on peta-scale platforms;
- Received recognition as Software Track Best Paper Award at the 2007 International Parallel and Distributed Processing Symposium for development of new methodologies for performance analysis and optimization;
- Performed theoretical development work on a high-fidelity transport algorithm that will drastically increase efficiency of weapons simulations;
- Released the latest version of the ASC-developed Trilinos framework, which provides advanced numerical algorithms for developing simulation capabilities on high performance computing systems, to the open source community;
- Identified and implemented several code efficiency improvements into one of the LANL ASC performance codes that reduced a full test time-to-solution by 7% from the FY 2007 code version;
- LANL completed Version 1.0 of a new toolkit to set up complicated meshes for a modern ASC code. This will result in a significant reduction in problem set-up time, and
- Implemented TriPOD operating system software and Tri-Lab Linux Capacity Cluster hardware, resulting in common capacity computing hardware and system software at all three labs.

Major Out-year Priorities and Assumptions

The outyear projections for the Advanced Simulation and Computing Campaign (ASC Campaign) total $2,174,096,000 for FY 2011 through FY 2014. By 2013, ASC seeks to enable simulation-based risk-informed decision making, foster continued innovation in high-performance computing, and support the transition toward Complex Transformation. In the next decade, both the enhancement of future predictive capabilities and the achievement of DSW simulation deliverables will demand ever more powerful and sophisticated simulation environments. ASC already has envisioned several key simulation requirements of predictive capability that demand multi-petaflop and exaflop computing. The key limitation on performing these simulations is the delivery and utilization of the hardware. It is already anticipated that the delivery of supercomputing beyond a petaflop will require a complex computing environment exploiting large numbers of computing nodes, each with large number of cores, and possibly also including specialized computing processors like those used in Roadrunner. It is expected that, on current supercomputing growth rates, an exaflop computer will not be available until the 2018-2020 timeframe and that efficiently exploiting these computers will be extremely challenging. ASC is therefore currently investing in early delivery vehicles of some of these technologies, e.g. Roadrunner and Sequoia, to begin to address these challenges. Currently, we are estimating the computing requirements to perform three-dimensional studies with the science and resolution required to simulate ignition in the driver pits, or to produce material property database using Quantum Molecular Dynamics simulations.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.30.00, Advanced Simulation and Computing Campaign											
The cumulative percentage of simulation runs that utilize modern ASC-developed codes on ASC computing platforms as measured against the total of legacy and ASC codes used for stockpile stewardship activities (Long-term Outcome)[a]	N/A	R: 50%	R: 63% T : 63%	R: 72% T: 72%	T: 80%	T: 85%	T: 90%	T: 95%	T: 100%	N/A	By 2013, ASC-developed modern codes are used for all simulations on ASC platforms. Adoption of Modern ASC Codes will enable a responsive simulation capability for the Nuclear Security Enterprise. This measure is meant to show how quickly ASC codes are being adopted by the user community in place of legacy codes.
The cumulative percentage reduction in the use of calibration "knobs" to successfully simulate nuclear weapons performance (Long-term Outcome)[a]	N/A	R: 2%	R: 8% T : 8%	R: 16% T: 16%	T: 25%	T: 30%	T: 35%	T: 40%	T: 45%	T: 50%	By 2024, the four major calibration knobs affecting weapons performance simulation have been replaced by science-based, predictive phenomenological models. Reduced reliance on calibration will ensure the development of robust ASC simulation tools, These tools are intended to enable the understanding of the complex behaviors and effect of nuclear weapons, now and into the future, without nuclear testing.
The cumulative percentage of nuclear weapon Significant Finding Investigations (SFIs) resolved through the use of modern (non-legacy) ASC codes, measured against all codes used for SFI resolution (Long-term Outcome)[a]	N/A	R: 10%	R: 25% T : 25%	R: 37% T: 37%	T: 50%	T: 60%	T: 65%	T: 70%	T: 80%	T:85%	By 2015, ASC codes will be the principal tools for resolution of all SFIs. This demonstrates how valuable the ASC tools are for meeting the needs of the weapon designer's analysts by documenting the impact on closing SFIs.
The cumulative percentage of simulation turnaround time reduced while using modern ASC codes (Efficiency)[a]	N/A	R: 6%	R: 7% T : 7%	R: 13% T: 13%	T: 13%	T: 15%	T: 20%	T: 27%	T: 34%	T: 42%	By 2015, achieve a 50% reduction in turnaround time, as measured by a series of benchmark calculations, for the most heavily used ASC codes. To show code efficiency by demonstrating that simulation time decreases as the ASC codes mature.

[a] Performance measures were revised in 2007 to be consistent with new program roadmap.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Integrated Codes (IC)	**151,984**	**138,917**	**138,475**

This subprogram primarily addresses the improvement of weapons system simulations to predict with reduced uncertainties the behavior of devices in the stockpile and enables the analysis and design for future warhead modifications. The products of this subprogram are the large-scale integrated simulation codes that are needed for Stockpile Stewardship Program (SSP) maintenance, the LEP, Significant Findings closure, and a host of related requirements, including dismantlements. Specifics include the maintenance of the legacy codes; continued research into engineering code applications and manufacturing process codes; investigation and development of future non-nuclear replacement components; algorithms, computational methods and software architectures; advancement of key basic research initiatives; and explorations into emerging code technologies and methodologies. This subprogram also includes university partnerships that foster continued collaborations such as the Predictive Science Academic Alliances Program (PSAAP) and Computational Science Graduate Fellowship (CSGF) Program. The functional and performance requirements of this subprogram are established by designers, analysts, and code developers. It also relies upon the Physics and Engineering Models subprogram for the development of new models to be implemented into the modern codes. The subprogram also engages the Verification and Validation (V&V) subprogram in assessing the degree of reliability and level of uncertainty associated with the outputs from the codes.

The FY 2010 activities include the following: develop coupled multi-physics capabilities for device simulation based on scientific representation of device behavior with a reduced reliance on calibration to underground test data; produce more accurate numerical methods for treating complex geometries in 2-D and 3-D computer codes; develop the capability to simulate effects of replacement components and analyze various Stockpile-to-Target Sequence scenarios and modifications; accelerate code performance through more powerful numerical algorithms and improved approximations; maintain interactions with academic colleagues in computer science, computational mathematics, and engineering; conduct basic research relevant to the ASC Campaign in computer science, scientific computing, and computational mathematics; and continued support of the CSGF program.

Physics and Engineering Models (PEM)	**65,049**	**49,284**	**58,762**

This subprogram develops microscopic and macroscopic models of physics and material properties, improved numerical approximations of transport for particles and x-rays, and models for the behavior of other critical phenomena. This subprogram is charged with the development, initial validation, and incorporation of new models into the Integrated Codes. Therefore, it is essential that there be a close interdependence between these two subprograms. There is also extensive integration with the experimental programs of the SSP, mostly funded and led by the Science Campaign.

The FY 2010 activities include: develop and implement Equation of State and constitutive models for materials within nuclear devices; improve understanding of phase diagrams and the dynamic response of materials; continue physics-based modeling for plutonium aging; explore fundamental chemistry models of high explosives; improve representation of corrosion, polymer degradation, and thermal-mechanical fatigue of weapons electronics; improve models of melting and decomposition of foams

and polymers in safety-critical components; support of the Stockpile-to-Target-Sequence requirements by improving models of microelectronic and photonic materials in hostile environments.

Verification and Validation (V&V) 49,606 50,184 49,781

This national subprogram element provides a rigorous, defensible, scientifically based measure of confidence and progress in predictive simulation capabilities. The V&V program applies systematic measurement, documentation, and demonstration of the ability of the codes and the underlying models in various operational states and functional regimes to predict behavior. The V&V is developing and implementing Uncertainty Quantification (UQ) methodologies as part of the foundation to the Quantification of Margins and Uncertainties (QMU) process of weapons assessment and certification. V&V also drives software engineering practices to improve the quality, robustness, reliability, and maintainability of the codes that evaluate and address the unique complexities of the stockpile.

In FY 2010, V&V will focus on UQ assessments that include: integral V&V assessment; catalog of Top Adjustable Parameters in Weapons Physics Simulations; expansion of the Primary Metric Project test suites to include more relevant Nevada Test Site events; and development of first events of the Secondary Calculational Assessment Methodology Project.

Computational Systems and Software Environment (CSSE) 185,637 156,733 150,833

CSSE builds integrated, balanced and scalable computational capabilities to meet the predictive simulation requirements of the NNSA. It strives to provide users of ASC computing resources a stable and seamless computing environment for all ASC-deployed platforms. The complex and diverse demands of the ASC performance and analysis codes and the scale of the required simulations require the ASC Campaign to be far in advance of the mainstream high-performance computing community. To achieve its predictive capability goals, the ASC Campaign must continue to invest in and consequently influence the evolution of computational environments. The CSSE must provide the stability that ensures productive system use and protects the large investment in simulation codes.

A balanced and stable computational infrastructure is a key enabling technology for delivering the required computing capabilities. Along with the powerful capability, capacity and advanced systems that the campaign fields, the supporting software infrastructure that is deployed on these platforms include many critical components, from system software and tools, to Input/Output (I/O), storage and networking, post-processing visualization and data analysis tools, to common computing environments. The immediate focus areas include moving toward a more standard user environment and improving its usability, deploying more capacity computational platforms, planning for and developing peta-scale computing capability, and making strategic investments to meet program requirements at an acceptable cost.

The FY 2010 activities include the following: continue maintenance of LLNL Purple, LANL Roadrunner, and the Sequoia Initial Delivery (ID) system at LLNL; operate the high-performance capacity computing scalable units to meet growing demands especially in the area of modern (QMU-based) weapons certification and assessment; maintain a common, usable, and robust application-development and execution environment for ASC-scale applications and platforms; produce an end-to-

(dollars in thousands)

FY 2008	FY 2009	FY 2010

end, high-performance I/O, networking-and-storage archive infrastructure encompassing ASC Campaign platforms and operating systems, large-scale simulations, and data-exploration capabilities; provide a reliable, available, and secure environment for distance computing through system monitoring and analysis, modeling and simulation, and technology infusion; develop and deploy high-performance tools and technologies to support visual and interactive exploration of massive, complex data; deploy effective data management, extraction, delivery, and archiving, as well as an efficient remote or collaborative scientific data exploitation; develop and deploy scalable data manipulation and rendering systems that leverage inexpensive, high performance commodity graphics hardware; deploy and provide system management of the ASC Campaign computers and their necessary networks and archival storage systems; and, stimulate research and development efforts through advanced architectures that explore alternative computer designs, promising dramatic improvements in performance, scalability, reliability, packaging, and cost.

Facility Operations and User Support	**122,261**	**161,007**	**158,274**

This subprogram provides necessary physical facility and operational support for reliable production computing and storage environments as well as a suite of services enabling effective use of ASC Tri-Laboratory computing resources. Facility operations include planning, integration and deployment, continuing product support, software license and maintenance fees, procurement of operational equipment and media, quality and reliability activities and collaborations. Facility Operations also covers physical space, power and other utility infrastructure, and Local Area Network/Wide Area Networking for local and remote access, as well as requisite system administration, cyber-security and operations services for ongoing support and addressing system problems.

The scope of the User Support function includes planning, development, integration and deployment, continuing product support, and quality and reliability activities collaborations. Projects and technologies include computer center hotline and help-desk services, account management, web-based system documentation, system status information tools, user training, trouble-ticketing systems, and application analyst support.

The FY 2010 activities include the following: maintain continuous and reliable operation and support of production computing systems and all required infrastructure to operate these systems on a 24-hour a day, 7-day a week basis, with an emphasis on providing efficient production quality stable systems; ensure that the physical plant has sufficient resources, such as space, power, and cooling, to support future computing systems; provide the authentication and authorization services used by applications for the purposes of remote access and data movement across ASC-related locations; develop and maintain a wide-area infrastructure (e.g., links and services) that enables distant users to operate on remote computing resources as if they were local to the extent possible; enable remote access to ASC applications, data, and computing resources, to support computational needs at the plants; operate laboratory ASC computers and support integration of new systems; provide analysis and software environment development and support for ASC laboratory computers; provide user services and helpdesks for ASC laboratory computers.

Total, Advanced Simulation and Computing Campaign	**574,537**	**556,125**	**556,125**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Integrated Codes	
The decrease reflects some consolidation of the code projects within the ASC program.	-442
Physics and Engineering Models	
The increase indicates continued model development to replace nuclear-test calibrated models with more predictive capabilities.	+9,478
Verification and Validation (V&V)	
The modest decrease reflects continued focus on V&V efforts in uncertainty quantification and limited methodology development in verification and validation of complex multi-scale, multi-physics weapons codes at the labs and collaboration with strategic academic partners.	-403
Computational Systems and Software Environment	
The decrease reflects reduced capability, capacity, and advanced system procurements and an overall consolidation of software environment efforts.	-5,900
Facility Operations and User Support	
This decrease is consistent with the cost cycle to operate and maintain the existing computing centers of the Nuclear Security Enterprise at the national laboratories as new platforms are installed and older systems are retired.	-2,733
Total Funding Change, Advanced Simulation and Computing Campaign	**0**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	780	797	815
Capital Equipment	77,336	79,037	80,776
Total, Capital Equipment	**78,116**	**79,834**	**81,591**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	833	851	870	889
Capital Equipment	82,553	84,369	86,225	88,122
Total, Capital Equipment	**83,386**	**85,220**	**87,095**	**89,011**

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects. The program no longer budgets separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

Readiness Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Readiness Campaign			
Stockpile Readiness	18,562	27,869	5,746
High Explosives and Weapon Operations	9,647	8,659	4,608
Nonnuclear Readiness	25,103	30,000	12,701
Tritium Readiness	71,831	71,831	68,246
Advanced Design and Production Technologies	32,945	22,261	8,699
Total, Readiness Campaign	**158,088**	**160,620**	**100,000**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Readiness Campaign				
Stockpile Readiness	11,199	0	0	0
High Explosives and Weapon Operations	0	0	0	0
Nonnuclear Readiness	7,026	0	0	0
Tritium Readiness	51,371	83,704	82,728	81,835
Advanced Design and Production Technologies	14,433	0	0	0
Total, Readiness Campaign	**84,029**	**83,704**	**82,728**	**81,835**

Description

The Readiness Campaign funds the development and deployment of modern manufacturing capabilities to produce materials and components in compliance with weapon design and performance requirements and in accordance with Life Extension Program and refurbishment schedules. The Nuclear Security Enterprise benefits from the Readiness Campaign activities in two unique ways. First, projects are coordinated with other Campaign and Program investments to bring advanced technology and manufacturing capabilities for multiple weapon systems to the Nuclear Security Enterprise. Second, program selection criteria include consideration of reduced production cycle times and manufacturing costs for a near-term return on investment and measureable advancement toward a newly responsive nuclear weapons infrastructure.

Within the Readiness Campaign, there are five subprograms: Stockpile Readiness, High Explosives and Weapon Operations, Nonnuclear Readiness, Tritium Readiness, and Advanced Design and Production Technologies; each make unique contributions to the Government Performance and Reporting Act (GPRA) Unit Program Goal 2.1.32.00, the stockpile, and the Nuclear Security Enterprise. Collectively, these five subprograms provide key technology-based capabilities needed to design, manufacture, and dismantle nuclear weapons and to sustain the infrastructure needed to do so over time.

Stockpile Readiness develops and deploys manufacturing capabilities and special processes for production of components containing special materials and advanced component qualification and acceptance.

High Explosives and Weapon Operations develops, enhances, and deploys capabilities for the production of high explosive and other energetic components, the requalification of weapons components for reuse, and the assembly and disassembly of war reserve nuclear weapons.

Nonnuclear Readiness develops and deploys new capabilities to manufacture electrical, electronic, electromechanical and other nonnuclear components that synchronize and initiate weapon detonation when required, while preventing unauthorized and inadvertent activation.

Tritium Readiness has reestablished an assured tritium supply to sustain the nuclear weapons stockpile for its lifetime and continues to improve design and increase production capacity.

Advanced Design and Production Technologies funds development of cross-complex capabilities that rely on fundamental principles of science-based manufacturing, models-based manufacturing, and alternatives evaluation to select and develop robust, technology-based solutions that underpin a responsive and agile production complex.

In FY 2010, the Readiness Campaign will fund technology-based capabilities across the Nuclear Security Enterprise (multi-site, multi-system), with an emphasis on validated plans to achieve measurable benefits for the nuclear enterprise production and operation. This focus supports the transformation strategies of creating a fully integrated and interdependent nuclear enterprise that is modernized and cost effective.

The Readiness Campaign capabilities are integral to completing weapons system component design and manufacturing. Successful completion of Directed Stockpile Work (DSW) milestones rely upon the timely introduction of capabilities funded under the Readiness Campaign. To coordinate the timed delivery of new manufacturing capabilities with first use scheduled weapon activities, Readiness Campaign program managers integrate planning and prioritization during two annual planning meetings, as well as during numerous ad hoc meetings throughout the planning year. The Readiness Campaign, the Engineering Campaign, the Advanced Simulation and Computing Campaign, and the Science Campaign coordinate investments and bring advanced technology to the nuclear enterprise.

The Readiness Campaign relies upon the materials management organization responsible for establishing the life cycle management of accountable nuclear materials by identifying, assessing, and prioritizing material needs and availability for use in meeting strategic defense goals. Materials management identifies shortfalls as well as efficiencies and productivity improvements in material processing capabilities that are required to support material feed requirements. The Readiness Campaign program, through its interaction with the materials management organization, addresses deployment of technology development investments needed for such requirements.

Major FY 2008 Achievements

Advance Design and Production Technologies

- Completed a cross-complex plan to propagate the W88 Joint Test Assembly (JTA) 2 Refresh Testworks innovations, paving the way for improved JTA reliability and mechanical robustness in design, while also reducing development cycle time and costs, simplifying assembly processes and testing requirements, and reducing expensive qualification testing.

High Explosive and Weapon Operations

- Completed three nondestructive evaluation projects to reduce or recycle the waste from high explosive processing materials operations.
- Established compatibility for a substitute solvent for W88 program materials to replace a solvent no longer available.

Nonnuclear Readiness

- Deployed advanced mechanical and electrical acceptance testers used to diamond stamp accepted stronglinks, cushions, and electrical components for the W76-1, B61, and other DSW systems in active production; full production for the W76-1 system was realized as a result. The deployment removed hazardous hydraulic driven pressure systems, added safety shut off features, and reduced the footprint of the systems by approximately 2000 square feet. Over 50,000 components have been tested, yielding $1.8M in documented cost savings.

Stockpile Readiness

- Deployed the Computer Numerically Controlled Machining Center and a new Coordinate Measuring Machine system used for machining and inspecting special materials parts respectively. These established new capabilities to support programmatic requirements for Life Extension Programs.
- Deployed a nuclear magnetic resonance spectrometer, one of the few nondestructive methods for analyzing structure and molecular dynamics. This helps to sustain manufacturing and stockpile evaluation for Life Extension Programs.
- Deployed the Multi-Axis Orbital Machining Center to replace aging equipment. The system demonstrates increased safety and versatility using drilling, milling, and turning with the ability to map the surface of the object being machined. Efficiencies also include increased accuracy and reduced machine time.

Tritium Readiness

- Delivered the ninth production run of tritium producing burnable absorber rods to the Tennessee Valley Authority's Watts Bar nuclear plant to replace the rods irradiated during FY 2008.

Major Outyear Priorities and Assumptions

The outyear projections for Readiness Campaign total $332,296,000 for FY 2011 through FY 2014. With the exception of the Tritium Readiness subprogram, the outyear funding for the Readiness Campaign will be invested in manufacturing capabilities that meet production requirements and, to the extent possible, optimize design-to-manufacturing processes, shorten cycle times and lower operating costs. Work will be completed in FY 2012 on these efforts and planning resumed for FY 2015 based on the proposed funding in the outyears.

The Tritium Readiness subprogram plans to ramp up production of tritium to meet inventory requirements, as well as to continue development to increase the allowable production rate from each nuclear reactor. Most of the increase from FY 2011 to FY 2012 is due to costs that are cyclical in nature due to multi-year fixed priced contracts used to preserve the fragile supplier base and control procurement costs. In FY 2012, there are a number of multi-year contract awards (approximately $27M) for components for Tritium Producing Burnable Absorber Rods (TPBARs) which were awarded in FY 2009; in FY 2013 there is exercise of a contract option for five years of TPBAR transportation services (approximately $18M) previously exercised in FY 2008.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.32.00, Readiness Campaign											
Cumulative number of critical immediate and urgent capabilities deployed to support our Directed Stockpile Work (DSW) customer's nuclear weapon refurbishment needs derived from the Production Readiness Assessment Plan (Long-term Output)	R: 12 T: 10	R: 16 T: 15	R: 20 T: 20	R: 22 T: 22	T: 24	T: 25	T: 27	T: 29	T: 30	T: 30	By 2017, deploy 38 critical immediate and urgent capabilities to support Directed Stockpile Work nuclear weapons refurbishment deliverables.
The number of capabilities deployed every other year to stockpile programs that will reduce cycle times at least by 35% (against baselined agility and efficiency) (Annual Outcome)	N/A	N/A	R: 1 T: 1	R: 0 T: 0	T: 1	T: 0	T: 1	T: 0	T: 1	T: 0	Deploy at least one new capability to a stockpile program every other year that reduces cycle time by at least 35%.
Cumulative number of Tritium-Producing Burnable Absorber Rods irradiated in Tennessee Valley Authority reactors to provide the capability of collecting new tritium to replace inventory for the nuclear weapons stockpile (Long-term Output)	R: 240 T: 240	R: 240 T: 240	R: 480 T: 480	R: 720 T: 720	T: 960	T: 960	T: 1,200	N/A	N/A	N/A	By 2011, complete irradiation of 1,200 Tritium-Producing Burnable Rods (to provide tritium for nuclear weapons).
Cumulative percentage of Tritium Extraction Facility (TEF) project completed (total project cost), while maintaining a Cost Performance Index of 0.9 - 1.15 (Efficiency)	R: 87% T: 87%	R: 97% T: 96%	R: 100% T: 100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	By 2007, complete 100% of TEF project, while maintaining a Cost Performance Index of 0.9-1.15. (TEF line item construction funding completed in 2006.)
Percentage of investment in the ADAPT, Stockpile Readiness, Nonnuclear Readiness, and High Explosive and Weapons Operations subprograms in development of capabilities that forecast within three years of production deployment operational cost savings of at least two times the development and deployment cost compared to pre-deployment operations. (Efficiency)	N/A	N/A	N/A	Baseline	T: 2.5%	T: 2.5%	T: 5%	T: 7.5%	T: 10%	T: 10%	New efficiency measure proposed for baseline during FY 2008 self-assessment. By 2016, reach 20% of investment in ADAPT. Assists in Complex Transformation.

Detailed Justification

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Stockpile Readiness	**18,562**	**27,869**	**5,746**

The Stockpile Readiness subprogram ensures the availability of future manufacturing capabilities for the production of weapon components containing special materials.

To accomplish this task, the Stockpile Readiness subprogram examines modern and emerging technologies and applies them to the development of new or replacement design and production capabilities in those cases where modern technology would lead to cost-effective lean processes; enhanced surety and surveillance; shortened cycle times; built-in quality and acceptance; closer integration of activities across the nuclear enterprise; a more productive workforce; and agile processes that enhance responsiveness to future national security needs.

In FY 2010, the Stockpile Readiness subprogram will deliver the Automated Reservoir Management System to manage Savannah River Site Tritium reservoir processing activities and all Stockpile Life Extension Programs; and the Infrared (IR) Debonding project which will allow the Y-12 site to create a process that will disassemble components with a high-energy source.

High Explosives and Weapon Operations	**9,647**	**8,659**	**4,608**

The High Explosives and Weapon Operations subprogram deploys technology enhancements for existing capabilities, and develops and deploys new capabilities for high explosive and other energetic component production, component requalification, nuclear weapon assembly and disassembly, material and War Reserve component logistics and inventory control, and special nuclear material interim storage and staging.

In FY 2010, the High Explosives and Weapon Operations subprogram will deploy advanced inventory and materials management systems, advanced high explosive gauging techniques, and the predictive optimized control of high explosives.

Nonnuclear Readiness	**25,103**	**30,000**	**12,701**

The Nonnuclear Readiness subprogram develops and deploys product development and production capabilities required to support nonnuclear product requirements. Nonnuclear functions range from weapon command and control to examining performance during deployment simulations, including weapon structural features, neutron generators, tritium reservoirs, detonators and component testers.

In FY 2010, the Nonnuclear Readiness subprogram will deliver electronic component and assembly miniaturization which identifies, prioritizes, procures, and installs microelectronic and surface mount production equipment to meet the requirements of weapon components and flight test systems; multi-layer process for ceramic current stack, which improves efficiencies within the production of ferro-electric neutron generators (FENGs), beginning with the “Small” FENG for the W87, W88, W80 and future RV/RS systems, and integrated radio frequency packaging which manufactures RFIC-based Multi-Chip Modules (MCMs) to support RF electronics for future Radar, Built-In Testing and Telemetry, Embedded Evaluation and System Bus Architectures.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Tritium Readiness	**71,831**	**71,831**	**68,246**

The Tritium Readiness subprogram operates the Departmental capability for producing tritium to maintain the national inventory needed for the nuclear weapons stockpile. Irradiation of Tritium-Producing Burnable Absorber Rods (TPBARs) in the Tennessee Valley Authority's (TVA) Watts Bar nuclear reactor began in October 2003. Plans are being initiated to bring additional production capacity on line using TVA's Sequoyah Unit #1 and #2 reactors to meet tritium production requirements, specified in the Nuclear Weapons Stockpile Plan signed annually by the President.

In FY 2010, the Tritium Readiness subprogram will load 240 TPBARs into the Watts Bar reactor and commence irradiation for the Cycle 10 production run. A total of 368 irradiated TPBARs from the Cycle 9 run will be consolidated into shipping containers and transported to the Tritium Extraction Facility at the Savannah River Site, with several Cycle 9 TPBARs subjected to Post Irradiation Examination at the Pacific Northwest National Laboratory and the Idaho National Laboratory to increase understanding of the mechanisms causing greater than expected tritium permeation into the reactor coolant. The Tritium Extraction Facility will continue in Responsive Operations mode, and will extract tritium from the first of two batches of Cycle 9 TPBARs.

Advanced Design and Production Technologies	**32,945**	**22,261**	**8,699**

The Advanced Design and Production Technologies subprogram includes costs to select, mature, develop, integrate, and demonstrate cost-effective, new technology and enhanced design-through-production-based capabilities needed by Directed Stockpile Work and RTBF programs, and that support the current legacy weapons and associated activities that drive transformation for the National Security Enterprise and for the weapon stockpile.

In FY 2010, the Advanced Design and Production Technologies subprogram will include deliverables that put in place initiation systems, advanced electrical development which develops technologies and processes for electrical materials and components for advanced electronic systems, and upgrading components for radar, fireset, and telemetry weapon applications.

Total, Readiness Campaign	**158,088**	**160,620**	**100,000**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Stockpile Readiness	
In order to support higher priority work, activities will be limited to the Automated Reservoir Management System to manage Savannah River Site Tritium reservoir processing activities and all Stockpile Life Extension Programs; and the IR Debonding project, which will allow the Y-12 site to create a process that will disassemble components with a high-energy source.	-22,123
High Explosives and Weapon Operations	
In order to support higher priority work, several planned activities will be reduced or deferred. Workscope will focus on deployment of advanced inventory and materials management systems, advanced high explosive gauging techniques, and the predictive optimized control of high explosives	-4,051
Nonnuclear Readiness	
In order to support higher priority work, several planned activities will be reduced or deferred. Focus will be placed on process development for the delivery of electronic components and assembly miniaturization which identifies, prioritizes, procures, and installs microelectronic and surface mount production equipment to meet the requirements of weapon components and flight test systems; multi-layer process for ceramic current stack, which improves efficiencies within the production of FENGs, beginning with the "Small" FENG for the W87, W88, W80 and future RV/RS systems; and integrated RF packaging which manufactures RFIC-based Multi-Chip Modules (MCMs) to support RF electronics for future Radar, Built-In Testing and Telemetry, Embedded Evaluation and System Bus Architectures.	-17,299
Tritium Readiness	
This decrease in funding is planned, and is due to the cyclical nature of the fixed-price contracting approach taken by the program for manufacture of tritium producing burnable absorber rods and other materials.	-3,585
Advanced Design and Production Technologies	
In order to support higher priority work, several planned activities will be reduced or deferred. Work will focus on initiation systems, advanced electrical development which develops technologies and processes for electrical materials and components for advanced electronic systems, and upgrading components for radar, firesets, and telemetry weapon applications.	-13,562
Total Funding Change, Readiness Campaign	**-60,620**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	80	82	84
Capital Equipment	13,434	13,730	14,032
Total, Capital Equipment	**13,514**	**13,812**	**14,116**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	86	88	90	92
Capital Equipment	14,341	14,657	14,979	15,309
Total, Capital Equipment	**14,427**	**14,745**	**15,069**	**15,401**

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects. The program no longer budgets separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

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

(dollars in thousands)

Major Item of Equipment	Total Project Cost (TPC)	Other Project Cost	Total Estimated Cost (TEC)	Prior-Year Appro-priations	FY 2008	FY 2009	FY 2010	Completion Date
Microwave Deployment, Y-12 National Security Complex	19,900		16,824	1,697	3,865	9,266	1,996	FY 2012
Multi-axis Orbital Machining Center, Y-12 National Security Complex	3,785		3,440	2,500	1,379	-439	0	FY 2009
Coordinate Measuring Machine # 3, Y-12 National Security Complex	6,000		5,700	5,700	0	0	0	FY 2009
Scanning Electron Microscope, Y-12 National Security Complex	3,194		3,194	3,200	-6	0	0	FY 2008
CNC Machining Capability, Y-12 National Security Complex	6,125		5,436	5,870	-434	0	0	FY 2008
9 MeV Linac, Y-12 National Security Complex	3,190		2,868	3,350	-482	0	0	FY 2008
Total Major Items of Equipment	**42,194**	**0**	**37,462**	**22,317**	**4,322**	**8,827**	**1,996**	

Note: Microwave reflects the CD-1 Package funding profile, not the current PPLs.

Pit Manufacturing and Certification Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Pit Manufacturing and Certification Campaign			
Pit Manufacturing	137,323	0	0
Pit Certification	37,273	0	0
Pit Manufacturing Capability	39,235	0	0
Total, Pit Manufacturing and Certification Campaign	**213,831**	**0**	**0**

Budget Structure Changes

Having successfully reconstituted the capability for producing a replacement plutonium pit for a nuclear weapon, the Pit Manufacturing and Certification Campaign is complete. In FY 2009, Pit Manufacturing and Pit Manufacturing Capability become Plutonium Capability under the DSW Stockpile Services subprogram with other production manufacturing activities. Also in FY 2009, Pit Certification was moved to the Science Campaign and renamed Dynamic Plutonium Experiments.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Pit Manufacturing	**137,323**	**0**	**0**

The Pit Manufacturing subprogram objective was to manufacture the W88 pit in limited quantities, establish an interim pit manufacturing capability at existing LANL facilities, and, prior to FY 2008, plan for long term pit manufacturing support.

Pit Certification	**37,273**	**0**	**0**

The Pit Certification subprogram objective was to confirm the nuclear performance of a W88 warhead with a LANL manufactured pit by the end of FY 2007, and to establish certification processes for future replacement pits.

Pit Manufacturing Capability	**39,235**	**0**	**0**

The Pit Manufacturing Capability subprogram objective was to establish the capability to manufacture replacement pits other than the W88 pit, improve manufacturing processes used to manufacture all pit types, and develop the processes and equipment necessary to manufacture the RRW pit. The processes and technologies developed support NNSA goals that include producing less waste, lowering the radiation dose to facility operators, and reducing the unit costs of manufacturing pits.

Total, Pit Manufacturing and Certification Campaign	**213,831**	**0**	**0**

Readiness in Technical Base and Facilities

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Readiness in Technical Base and Facilities			
Operations of Facilities	1,152,455	1,163,331	1,342,303
Program Readiness	70,099	71,626	73,021
Material Recycle and Recovery	71,567	70,334	69,542
Containers	21,760	22,696	23,392
Storage	34,462	31,951	24,708
Subtotal, Operations and Maintenance	**1,350,343**	**1,359,938**	**1,532,966**
Construction	285,038	314,468	203,382
Total, Readiness in Technical Base and Facilities	**1,635,381**	**1,674,406**	**1,736,348**

Outyear Funding Schedule by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Readiness in Technical Base and Facilities				
Operations of Facilities	1,290,006	1,212,085	1,169,649	1,114,853
Program Readiness	70,945	66,075	65,567	65,117
Material Recycle and Recovery	72,091	66,267	66,258	64,959
Containers	28,653	25,658	24,691	23,541
Storage	24,805	23,089	22,975	22,487
Subtotal, Operations and Maintenance	**1,486,500**	**1,393,174**	**1,349,140**	**1,290,957**
Construction	250,279	377,693	387,335	403,267
Readiness in Technical Base and Facilities	**1,736,779**	**1,770,867**	**1,736,475**	**1,694,224**

Description

The goal of the Readiness in Technical Base and Facilities (RTBF) program is to operate and maintain National Nuclear Security Administration (NNSA) program facilities in a safe, secure, efficient, reliable, and compliant condition, including facility operating costs (e.g., utilities, equipment, facility personnel, training, and salaries); facility and equipment maintenance costs (e.g., staff, tools, and replacement parts); and environmental, safety, and health (ES&H) costs; and plan, prioritize, and construct state-of-the-art facilities, infrastructure, and scientific tools that are not directly attributable to Directed Stockpile Work (DSW) or a Campaign, within approved baseline costs and schedule.

The RTBF program achieves this goal so that NNSA program facilities are operationally ready to execute nuclear weapons stockpile stewardship tasks on time in support of DSW and the Campaigns. Work scope and costs include program contractor facility operations; facility and equipment maintenance; ES&H activities; the capability to recover and recycle plutonium, highly-enriched uranium, and tritium to support a safe and reliable nuclear stockpile; and specialized storage and containers sufficient to support the requirements of the weapons stockpile.

To support program requirements and efficient operations, RTBF is funding specific projects and emergent priority maintenance activities in mission critical and mission dependent facilities through the Institutional Site Support (ISS) subprogram. ISS projects focus on sustaining facilities and modern

equipment that support programmatic missions while reducing operating costs. ISS projects will also fund selected projects to prepare for facility consolidation and foot print reduction activities.

In FY 2010, RTBF will prioritize and execute the necessary work scope to allow continued safe operation and reduce operational risks at Building 9212 at Y-12 and the Chemistry and Metallurgy Research (CMR) Facility at LANL. Also, beginning in FY 2010, activities and budget associated with Inactive Actinides projects have been moved to the Nuclear Materials Integration subprogram within Site Stewardship.

The RTBF Construction Program plays a critical role in revitalizing the nuclear weapons manufacturing and research and development infrastructure. Construction investments support design and construction of facilities that support the Nuclear Security Enterprise, improving the responsiveness and/or functionality of the infrastructure and its technology base.

The RTBF program provides resources for NNSA program facilities to maintain readiness to execute nuclear weapons stockpile stewardship tasks on time, as identified by DSW and the Campaigns. RTBF Operations of Facilities balances available resources to maintain mission critical and mission dependent infrastructure to sustain the stockpile for the long term and keep the facilities and capabilities in a safe, secure, and reliable state of readiness. The RTBF Construction Program plays a critical role in revitalizing the nuclear weapons manufacturing and research and development infrastructure.

The RTBF program is closely aligned with other program elements within Weapons Activities, including the Facilities and Infrastructure Recapitalization Program (FIRP), Campaigns, and the Directed Stockpile Work (DSW) Program. RTBF partners with FIRP to restore Nuclear Security Enterprise facilities and infrastructure, to the right condition, consistent with mission requirements. RTBF funds current operations and maintenance of the complex and makes capital investments to sustain the complex into the future. RTBF prioritizes available resources to ensure appropriate levels of maintenance are performed for designated mission critical and mission dependent facilities. RTBF partners with DSW and the Campaigns by having the necessary facilities and capabilities in place to assure DSW program work can be accomplished. DSW also provides support for containers, recycling, recovery and storage of nuclear material activity when weapon specific scope exceeds the base capability provided by the Container subprogram.

The revised Department of Energy (DOE) Order 413.3A "Program and Project Management for Acquisition of Capital Assets" requires External Independent Reviews (EIR) for Capital Asset Projects greater than $100,000,000. Examples of EIR costs include conducting Performance Baseline EIRs prior to Critical Decision-2 (CD-2) to validate cost and schedule baseline estimates and conducting Construction/Execution Readiness EIRs, which are performed for all Major System projects prior to Critical Decision -3 (CD-3). In addition, projects less than the $100,000,000 threshold will be subjected to an IPR. Beginning in FY 2009, EIRs are funded within the Office of Management (Engineering and Construction Management) to ensure the "external" and "independent" nature of EIR audits on project performance baselines. Funds appropriated under RTBF operating accounts, Project Engineering and Design datasheets, and construction projects may be used to provide IPRs of associated RTBF projects.

The FY 2008 Consolidated Appropriations Act (P.L. 110-161) directs the Department to manage all projects in excess of $100,000,000 total cost in full compliance with DOE Order 413.3A. The NNSA RTBF Program is in compliance with the requirements of the DOE Order 413.3A.

Major FY 2008 Achievements

- Exceeded corporate facility availability goals to support DSW and Campaign activities as RTBF facilities were available 97.6 percent of scheduled days;
- Exceeded the industry "best in class" target of 5 percent FCI for mission-critical facilities resulting in increased operational effectiveness and efficiency;
- Funded seven transformation projects through Institutional Site Support (ISS), facilitating square foot reduction and modernization activities across the complex. These include consolidating Depleted Uranium/Binary processes at the Y-12 Security Complex, which will remove the last of the mission work from the Alpha-5 facility and preparing CMR wing 4 at LANL for closure.
- Restarted Oxide Conversion Facility (OCF) to produce 'Green Salt' at Y-12;
- Exceeded the 11MT deinventory goal and removed 15 MT of SNM from NNSA sites;
- Packaged 45 percent and shipped 37 percent of Cat I/II materials from LLNL in support of nuclear material de-inventory goals;
- Supported the successful completion of Sandia Phase I deinventory effort and currently supporting the Phase II effort;
- The Nuclear Criticality Safety Program established experiment and training partnership with France.
- Provided transportation container support for DSW and NNSA missions to support LEP and Stockpiles Stewardship programs;
- Received the Certificate of Compliance for the 9977 package (RTG content) and shipped RTGs for the first time in many years and supported these containers for Nevada's efforts with the Department of Homeland Security test and evaluation facility;
- Completed the Building B-3 Remediation, Restoration, and Upgrade Project at the North Las Vegas site;
- Completed construction of the Highly Enriched Uranium Materials Facility (HEUMF) at Y-12, and
- Approved CD-1 for the Y-12 Complex Command Center.

Major Outyear Priorities and Assumptions

The outyear projections for RTBF are at the level of $6,938,345,000 for FY 2011 through FY 2014. The trend in the five-year period is increasing mostly in construction funding to support the investment needed to address the continued aging of the NNSA complex, which continues to be a challenge due to escalating requirements and costs associated with nuclear facility safety and compliance. To address these challenges, the RTBF program will realize efficiencies through the use of activity based costing principles for selected key mission critical facilities and standardized accounting with a more detailed national Work Breakdown Structure. In addition, RTBF intends to manage available infrastructure support resources to prioritize and fund selected projects and maintenance activities that will consolidate program activities, reduce program footprint, and replace/refurbish process equipment as needed to support priority program work.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.33.00, Readiness in Technical Base and Facilities											
Enable NNSA missions by providing operational facilities to support nuclear weapon dismantlement, life extension, surveillance, and research and development activities, as measured by the percent of scheduled versus planned days mission-critical and mission-dependent facilities are available without missing key deliverables (Annual Outcome)[a]	R: 98.8% T: 90%	R: 98.1% T: 90%	R: 99% T: 90%	R: 98% T: 95%	T: 95%	T: 95%	T: 95%	T: 95%	T: 95%	T: 95%	Annually, mission-critical and mission dependent facilities are available at least 95% of scheduled days.
In support of NNSA transformation goals to reduce the size of the Nuclear Security Enterprise, prepare facilities for disposition, as measured by the annual square footage of facilities deactivated and decommissioned. (Long term Output)[a]	N/A	N/A	N/A	N/A	N/A	T: 150,000	T: 200,000	T: 250,000	T: 300,000	T: 300,000	By 2014, cumulatively prepare 1,200,000 square feet for disposition.
Annual NNSA complex-wide aggregate Facility Condition Index (FCI), as measured by deferred maintenance costs per replacement plant value, for all mission-critical facilities and infrastructure (Annual Outcome) (Joint with FIRP)[b]	R: 7.4% T: 9%	R: 6.7% T: 7.4%	R: 6.5% T: 6.8%	R: 4.26% T: 5%	T: 5%	T: 5%	T: 5%	T: 5%	T: 5%	T: 5%	Annually, maintain the mission-critical facilities and infrastructure at an FCI level of 5% or less.

[a] Measure was modified or developed in FY 2007 during the OMB PART assessment.

[b] Measure was developed in FY 2007 from prior single measure to reflect change in facility designation (mission essential to mission critical and mission dependent).

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Annual NNSA complex-wide aggregate Facility Condition Index, as measured by deferred maintenance costs per replacement plant value, for all mission-dependent, not critical facilities and infrastructure (Annual Outcome) (Joint with FIRP)[a]	N/A	N/A	N/A	R: 8.92% T: 8.25%	T: 8.75%	T: 8.60%	T: 8.45%	T: 8.3%	T: 8.15%	T: 8.0%	By 2014, improve mission dependent, not critical facilities and infrastructure to an FCI level of 8% or less.
Execute construction projects within approved costs and schedules, as measured by the total percentage of projects with total estimated cost (TEC) greater than $20M with a schedule performance index (ratio of actual work performed to scheduled work) and a cost performance index (ratio of actual cost of work performed to budgeted cost of work) between 0.9-1.15 (Efficiency)	R: 71%	R: 90% T: 75%	R: 100% T: 80%	R: 67% T: 85%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	By FY 2009, annually achieve 90% of baselined construction projects with TEC greater than $20M with actual SPI and CPI of 0.9-1.15 as measured against approved baseline definitions.

[a] Measures were developed in FY 2007 from prior single measure to reflect change in facility designation (mission essential to mission critical and mission dependent).

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Operations of Facilities	**1,152,455**	**1,163,331**	**1,342,303**

Operates and maintains NNSA-owned programmatic capabilities in a state of readiness, ensuring each capability (workforce and facility) is operationally ready to execute programmatic tasks identified in Campaigns and DSW. Operates the program infrastructure and facilities in a safe, secure, reliable, and "ready for operations" manner. Facility-specific activities include, but are not limited to, maintenance; utilities; environment, safety and health; implementation plan actions to address safety issues; and implementation of rules, such as the Beryllium Rule 10CFR850, Chronic Beryllium Disease Prevention Program (CBDPP); and maintenance of the Authorization Basis (AB) for each facility per 10CFR830. Infrastructure-support activities include facility-related costs that are not associated with the ongoing operations of facilities, such as conceptual design reports; other project-related costs for line items; National Environmental Policy Act (NEPA) activities; institutional capital equipment and general plant projects; and facility startup, standby, and decommissioning and decontamination (D&D), which includes costs associated with maintaining facilities in a standby status for possible further use or D&D. Maintains current and future operations with a smaller workforce, growing maintenance needs, and increasing regulatory requirements. Provides new and upgraded facilities and capabilities. Seeks cost efficiencies through the consolidation of facilities and functions. Develops an integrated maintenance program that includes routine maintenance, capital renewal, and extraordinary maintenance items that are impacting cost and performance.

Across the complex approximately $350M is spent annually on maintenance. This does not include the buy down of deferred maintenance accomplished through line item construction projects, general plant projects, expense funded projects, or capital equipment purchases. Consistent with Departmental guidance, NNSA has prioritized all program facilities into three categories: mission critical, mission dependent, and non-mission dependent. Aligned with program requirements, Defense Programs has established a graded scale for more stringent maintenance expectations in mission critical facilities. The industry accepted standard maintenance metric is Facility Condition Index (FCI), which tracks deferred maintenance as a percentage of Replacement Plant Value. As part of RTBF, Defense Programs ensures that available funding is prioritized to meet or exceed the NNSA goal of maintaining the FCI for mission critical facilities at 5 percent. Based on current planning, the NNSA goal for mission dependent facilities is 8.6 percent in FY2010, with expectations to drive the goal for mission dependent facilities to 8 percent by FY 2014. The National Work Breakdown Structure (WBS) is utilized to plan and track maintenance across the Complex, and, depending upon the site, maintenance funding may be direct, indirect, or a combination of both. Costs for each site are reported quarterly to NNSA/DOE through the Integrated Facility and Infrastructure (IFI) Report. A new B&R will be established that will track direct funding and costs for maintenance activity.

▪ **Kansas City Plant (KCP)**	**84,702**	**89,871**	**169,056**

Operates and maintains the KCP in a state of readiness, prepared to execute programmatic tasks identified in the DSW and Campaigns programs. Operation of the KCP provides infrastructure support to manufacturing and engineering activities for a broad array of Life Extension Programs, Stockpile Systems products, associated weapon programs, and technology development and deployment activities. Funding includes costs for Facilities Management, Maintenance, Utilities, ES&H, Capital Equipment, General Plant Projects (GPP), and Expense-funded projects.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Starting in FY 2010, funding will support continued operation and required maintenance costs at the current facility and on continuing to transition into a new facility with minimum disruptions to the DSW program as laid out in the Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS) transformation plan. This will result in a short-term increase to the Operations of Facilities budget while we transition to the new facility and support the current facility. Increased funding for KCRIMS supports long lead procurements, critical capital purchases and unique facility upgrades for utility and interior requirements. In anticipation of the planned move to a new facility, the RTBF program has allowed the deferred maintenance at KCP to grow. The maintenance program is funded through both indirect and direct mechanisms and costs are reported quarterly through the IFI Report.

Also in FY 2010, efforts will continue on execution of a comprehensive project plan to establish a Kansas City based Supply Chain Management Center (SCMC) to gain efficiencies and savings from consolidation of procurement systems, supplier management, and contracting agreements.

- **Lawrence Livermore National Laboratory (LLNL) 89,303 82,605 86,670**

Operates and maintains the LLNL facilities in a state of readiness and keeps the facilities and capabilities safe, secure, and reliable in order to support the DSW and Campaign programs. Activities include: newly generated waste, building and building system maintenance; utilities; maintenance of programmatic equipment; ES&H; actions to address safety issues; and implementation of nuclear safety rules. The maintenance program is indirect funded and costs are reported quarterly through the IFI Report. Also included is Infrastructure support (Facilities Support) which funds Other Project Costs (OPCs) for the RTBF line item construction projects, in addition to other minor RTBF activities not specifically allocated to a facility or facility group.

In FY 2010, funding is provided for facilities maintenance and operational activities associated with completing the Cat I/II Special Nuclear Material (SNM) de-inventory by FY 2012.

- **Los Alamos National Laboratory (LANL) 283,025 289,169 311,776**

Operates and maintains the LANL facilities in a state of readiness to ensure that mission-essential capabilities in critical nuclear facilities and other facilities and infrastructure are available to conduct the scientific, computational, engineering, and manufacturing activities of the Stockpile Stewardship Program in a safe, secure, compliant, and cost effective manner. Direct-funded facilities include the Engineering, Manufacturing Systems and Methods Shops, Tritium, Dynamic Experimentation, LANSCE, Waste Management, Nuclear Materials Technology (TA-55) and Chemistry and Metallurgy Research (CMR), and Beryllium Technology. Work scope includes conventional facility management, infrastructure and utilities, and operation and maintenance of special equipment. In cases where replacement facilities are planned, such as the CMR, the program is allowing deferred maintenance to grow. The maintenance program is funded through both indirect and direct mechanisms and costs are reported quarterly through the IFI Report.

Funds development and implementation of Authorization Basis (AB) modifications needed to reduce the risk and extend the life of the CMR until the CMR Replacement facility is operational. Operations of Facilities also funds general infrastructure support activities such as Other Project Costs for Line Items, General Plant Projects, and AB activities. Funding is also included for the

Payment-in-Lieu-of-Taxes for Los Alamos County (approximately $225,000) and the Los Alamos Pueblo Project (approximately $800,000 per year).

CMR Hazard Reduction activities will be funded in FY 2010 to continue to reduce hazards and maintain the facility until the mission work can be transferred to the Chemistry and Metallurgy Research Facility Replacement (CMRR). The CMR Facility Consolidation and Risk-Mitigation Program provides an integrated management structure to meet the following objectives: (1) Minimize risk in the facility by closing wings, removing equipment and materials, and preparing for D&D and upgrade key systems of select wing(s) and improve key management systems to ensure safety and reliability, (2) Provide necessary Analytical Chemistry/Materials Characterization (AC/MC) capability during and through transition to the CMRR, (3) Complete critical NNSA missions in Wing 9 and study potential transition to non-DP programs, and (4) Develop and Implement a new Documented Safety Analysis to provide a compliant operating license for CMR.

In order to appropriately apportion costs to programs consistent with services or benefit received, LANL will continue to implement and administer cost recovery models for TA-55, CMR and Waste Processing facilities. These models incentivize improved operating approaches that mitigate risk and reduce costs while meeting program deliverables. LANL will also begin development of a full cost recovery model to support upcoming Radiological Laboratory Utility/Office Building (RLUOB) operations and investigate cost recovery opportunities at other LANL RTBF facilities.

In FY 2010, funding is transferred from the DSW Dismantlement subprogram for the Advanced Recovery and Integrated Extraction System (ARIES) work scope, and activities associated with the feed stock for the Mixed Oxide (MOX) Fuel Fabrication Facility in the amount of $23,988,000.

- **Nevada Test Site (NTS)** **64,863** **92,203** **79,583**

Operates and maintains the NTS facilities and capabilities in a safe, secure, and reliable state of readiness. Provides essential physical and operational infrastructure to nine facilities – six located at NTS and one each at North Las Vegas, Nevada; Livermore, California; and Los Alamos, New Mexico. The facilities are the Device Assembly Facility (DAF), U1a Complex, Joint Actinide Shock Physics Experimental Research (JASPER), Atlas, Big Explosive Experiment Facility (BEEF), Control Point Complex, North Las Vegas Complex, Livermore Technical Facility, and the Los Alamos Technical Facility. These unique, specialized facilities handle and test special nuclear material. Work scope includes conventional facility management, infrastructure and utilities, and operation and maintenance of special equipment at these facilities. The program has designated facilities such as Atlas to be maintained in cold standby, keeping it in a safe and operable condition, should it be necessary to return the facility to operation. This allows the site to redirect funds to maintenance for higher priority facilities. The maintenance program is funded through both indirect and direct mechanisms and costs are reported quarterly through the IFI Report. Operations of Facilities also funds OPCs for construction line item projects.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

In FY 2009, additional one-time funding was provided for expense funded projects to repair and modernize several critical life safety systems across the Defense Programs mission critical facilities. The reduction in FY 2010 is a result of completing a portion of these projects.

- **Pantex Plant** **112,813** **101,230** **131,602**

  Operates and maintains the Pantex Plant in a state of readiness, prepared to execute programmatic tasks identified in the DSW and Campaign programs. Provides for facility management and support, including the ability to function effectively, such as plant and maintenance engineering, facility utilization analysis, modification and upgrade analysis, facilities planning and condition determinations, and the rental of buildings and land. Also provides for maintenance activities, including preventative, predictive, corrective, and general maintenance. The maintenance program is direct funded and costs are reported quarterly through the IFI Report. Provides for utilities costs for the utilities management program, utility-related engineering, an energy-savings program, and operation and distribution of utility services. Work activities include: the collection and treatment of wastewater; steam distribution and condensate return; electrical distribution; natural gas distribution; compressed air; and water production, treatment, distribution to support domestic, industrial, and fire protection needs; AB documentation; safety and health assurance including Radiation Safety, Nuclear Explosive Safety, Occupational Medicine, Industrial Hygiene, and Industrial Safety; emergency management and environmental protection, waste management, and waste minimization activities.

  Other Project Costs associated with line item projects include research and development, Conceptual Design Plans and Reports, Design Criteria, Project Execution Plans, NEPA documentation, Construction Project Data Sheets, maintenance procedures to support facility startup, initial operator training, commissioning costs, operational readiness reviews, and readiness assessments. FY 2010 also includes the transfer of funds for the ARIES work scope and activities associated with the feed stock for MOX Fuel Fabrication Facility in the amount of $5,800,000.

- **Sandia National Laboratories (SNL)** **153,873** **123,992** **104,133**

  Operates and maintains the SNL facilities and capabilities in a safe, secure, reliable, state of readiness. The dominant cost driver for these capabilities/facilities is the staff required to keep the capability operational. The capabilities and associated facilities funded by RTBF Operations of Facilities are Tech Area III Full Scale Test, Microelectronics Development Laboratory, Experimental Aerodynamics (Wind Tunnel), Tech Area IV Accelerators, Tech Area V Nuclear Reactors, Nanosciences Labs, Electromagnetic Test Facilities, Materials Characterization Laboratories, Environmental Test Facilities in Albuquerque and Livermore, Neutron Generator Production Facility, Primary Standards Laboratory, and Waste Management Activities. The work scope includes conventional facility management, infrastructure and utilities, and operation and maintenance of special equipment at these facilities. The maintenance program is primarily indirect funded and costs are reported quarterly through the IFI Report.

- **Savannah River Site (SRS)** **85,738** **92,762** **128,580**

  Operates and maintains the NNSA related portion of SRS in a state of readiness, prepared to execute programmatic tasks identified in the DSW and Campaigns programs including facilities management and support activities that maintain the facilities and infrastructure for mission operations. Preventive, predictive, and corrective maintenance of process and infrastructure

equipment and facilities are performed. The maintenance program is funded through both indirect and direct mechanisms and costs are reported quarterly through the IFI Report. ES&H activities are conducted to ensure the well being of SRS workers, the public, and the environment. Contracted costs of providing utilities to the Tritium Extraction Facility, establishing a startup of an unloading line to establish unloading capabilities for new systems, and high priority capital equipment and GPP are also included. Capital Equipment and GPP that meet base maintenance and infrastructure needs are planned and executed to maintain the safety, utility, and capability of the process facilities.

In FY 2010 the request includes the transfer of PDCF OPCs in the amount of $40,441,000. The PDCF project is moving from DSW to consolidate line-item construction projects in RTBF. In addition FY 2010 specific activities will focus on costs associated with high priority capital equipment and GPP and to support the start-up of the Tritium Facility Unloading Line.

- **Y-12 National Security Complex** **224,190** **235,397** **210,774**

Funds operation and maintenance of Y-12 mission facilities in a state of readiness, in which each facility is operationally ready to execute programmatic tasks within multiple mission elements. Provides for management of the thirteen production and production support facilities and related facility systems, including newly generated waste. These facilities are operated to ensure compliance with ES&H requirements and DOE orders, and to ensure the availability of the facilities for all Defense Programs programmatic objectives. An Authorization Basis (AB) is maintained for each facility, including development of AB documentation to meet the requirements of 10CFR830 Nuclear Safety Rule, annual updates of AB documentation, and unreviewed safety question determinations as applicable.

The 9212 Production Facility has implemented the Integrated Work Plan (IWP) process to manage the work scope within the available resources and funding levels. The IWP process is a management tool that integrates multiple systems in order to prioritize the total work scope using a uniform method and quantifies and manages overall risk within the facility. A Facility Risk Review (FRR) has been completed for Building 9212. The FRR identified the risks associated with the operation of the facility and processes that must be mitigated in the interim until the new Uranium Processing Facility Project (UPF) is available to ensure continued operation of metal production to support DSW missions including Life Extension Programs. In FY 2010, $24,529,000 is provided for maintenance and associated activities to mitigate the risk of continued operations in Building 9212. However, the program is allowing deferred maintenance to grow in cases where replacement facilities are planned, such as the construction of the Highly Enriched Uranium Materials Facility (HEUMF). The maintenance program is funded through both indirect and direct mechanisms and costs are reported quarterly through the IFI Report.

- **Institutional Site Support (ISS)** **53,948** **56,102** **120,129**

Supports corporate activities across the nuclear material complex including: planning, coordinating, program management and performance monitoring, occurrence reporting systems, quality assurance working groups, system engineering, program risk management, enterprise modeling, independent and internal technical reviews and assessments. Examples of assessments and reviews include analyses of evolving production requirements and forecasting of nuclear

material supply and demand. Funding is also provided for specific projects to meet changing programmatic requirements while improving operational efficiency, reducing active footprint, and lowering operating costs. Specific projects for FY 2010 include: CMR Wing 4 closure and other footprint reduction activities at LANL; continued deactivation of Building 9206 and 9201-5 (alpha-5) at Y-12; preparation of the KCP facility for disposition; facility closure and deactivation activities at NTS; and gas gun consolidation at LLNL. These projects are competitively selected during the execution year to achieve program goals, and are representative of the types of activities that need to be accomplished to prepare for Transformation Disposition or turnover to Environmental Management. ISS also includes funding held at Headquarters for contractor support and other corporate activities such as the University of California and direct support for M&O contractor pension payments.

In FY 2010, specific activities support the continued planning, coordination and execution of materials consolidation activities which impact multiple sites. RTBF will fund the storage of Sandia Pulse Reactor (SPR) materials at Idaho National Laboratory until the Qualification Alternatives to the Sandia Pulsed Reactor (QASPR) and the construction of the Ion Beam Laboratory are complete. Funding for the Special Nuclear Material (SNM) activities for all sites is being transferred to the Nuclear Material Integration subprogram within Site Stewardship.

Program Readiness	**70,099**	**71,626**	**73,021**

Program Readiness implements a multi-year strategy to provide capabilities (skilled worker expertise, advanced technologies, and innovative approaches supporting Campaigns and DSW aspects of stockpile stewardship. These crosscutting investments address needs beyond any single facility, campaign, or nuclear system and are essential to achieving the objectives of Stockpile Stewardship. In FY 2010, Test Readiness activities will move from the Science Campaign into Program Readiness. The mission of the Test Readiness Program is to ensure that an underground nuclear test can be executed within the timeframe established by national policy (e.g., Presidential Decision Directive-15). The current goal of test readiness is to leverage validation activities to sustain the capability to conduct an UGT within 36 months. FY 2010 to FY 2013 funding will be focused on ensuring that testing capabilities are current rather than tied to early 1990's technologies.

- The Nevada Test Site Program Readiness activities are focused on sustaining resources necessary to meet the certification of the nuclear stockpile. A broad range of activities are supported from addressing the Nevada State Regulatory environmental compliance issues that resulted from years of nuclear testing activating in Nevada to geologic studies performed by the US Geological Survey Department that are required to field high-hazard experiments by the National Laboratories.

- The Pantex and Kansas City Program Readiness supports the training, development, and technical apprenticeship of new associates for critical skills, along with the technical resource pipeline and production assurance required to sustain critical production and engineering capabilities in support of DSW.

- The Sandia Program Readiness provides the capabilities needed for Integrated and Engineered Nuclear Warhead Certification. These include People Readiness that nurtures world class and peer-reviewed critical nuclear weapons expertise and Technology Readiness that develops and

matures the science, technology, engineering, modeling, simulation, and skills needed to certify all non-nuclear materials, components, and mechanisms through the warhead lifecycle.

- Program Readiness also supports the Nuclear Criticality Safety Program (NCSP). The NCSP provides sustainable expert leadership, direction, and the technical infrastructure necessary to develop, maintain and disseminate the essential technical tools, training and data required to support safe, efficient fissionable material operations within the U.S. Department of Energy (DOE). The NCSP Vision and Mission will be achieved by identifying and accomplishing a set of five year programmatic goals in six broad technical program elements that support identified ten year goals. The six technical program elements are: (1) International Criticality Safety Benchmark Evaluation Project, (2) Analytical Methods, (3) Nuclear Data, (4) Integral Experiments, (5) Information Preservation and Dissemination, and (6) Training and Education.

The NCSP is a continually improving, adaptable, and transparent program that communicates and collaborates globally, such as with the French Atomic Energy Commission (CEA), to incorporate technology, practices and programs responsive to the technical needs of those responsible for developing, implementing, and maintaining nuclear criticality safety throughout the DOE.

Material Recycle and Recovery **71,567** **70,334** **69,542**

Provides for recycling and the recovery of plutonium, enriched uranium, and tritium from fabrication and assembly operations, limited life components, and dismantlement of weapons and components. Supports the implementation of new or improved processes for fabrication and recovery operations, material stabilization, conversion, and storage. MRR supports the process of recycling and purifying materials to meet specifications for safe, secure, and environmentally acceptable storage, and to meet the directive schedule for tritium reservoir refills. MRR is principally accomplished at Y-12, LANL, and the SRS Tritium Facility.

- At LANL, activities include response to uranium stabilization/decontamination/repackaging, nuclear materials information management, the Special Recovery Line, a small amount of generic criticality safety support, and nuclear materials planning and reporting.

- At the SRS Tritium Extraction Facility, activities include recovery and purification of tritium, deuterium, and helium-3 gases from reservoir recycle gas, hydride storage vessels, and facility effluent cleanup systems. Gas mixtures are enriched to support the LEP and Stockpile Services goals.

- At Y-12, activities include Purification and Conversion to UO_3, Acid Removal and Waste processing, Conversion of Enriched Uranium Oxide to Metal Buttons, Material Transport and Storage, Processing Enriched Uranium Chips and Scraps, Chemical Conversion of Lithium, and Salvage Operations and Filter Teardown. All of these activities are required to provide materials needed for Stockpile Stewardship and to ensure safe and secure handling of materials on-site. In addition, MRR includes: the Central Scrap Management Office that manages the receipt, storage, and shipment of enriched uranium scrap; the Precious Metals Business Center, which provides a cost effective service to many users within the DOE complex; and deactivation of building 9206.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

For FY 2010, ongoing activities such as uranium stabilization, decontamination, and repackaging, and tritium recycling in support of LEPs and the limited life program will continue. Recycling and recovery activities will be supported by DSW when the scope exceeds the base capability provided by the MRR program.

Containers **21,760** **22,696** **23,392**

Provides for shipping container research and development, design, certification, re-certification, test and evaluation, production and procurement, fielding and maintenance, decontamination and disposal, and off-site transportation authorization of shipping containers for nuclear materials and components supporting both the nuclear weapons program and complex transformation activities. New container systems are developed to improve safety, security, ability to be maintained, meet updated regulatory requirements, and accept a broader array of contents to minimize the number of specialized containers that have to be maintained. These efforts will include efficiencies provided by close coordination of planning and operations with users/customers. Supports nuclear material consolidation, and deinventory activities to ensure needed transportation containers are certified and available to accommodate proposed material movements. This includes supporting the deinventory of LLNL Category I and II nuclear materials through the certification and supply of containers. DSW also provides support for container activity when weapon system scope exceeds the level initially identified by the container subprogram.

Storage **34,462** **31,951** **24,708**

Provides for effective storage and management of national security and surplus pits, Highly Enriched Uranium (HEU), and other weapons and nuclear materials. Funding includes the cost of receipt, storage, and inventory of nuclear materials, non-nuclear materials, HEU, enriched lithium, and components from dismantled warheads. Provides programmatic planning for nuclear material requirements, including analysis, forecasting, and reporting functions, as well as emergent analyses of nuclear materials as designated by the NNSA and others.

- At Pantex, activities include long-term storage of special nuclear materials, which involves planning, engineering, design, and start-up activities; processing and repackaging materials for safe storage; storage activities for the strategic reserve; national security inventory thermal monitoring and characterizations; disposition of legacy materials; and nuclear materials management, including planning, assessment, and forecasting nuclear material requirements. Pit Disassembly and Inspection Surveillance includes surveillance activities associated with pits in storage. Activities include weight and leak testing, visual inspections, and radiography.

- At the Y-12, activities include the overall management and storage of uranium, lithium, and other nuclear and weapons materials, including the nation's strategic reserve of HEU. In addition, the Y-12 Nuclear Materials Management, Storage, and Disposition (NMMS&D) program provides programmatic guidance and support of these materials and services throughout the Nuclear Security Enterprise. This program also provides the long-term planning and analysis of materials required for the Y-12 manufacturing strategy in support of the nuclear weapons stockpile.

For FY 2010, the Storage program will continue to provide effective storage and management of national security and surplus pits, HEU, and other weapons and nuclear materials. The accelerated

(dollars in thousands)

FY 2008	FY 2009	FY 2010

material consolidation program will also be supported. Some weapon storage activities will be supported by DSW when the scope exceeds the base capability provided by the storage program.

Construction **285,038** **314,468** **203,382**

The RTBF Construction subprogram plays a critical role in revitalizing the nuclear weapons manufacturing and research and development infrastructure. Investments from this program will improve the responsiveness and/or utility of the infrastructure and its technology base. The subprogram is focused on two primary objectives: (1) identification, planning, and prioritization of the projects required to support the weapons programs, and (2) development and execution of these projects within approved cost and schedule baselines.

In FY 2010 the Pit Disassembly and Conversion Facility (PDCF) project at SRS is being transferred from DSW. The PDCF will contribute to the National goal of reducing the amount of weapons grade special nuclear material by converting plutonium pits into a feed material for the MOX Fuel Fabrication Facility, which will produce fuel for commercial reactors.

The Criticality Experiments Facility will consolidate criticality experiments in a single location and will provide research and development capabilities to serve a variety of national requirements.

The replacement of Fire Stations #1 and #2 project will correct current inadequacies in the protection of 1,375 square miles at the Nevada Test Site.

The Nuclear Facilities Risk Reduction (NFRR) Project will extend the life of Buildings 9212 and 9204-2E at the Y-12 National Nuclear Security Complex. The project will upgrade mission critical equipment that was selected through a risk-based analysis and thereby enable continued safe and efficient building operations.

The Replacement of the Zone 12 High Pressure Fire Loop at Pantex is necessary to ensure continuous operation of weapons assembly and disassembly operations. Deterioration of the existing fire main has caused instances of the loss of fire water and the resulting shutdown of site operations in the past.

The Radioactive Liquid Waste Treatment Facility Upgrade at LANL replaces a system that is over 40 years old with diminishing reliability. The facility will support laboratory operations at 12 technical areas, 63 buildings, and 1,800 sources of radioactive liquid waste. At this time, funding is only requested for PED.

The Chemistry and Metallurgy Research Replacement Facility at LANL will relocate and consolidate mission-critical analytical chemistry, material characterization, and actinide research and development activities that directly support Stockpile Stewardship and other programs.

Total, Readiness in Technical Base and Facilities **1,635,381** **1,674,406** **1,736,348**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Operations of Facilities	
▪ **Kansas City Plant**	
This short-term increase supports increased activities, above current operations and required maintenance, at the Kansas City Plant (KCP) associated with the Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS) transformation project and the Supply Change Management Center (SCMC). Increased funding for KCRIMS supports long lead procurements, critical capital purchases and unique facility upgrades for utility and interior requirements. These efforts are critical to the ability of the NNSA to exit Kansas City Plant (at the Bannister complex) and transition into a smaller, more efficient greenfield facility.	+79,185
▪ **Lawrence Livermore National Laboratory**	
The increase reflects funding shifts to support facilities maintenance and operational activities associated with the objective of completing the Cat I/II Special Nuclear Material (SNM) de-inventory by FY 2012.	+4,065
▪ **Los Alamos National Laboratory**	
Reflects an increase due to the transfer of funding from DSW to RTBF for the Advanced Recovery and Integrated Extraction System (ARIES) work scope.	+22,607
▪ **Nevada Test Site**	
The decrease reflects the closure of the Criticality Experiments Facility (CEF) line item and cost shifting to national labs per secondary re-op process to support CEF start-up.	-12,620
▪ **Pantex Plant**	
The increase adjusts funding to meet required operational levels. This request supports the increase in the base program for facilities that have supported higher priority activities associated with dismantlement activities and the Pu disposition program. In FY 2009, these activities were partially funded from Institutional Site Support.	+30,372
▪ **Sandia National Laboratories**	
The decrease is due to the reduced operations of the Tonopah Test Range.	-19,859
▪ **Savannah River Site**	
The increase supports funding for PDCF Project OPCs. The increase is partially offset by the reduced level of funding required for the Tritium Facility Unloading Line which has been transitioned from construction to operations.	+35,818

	FY 2010 vs. FY 2009 ($000)
▪ **Y-12 National Security Complex**	
The decrease is a result of reductions associated with the completion of FY 2009 activities associated with the consolidation and disposition of excess uranium and other nuclear material.	-24,623
Institutional Site Support	
The increase is primarily due to direct support of $64,180,000 in Management and Operating contractor pension costs, The request also reflects minor shifts in programmatic priorities and reflects a transfer of scope and budget for inactive actinides to the Nuclear Materials Integration subprogram with Site Stewardship.	+64,027
Total, Operations of Facilities	**+178,972**
Program Readiness	
The increase is due to the transfer of Test Readiness from the Science Campaign partially offset by minor shifts in programmatic priorities, completion of CEF and steady state operation of DAF.	+1,395
Material Recycle and Recovery	
The decrease reflects minor shifts in programmatic priorities.	-792
Containers	
The increase reflects minor shifts in programmatic priorities.	+696
Storage	
The decrease reflects the transition to operations at HEUMF at Y-12. Repackaging of material has been completed and is being moved into HEUMF.	-7,243
Construction	
The decrease is consistent with the construction project profiles for ongoing projects.	-111,086
Total Funding Change, Readiness in Technical Base and Facilities	**+61,942**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	42,468	43,402	44,357
Capital Equipment	27,511	28,116	28,735
Total, Capital Equipment	**69,979**	**71,518**	**73,092**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	45,333	46,330	47,349	48,391
Capital Equipment	29,367	30,013	30,673	31,348
Total, Capital Equipment	**74,700**	**76,343**	**78,022**	**79,739**

Construction Projects[bc]

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2008	FY 2009	FY 2010	Unappropriated Balance
10-D-501, Nuclear Facility Risk Reduction (NFRR), Y12	TBD	0	0	0	12,500	TBD
09-D-404, Test Capabilities Revitalization-II, SNL	37,700	0	0	3,104	0	0
09-D-007, LANSCE-Refurbishment, LANL	0	0	0	19,300	0	0
08-D-806, Ion Beam Laboratory Refurbishment, SNL	34,813	0	9,911[d]	6,100	0	0

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on projected FY 2008 obligations. Per direction received in the Omnibus Appropriation Act, 2009 all remaining construction and operating funds from the completed Microsystems and Engineering Sciences Applications project and funds specifically appropriated for the Ion Beam project will be used to fully fund the completion of the Ion Beam Laboratory project.

[b] The TEC estimate is for design only for the PED projects included in 07-D-140, 06-D-140, and 05-D-140.

[c] These represent construction TEC estimates. Design TEC estimates are reported in the appropriate PED project.

[d] FY 2008 funds appropriated for project 08-D-806, Ion Beam Laboratory Refurbishment, SNL were appropriated under the Engineering Campaign as a result of the FY 2008 Consolidated Appropriations Act (P.L. 110-161) and are not included in the construction total.

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2008	FY 2009	FY 2010	Unappropriated Balance
08-D-804, TA-55 Reinvestment Project, Phase I, LANL	13,548	0	5,885	7,663	0	0
08-D-802, High Explosive Pressing Facility, PX	103,600	0	15,008	27,386	0	0
08-D-801, High Pressure Fire Loop, PX	40,716	0	6,866	1,940	31,910	0
07-D-220, Radioactive Liquid Waste Treatment Facility Upgrade, LANL	TBD	0	26,162	19,070	0	TBD
07-D-140, Project Engineering & Design, VL	19,675	0	2,452	7,223	0	2,000
06-D-402, NTS Replace Fire Stations No. 1 and No. 2, NTS	36,744	24,463	6,591	9,060	1,473	0
06-D-140, Project Engineering & Design, VL	360,651	28,956	41,552	101,521	70,678	117,944
05-D-402, Beryllium Capability Project, Y-12	23,730	11,221	0	4,865	0	0
05-D-140, Project Engineering & Design, VL	32,078	0	1,961	0	0	0
04-D-128, Criticality Experiments Facility (formerly TA-18 Mission Relocation Project), LANL/NTS	81,269	35,956	28,892	10,042	1,500	0
04-D-125, Chemistry and Metallurgy Research Facility Replacement (CMRR), LANL	TBD	157,497	74,141	97,194	55,000	TBD
01-D-124, Highly Enriched Uranium Materials Facility, Y-12	467,402	280,220	75,528	0	0	0
99-D-141-01, Pit Disassembly and Conversion Facility (PDCF), SRS[a]	TBD	224,828	0	0	30,321	TBD
Total, Construction			**285,038**	**314,468**	**203,382**	

[a] FY 2008 ($22,447) and FY 2009 ($24,883) funds appropriated for project 99-D-140-01, Pit Disassembly and Conversion Facility, SRS were appropriated under Directed Stockpile Work as a result of the FY 2008 Consolidated Appropriations Act (P.L. 110-161) and are not included in the construction total.

Outyear Construction Projects

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
14-D-XXX, Mission Consolidation, Various	0	0	0	31,860
13-D-XXX, Uranium Processing Facility, Y-12	0	0	41,359	76,612
12-D-XXX, NW Engineering & Product Support Complex, SNL	0	4,044	5,117	0
11-D-XXX, TA-55 Reinvestment Phase II, LANL	14,000	19,640	20,221	20,468
10-D-501, Nuclear Facility Risk Reduction (NFRR), Y12	0	35,387	17,909	0
09-D-404, Test Capabilities Revitalization-II, SNL	0	0	0	0
09-D-402 LANSCE-Refurbishment, LANL	0	0	0	0
08-D-801, High Pressure Fire Loop, PX	0	0	0	0
07-D-140, Project Engineering & Design, VL	2,000	0	0	0
07-D-220, Radioactive Liquid Waste Treatment Facility Upgrade, LANL	28,478	40,000	15,455	0
06-D-140, Project Engineering & Design, VL	55,216	50,000	12,728	0
04-D-125, Chemistry and Metallurgy Research Facility Replacement (CMRR), LANL	73,600	50,000	40,000	57,761
99-D-141-01 Pit Disassembly & Conversion Facility (PDCF), SRS	76,985	178,622	234,546	216,566
Total, Construction	**250,279**	**377,693**	**387,335**	**403,267**

DoD is expected to begin its Nuclear Posture Review (NPR) shortly. This effort is scheduled to culminate in a report to the Congress in early 2010. The NPR will provide an important opportunity to establish a consensus between the Administration and Congress on U.S. nuclear weapons policy and programs. In particular, the NPR will highlight how nuclear forces fit into a broader national security framework, taking into account U.S. military strategy, planning, and programming, as well as providing a basis for arms control objectives and negotiating positions. For programs like RTBF Construction, the budget strategy is to maintain capabilities and necessary activities until new strategic directions are established for the nuclear weapons stockpile and the associated enterprise. This profile reflects that direction by focusing the outyear construction profile around ongoing projects.

10-D-501, Nuclear Facility Risk Reduction at the Y-12 National Security Complex, Oak Ridge, Tennessee
Project Data Sheet (PDS) is for PED/Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is for CD-0, Approve Mission Need, which was approved on October 20, 2008 with a preliminary cost range of $85,000,000 - $109,000,000 for a scope of work that includes the work in the NFRR project and a preliminary CD-4 date of FY 2015.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is new for PED/Construction.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1[a]	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2009	11/01/2008	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2010	11/01/2008	TBD	TBD	TBD	TBD	TBD	TBD	TBD

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range and Long-lead procurement
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete –Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC[b], Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2010	12,500	TBD	TBD	TBD	TBD	TBD	TBD

[a] The Critical Decision (CDs) dates to be determined when CD-2 is approved by the Acquisition Executive. The preliminary schedule range for the CD-4 is 3Q FY 2015 to 4Q FY 2015.

[b] The costs to be determined when Acquisition Executive approves the project performance baseline at CD-2. The preliminary TPC range is $85 million to $109 million.

4. Project Description, Justification, and Scope

Project Description

This project is intended to extend the life of Buildings 9212 and 9204-2E at the Y-12 National Nuclear Security Complex. The mission critical equipment that will be upgraded was selected through a risk-informed analysis that was performed by a team of internal and external experts over a two-year period. The team reviewed the conditions of over 50 systems serving the two buildings and selected 18 from the list that were found to be most important to the two buildings safety and operational efficiency.

Justification

Buildings 9212 and 9204-2E are needed to continue NNSA missions at Y-12. The 9212 facility represents the heart of the enriched uranium operations at Y-12. Its process support systems and many of the processes are showing significant age-related deficiencies that have impacted reliability and, in some cases, prevented operation of many of the processes or obtaining desired production capabilities. Many areas of the facility were constructed in the middle 1940s. Many of the process operations originate from the 1960s through the early 1980s and operated in harsh industrial applications and chemical environment with little preventive maintenance. Some upgrades of the support systems have been completed; however, they are reaching operating lives of 20 to 30 years and even more for some systems. Certain major components of the support systems were installed in the 1960s and earlier.

Continued safe operation of 9212 impacts not only Y-12 operations and missions, but also Defense Program missions involving other key elements of the NNSA Nuclear Security Enterprise. Although the 9204-2E facility is a newer facility, its process support systems are of an equivalent age and are also experiencing age-related failures. Replacement parts are no longer available for several of the failing components causing extended delays in repairing and returning to service failed systems. Some components are failing in a manner that is adversely impacting the 9204-2E structure. Other systems are experiencing failures that are adversely impacting 9204-2E missions.

Building 9204-2E houses operations essential to weapons production, certification, evaluation, life-extension, storage, and retirement. Continued safe operation of Building 9204-2E is essential for continued viability of the on-going weapon stockpile including disassembly, quality evaluation, and life-extension operations, availability of feedstock for 9212 in support of its missions including dismantlement of retired nuclear weapons, and alleviation of current and future material storage constraints.

These missions relate directly to Goals 1 and 3 of the *NNSA Strategic Plan* (November 2004) and the *NNSA Y-12 Site Office FY2008 Operating Plan* and are further described in the *Y-12 National Security Complex Ten-Year Site Plan* (TYSP).

Scope

Building 9212

Design and install replacement/upgrade for the degraded electrical panels, switchgears, motor control centers, lighting panels, ventilation/exhaust systems which includes fans, motors, 2400 volt breakers, filters housings (upgrade to HEPA filters), and 2 inch and smaller water and steam lines.

Building 9204-2E

Replace two kathabars (large humidifier) needed to maintain humidity within ±2% required for manufacturing parts, upgrade monitoring/control systems in the environmental room, and upgrade inefficient/degraded house and machine vacuum systems.

The full scope of this life extension project will be determined at the CD-2 approval time.

The design funds will not be used until the project receives CD-1 approval. A potential need exists for procuring long-lead equipment to support the construction schedule. Therefore, part of the funds planned for the design will be used to develop procurement documents. However, no capital funds will be used prior to CD-1 to include procurement should the Acquisition Executive specifically approve procuring long-lead equipment items.

Funds appropriated under this data sheet may be used to provide independent assessments of the planning and execution of this project.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)	TBD	TBD	TBD
PED			
FY 2010	12,500	12,500	8,000
FY 2011	0	0	4,500
Total, PED	12,500	12,500	12,500
Construction			
FY 2012	35,387	35,387	35,387
FY 2013	17,909	17,909	17,909
FY 2014	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
TEC			
FY 2010	12,500	12,500	8,000
FY 2011	0	0	4,500
FY 2012	35,387	35,387	35,387
FY 2013	17,909	17,909	17,909
FY 2014	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Other Project Cost (OPC)			
OPC except D&D			
FY 2009	3,741	3,741	3,741
FY 2010	734	734	734
Total, OPC except D&D	TBD	TBD	TBD
D&D			
FY 2010	TBD	0	0
Total, D&D	TBD	0	0
OPC			
FY 2009	3,741	3,741	3,741
FY 2010	734	734	734
Total, OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 2009	3,741	3,741	3,741
FY 2010	12,500	12,500	8,734
FY 2011	0	0	4,500
FY 2012	35,387	35,387	35,387
FY 2013	17,909	17,909	17,909
Total, TPC	TBD	TBD	TBD

6. Details of Project Cost Estimate

	(dollars in thousands)		
	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	10,500	TBD	TBD
Contingency	2,000	TBD	TBD
Total, PED	12,500	TBD	TBD
Construction			
Site Preparation			
Equipment			
Other Construction	53,296	TBD	TBD
Contingency	TBD	TBD	TBD
Total, Construction	53,296	TBD	TBD
Total, TEC	65,796	TBD	TBD
Contingency, TEC			
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	3,228	TBD	TBD
Conceptual Design	513	TBD	TBD

	(dollars in thousands)		
	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Start-Up	TBD	TBD	TBD
Contingency	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	TBD	TBD	TBD
Contingency, OPC	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD
Total, Contingency	TBD	TBD	TBD

7. Schedule of Project Costs

For schedule of project costs, see Section 5, "Financial Schedule."

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	N/A
Expected Useful Life (number of years)	N/A
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

(Related Funding requirements)

	(dollars in thousands)			
	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total, Operations & Maintenance	N/A	N/A	N/A	N/A

9. Required D&D Information

Area	Square Feet
Area of new construction	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

Not applicable for PED.

Acquisition approach will be approved before the start of the preliminary design and approval of CD-1.

08-D-801, High Pressure Fire Loop Zone 12 South MAA
Pantex Plant, Amarillo, Texas
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-2, *Approved Performance Baseline*, for the High Pressure Fire Loop Zone 12 South MAA that was approved on December 1, 2006 with a Total Project Cost (TPC) of $34,980,000 and CD-4 of FY 2011.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

NNSA originally intended to fund this project in FY 2009 using residual funds from several other completed or cancelled projects. However, these funds were not available to the Department. FY 2009 appropriated funding was insufficient to proceed into the construction phase of the project. Therefore, the project was put on hold until sufficient funds become available to allow awarding a cost-effective construction contract. The impact is being evaluated through a baseline change and is estimated to increase the cost by approximately $7,500,000 and delay CD-4 by one and a half years. The baseline change is expected to be reviewed in FY 2009.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2008	9/15/04	12/23/05	4QFY2007	12/1/06	1QFY2008	1QFY2011	N/A	N/A
FY 2009	9/15/04	12/23/05	4QFY2007	12/1/06	1QFY2008	2QFY2011	N/A	N/A
FY 2010	9/15/04	12/23/05	9/21/07	12/1/06	4QFY2009	4QFY2012	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2008	1,686	31,910	33,596	1,384	0	1,384	34,980
FY 2009	1,686	31,910	33,596	1,384	0	1,384	34,980
FY 2010	1,686	40,716	42,402	1,465	0	1,465	43,867

4. Project Description, Justification, and Scope

The High Pressure Fire Loop (HPFL) – Zone 12 South Material Access Area (MAA) project has been identified as a high priority project in the 2006 Pantex Plant Ten Year Comprehensive Site Plan (TYCSP).

The purpose of the HPFL project is to provide a reliable fire protection system to support Manufacturing and Infrastructure operations. The HPFL is a Safety-Class System as defined in the Authorization Basis and its Critical Safety function is to support the fire suppression systems to mitigate the consequence of a fire event and thereby prevent fires from progressing to more severe events. Supplying the necessary amount of water to the fire suppression systems performs this function. The HPFL is designed to provide water at a pressure, flow rate, and quantity to meet the demands of the fire suppression system in each facility. Additionally, this project will minimize DOE's risks associated with failures and eliminate the current deferred maintenance for the system.

Failures in the existing system have increased over the past several years. More than a dozen failures have occurred since 1995 in the HPFL system. Two of these failures were located in the section of Zone 12 South HPFL involved in this project. Each failure resulted in downtime for the production facilities.

This project addresses those areas of the HPFL Zone 12 South Material Access Area system that are of questionable reliability due to aging, incompatible materials, and use of antiquated technologies. Specific areas to be addressed are:

- Pipe Line Replacement. Failures in the HPFL lines are occurring in the ductile iron sections that were installed in the 1970s and 1980s. This project will replace the ductile iron pipe loop, fire hydrants, and Post Indicator Valves (PIVs) that tie the loop to each facility lead-in. The scope does not include the pipe lead-in to each facility.

- Cathodic Protection Installation. The new PIVs, fire hydrants, and valves will have cathodic protection installed. The cathodic protection systems will prevent degradation of ferrous components in contact with the soil.

Installation of the new system will be buried parallel to the existing route when possible. Outages for facility tie-in and replacements will be coordinated with production to minimize facility outages. Road bores, where required, will be accomplished to avoid interruption of onsite transportation. Appropriate security and safety measures will be implemented to control access to the construction areas to prevent damage or injuries.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

Funds appropriated under this data sheet may be used to provide independent assessments of the planning and execution of this project.

No construction funds will be used until the project performance baseline has been validated and CD-3 has been approved.

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED[a]			
FY 2006	1,686	1,686	990
FY 2007	0	0	326
FY 2008	0	0	162
FY 2009	0	0	208
Total, PED (06-D-160-01)	1,686	1,686	1,686
Construction			
FY 2008	6,866[b]	6,866	0[c]
FY 2009	1,940	1,940	8,806
FY 2010	31,910	31,9100	20,000
FY 2011	0	0	9,000
FY 2012	0	0	2,910
Total, Construction	40,716	40,716	40,716
TEC			
FY 2006	1,686	1,686	990
FY 2007	0	0	326
FY 2008	6,866	6,866	162
FY 2009	1,940	1,940	9,014
FY 2010	31,910	31,9100	20,000
FY 2011	0	0	9,000
FY 2012	0	0	2,910
Total, TEC	42,402	42,402	42,402

[a] The TEC includes the cost of preliminary and final design ($1,686,000) which was appropriated in FIRP 06-D-160, Project Engineering and Design (PED).

[b] Original FY 2008 appropriation was $6,928,000. This was reduced by $61,863 as a result of a mandatory rescission in the FY 2008 Consolidated Appropriations Act (P.L. 110-161).

[c] Cost profile is preliminary pending the re-evaluation of the impact of project being put on-hold.

(dollars in thousands)

	Appropriations	Obligations	Costs
Other Project Cost (OPC)			
OPC except D&D			
FY 2004	65	65	65
FY 2005	349	349	349
FY 2006	289	289	289
FY 2007	43	43	43
FY 2008	106	106	106
FY 2009	178	178	178
FY 2010	435	435	435
Total OPC, Except D&D	1,465	1,465	1,465
D&D	0	0	0
Total, D&D	0	0	0
OPC			
FY 2004	65	65	65
FY 2005	349	349	349
FY 2006	289	289	289
FY 2007	43	43	43
FY 2008	106	106	106
FY 2009	178	178	178
FY 2010	435	435	435
Total, OPC	1,465	1,465	1,465
Total Project Cost (TPC)			
FY 2004	65	65	65
FY 2005	349	349	349
FY 2006	1,975	1,975	1,279
FY 2007	43	43	369
FY 2008	6,972	6,972	268
FY 2009	2,118	2,118	9,192
FY 2010	32345	32345	20,435
FY 2011	0	0	9,000
FY 2012	0	0	2,910
Total, TPC	43,867	43867	43,867

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	1,686	1,686	1,686
Contingency	0	0	0
Total, PED	1,686	1,686	1,686

	(dollars in thousands)		
	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Construction			
Site Preparation	0	0	0
Equipment	0	0	0
Other Construction	32,090	26,857	26,857
Contingency	8,626	5,053	5,053
Total, Construction	40,776	31,910	31,910
Total, TEC	42,402	33,596	33,596
Contingency, TEC	8,626	5,053	5,053
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	77	77	77
Conceptual Design	615	615	615
Other (EIR)	125	125	125
Start-Up	458	458	458
Contingency	190	109	109
Total, OPC except D&D	1,465	1,384	1,384
D&D			
D&D	0	0	0
Contingency	0	0	0
Total, D&D	0	0	0
Total, OPC	1,465	1,384	1,384
Contingency, OPC	190	109	109
Total, TPC	43,867	34,980	34,980
Total, Contingency	8,816	5,162	5,162

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2Q FY 2011
Expected Useful Life (number of years)	40
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate*	Previous Total Estimate
Operations	12	12	747	747
Maintenance	46	46	4,187	4,187
Total, Operations & Maintenance	58	58	4,934	4,934

* Includes escalation over the useful life of the project.

9. Required D&D Information

Area	Square Feet
Area of new construction	N/A
Area of existing operations (s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

This project will be a design-bid-build acquisition. The design services (Title I and II) were accomplished by an outside A-E firm and the contract was administered by the Managing and Operating (M&O) Contractor (BWXT Pantex, LLC). The same A-E firm will perform Title III support services during construction. The construction services for this project will be performed by a construction contractor operating under a contract to be awarded on the basis of competitive bids. The M&O Contractor will administer the construction contract. The M&O Contractor will administer the Title III design services contract and perform the Construction management services. Best value practices will be used for all contracted services.

06-D-402, NTS Replace Fire Stations No.1 and No.2, Nevada Test Site
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-3B, Approve Start of Construction approved March 12, 2009, with a Total Project Cost (TPC) of $42,572,000 and CD-4 of September 26, 2010.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

$1,473,000 in new funding is requested for FY 2010 to implement the recommendation of the External Independent Review team, which validated the Level 0 Baseline Change Proposal. The recommendation was to increase the escalation rates, to address the volatile construction market conditions prevalent at the time of the review (September 2007).

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2006	12/06/2004	1Q FY 2005	1Q FY 2007	01/26/2006	3Q FY 2006	1Q FY 2008	N/A	N/A
FY 2007	12/06/2004	05/03/2005	3Q FY 2007	01/26/2006	4Q FY 2006	1Q FY 2009	N/A	N/A
FY 2008	12/06/2004	05/03/2005	3Q FY 2007	01/26/2006	4Q FY 2006	1Q FY 2009	N/A	N/A
FY 2009	12/06/2004	05/03/2005	3Q FY 2008	01/26/2006	TBD	TBD	N/A	N/A
FY 2010	12/06/2004	05/03/2005	03/31/2008	01/26/2006	3/12/2009	9/26/2010	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

(fiscal quarter or date)

	CD-3A	CD-3B
FY 2010	3/31/2008	3/12/2009

CD-3A – Approve long-lead equipment procurement

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2005	2,343	22,364	24,707	455	N/A	455	25,162
FY 2006	2,343	22,364	24,707	455	N/A	455	25,162
FY 2007	2,343	28,869	31,212	705	N/A	705	31,917
FY 2008	2,343	28,839	31,182	705	N/A	705	31,887
FY 2009	4,843	35,679	40,522	705	N/A	705	41,227
FY 2010	4,843	36,744	41,587	705	N/A	705	42,292

4. Project Description, Justification, and Scope

This project will provide for the design and construction of two new fire stations on the Nevada Test Site (NTS). Fire Station No. 1 will be located at the Mercury Camp Site in Area 23 and Fire Station No. 2 will be located in Area 6 near the Control Point. The new facilities will replace existing facilities and provide the space necessary to adequately accommodate the personnel and equipment assigned to support the emergency response mission to the southern, central, and northern areas of the NTS.

Justification

The NTS is located on approximately 1,375 square miles in south central Nevada and is home to a wide variety of Department of Energy (DOE) missions associated with Readiness in Technical Base and Facilities (RTBF), Directed Stockpile Work (DSW), and Science Campaigns, as well as missions from the Department of Defense (DoD). In addition, there are missions associated with the storage of radiologically contaminated hazardous wastes.

Approximately 1,000 employees and the full 1,375 square miles of the NTS are being served by Fire Stations No. 1 and No. 2, located 25 miles apart. These existing Stations were constructed to meet the 1960's codes and no longer meet current code requirements. Major areas of deficiencies affect every area of occupational safety and health, including; separation of public and living areas from the vehicular and maintenance areas; isolation of blood borne pathogens, maintenance of clothing, breathing, and other equipment in proper facilities, and the general well being of employees who could be on duty up to 56 hours at a time. The stations are manned 24 hours per day, seven days a week. These stations have seen little in the way of modernization or expansion over the past 38 years, though the mission and responsibilities of the NTS fire department have increased dramatically over the years to include hazardous materials response capabilities, technical rescue, advanced medical services, and expanded fire alarm notification/dispatching. Another change is the addition of female personnel. These and other changes in work scope and deliverables have required additional staffing, larger specialized vehicles and equipment, and alterations to the facilities to accommodate specific mandated requirements.

The inadequacies of the existing fire stations have been documented in several reports and studies, which have identified deficiencies with National Fire Protection Association (NFPA) codes and standards that should be addressed, including: inadequate sleeping quarters; inadequate disinfection area; inadequate indoor storage for emergency vehicles; inadequate office work spaces; and inadequate facilities for cleaning personal protective equipment.

Scope

The scope of this project is to provide the NTS with NFPA compliant emergency response facilities to ensure that emergency response personnel and equipment are housed in accordance with applicable codes and standards and that the NTS has an adequate firefighting, emergency medical, technical rescue, and hazardous materials response capability. Fire Station No. 1 is estimated to be approximately 26,000 square feet (sq. ft.) and Fire Station No. 2 is estimated to be approximately 11,000 sq. ft. depending on final building layout and how many additional optional equipment bays are constructed at each fire station. Both facilities will have sufficient space to accommodate administrative functions, dormitories, exercise area, restrooms, medical treatment room, kitchen and dining areas, classrooms, and storage. The project will include the necessary infrastructure tie-ins for electrical power, sewer, water, and telecommunications systems, and will include heating, ventilation, and air-conditioning systems, lighting systems, generators, intercom system, fire alarm and suppression systems, cable television system, furnishings, compressed air system, and exercise equipment and other miscellaneous elements as may be required for complete functional facilities.

The FY 2010 funding will be used for project construction completion and project closeout.

Funds appropriated under this data sheet may be used to provide independent assessments of the planning and execution of this project.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3A, Program and Project Management for the Acquisition of Capital Assets.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED/Construction			
PED			
FY 2004	2,343	0	0
FY 2005	0	2,343	888
FY 2006	0	0	371
FY 2007	2,500	2,500	1,580
FY 2008	0	0	1,860
FY 2009	0	0	144
Total, PED (PED 04-D-103-01)	4,843	4,843	4,843

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Construction			
FY 2006	8,201	8,201	0
FY 2007	11,419	11,419	0
FY 2008	6,591	6,591	355
FY 2009	9,060	9,060	11,913
FY 2010	1,473	1,473	24,252
FY 2011	0	0	224
Total, Construction	36,744	36,744	36,744
TEC			
FY 2004	2,343	0	0
FY 2005	0	2,343	888
FY 2006	8,201	8,201	371
FY 2007	13,919	13,919	1,580
FY 2008	6,591	6,591	2,215
FY 2009	9,060	9,060	12,057
FY 2010	1,473	1,473	24,252
FY 2011	0	0	224
Total, TEC	41,587	41,587	41,587
Other Project Cost (OPC)			
OPC except D&D			
FY 2004	705	705	204
FY 2005	0	0	501
Total, OPC except D&D	705	705	705
D&D			
FY N/A	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
OPC			
FY 2004	705	705	204
FY 2005	0	0	501
Total, OPC	705	705	705
Total Project Cost (TPC)			
FY 2004	3,048	705	204
FY 2005	0	2,343	1,389
FY 2006	8,201	8,201	371
FY 2007	13,919	13,919	1,580
FY 2008	6,591	6,591	2,215
FY 2009	9,060	9,060	12,057
FY 2010	1,473	1,473	24,252
FY 2011	0	0	224
Total, TPC	42,292	42,292	42,292

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)	4,843	4,843	2,343
Contingency	0	0	0
Total, PED (PED No. 04-D-103)	4,843	4,843	TBD
Construction			
Site Preparation	N/A	N/A	N/A
Equipment	N/A	N/A	N/A
Other Construction	31,125	TBD	22,927
Contingency	5,619	TBD	5,912
Total, Construction	36,744	35,551	28,839
Total, TEC	41,587	40,394	31,182
Contingency, TEC	5,619	TBD	5,912
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning			
Conceptual Design	705	705	705
Start-Up	0	0	0
Contingency	0	0	0
Total, OPC except D&D	705	705	705
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	705	705	705
Contingency, OPC	0	0	0
Total, TPC	42,292	41,099	31,887
Total, Contingency	5,619	TBD	5,912

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4Q FY 2010
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

9. Required D&D Information

Area	Square Feet
Area of new construction	40,000
Area of existing facility(s) being replaced	16,000
Area of additional D&D space to meet the "one-for-one" requirement	N/A

The total square footage of the two new stations will be up to 38,000 ft^2. The total being replaced is 16,000 ft^2. However, the current plan is to D&D the existing 5,022 square-foot Fire Station 2 only.

10. Acquisition Approach

Conceptual design was performed by the on-site management and operating (M&O) contractor. The preliminary design and the final design were accomplished by the M&O contractor. Construction will be performed by a firm fixed-priced contract, awarded on the best value selection criteria.

06-D-140, Project Engineering and Design (PED), Various Locations
Project Data Sheet (PDS) is for PED (multiple projects)

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) for the TA-55 Radiography Facility Project is CD-0, Approval of Mission Need. CD-0 was approved on 1/30/2005 with a preliminary Total Project Cost (TPC) range of $29,000,000 to $47,000,000 and CD-4 of 3QFY2010. The TA-55 Radiography Project is not currently active. Its funds have been realigned to the Radioactive Liquid Waste Treatment Facility Project. Restoration of the TA-55 Radiography Project will be considered at a future date.

The most recent DOE O 413.3A approved CD for the TA-55 Reinvestment Project (TRP) Phase I is CD-2, Approval of Performance Baseline. CD-2 was approved on 11/22/2006 with a TPC of $26,700,000 and CD-4 of September 2010. A Federal Project Director at the appropriate level has been assigned to the TRP I Project.

The most recent DOE O 413.3A approved CD for the TA-55 Reinvestment Project (TRP) Phase II is CD-1, Approve Alternative Selection and Cost Range. CD-1 was approved on 7/15/2008 with a preliminary TPC range of $75,4000,000 to $99,9000,000 and a CD-4 in FY 2016. A Federal Project Director at the appropriate level has been assigned to the TRP II Project.

The most recent DOE O 413.3A approved CD for the Radioactive Liquid Waste Treatment Facility Upgrade (RLWTF) Project is CD-2A, Approval of Performance Baseline for the Zero Liquid Discharge subproject. CD-2A was approved on 11/26/2006 with a TPC of $9,579,000 and CD-4 of September 2012. CD-1 for the RLWTF project was approved on 6/5/2006 with a preliminary cost range of $82,000,000 to $104,000,000. In FY 2008 the Project received guidance to remove the decontamination and demolition (D&D) of the East Annex and the WM-66 vault, and add Low Level Waste (LLW) influent storage to the current RLWTF Project scope. The upcoming Nuclear Facility CD-2 package will include LLW influent storage and not D&D.

The final design cost for the RLWTF Upgrade Project, 06-D-140-03, at the Los Alamos National Laboratory (LANL) has increased significantly. The cost increase stems from: (1) the site ground motions that were not available when the preliminary project design was completed; (2) additional safety systems that were identified as a result of more detailed hazards analysis; (3) new Department of Energy Standard 1189, which mandates additional safety documentation; and (4) the delay in the issuance of the Record of Decision (ROD) for the LANL Site-Wide Environmental Impact Statement (EIS), which was issued September 19, 2008. A Federal Project Director at the appropriate level has been assigned to the RLWTF Upgrade Project.

The most recent DOE O 413.3A approved CD for the Uranium Processing Facility is CD-1, Approval of Alternative Selection and Cost Range which was approved on 07/25/2007 with a preliminary cost range of $1,400,000,000 to $3,500,000,000 and CD-4 of September FY 2018. The design period was extended to ensure the ongoing Nuclear Posture Review does not impact the facility's mission requirements. A Federal Project Director at the appropriate level has been assigned to the Uranium Processing Facility Project.

This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2006		1QFY2006	3QFY2009	Various	Various	Various	Various	Various
FY 2007		1QFY2006	3QFY2009	Various	Various	Various	Various	Various
FY 2008		1QFY2006	3QFY2009	Various	Various	Various	Various	Various
FY 2009		1QFY2006	2QFY2012	Various	Various	Various	Various	Various
FY 2010		1QFY2006	2QFY2013	Various	Various	Various	Various	Various

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status[a]

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2006			92,213	N/A	N/A		92,213
FY 2007			108,795	N/A	N/A		108,795
FY 2008			TBD	N/A	N/A		TBD
FY 2009			343,619	N/A	N/A		343,619
FY 2010			342,855	N/A	N/A		342,855

4. Project Description, Justification, and Scope

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

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

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

FY 2006 PED design projects are described below. While not anticipated, some changes may occur due to continuing conceptual design studies or developments occurring after submission of this data sheet. These changes will be reflected in subsequent years. Preliminary estimates for the cost of preliminary and final design and engineering efforts for each subproject are provided, as well as very preliminary estimates of the TEC, including physical construction, of each subproject. The final TEC and the TPC for each project described below will be validated and the Performance Baseline will be established at CD-2, following completion of preliminary design.

TA-55 Reinvestment (TRP) Phase I has an approved baseline. The remaining projects listed in this data sheet do not have an approved performance baseline; therefore, all costs and schedule are preliminary until CD-2 is approved.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

Funds appropriated under this data sheet may be used to provide independent assessments of the planning and execution of these projects.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2006	12,379	8,000	362
FY 2007	16,577	14,899	8,441
FY 2008	41,552	40,687	39,058
FY 2009	101,521	104,243	85,859
FY 2010	70,678	70,723	95,776
FY 2011	55,216	47,849	53,124
FY 2012	50,000	38,045	26,787
FY 2013	12,728	36,205	30,376
FY 2014	0	0	20,868
Total, PED	360,651	360,651	360,651
Construction			
FY	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
TEC (PED)			
FY 2006	12,379	8,000	362
FY 2007	16,577	14,899	8,441
FY 2008	41,552	40,687	39,058
FY 2009	101,521	104,243	85,859
FY 2010	70,678	70,723	95,776
FY 2011	55,216	47,849	53,124
FY 2012	50,000	38,045	26,787
FY 2013	12,728	36,205	30,376
FY 2014	0	0	20,868
Total TEC (PED)	360,651	360,651	360,651

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Other Project Cost (OPC)			
Total, OPC except D&D	TBD	TBD	TBD
D&D			
Total, D&D	TBD	TBD	TBD
OPC			
Total, OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
Total, TPC	TBD	TBD	TBD

06-01: TA-55 Radiography Facility, Los Alamos National Laboratory (LANL)

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
TBD	TBD	TBD	TBD	6,336	29,000-47,000

Fiscal Year	Appropriations[a]	Obligations	Costs
2006	0	0	0
2007[b]	0	0	0
2008[c]	0	0	0

The project Mission Need was approved in January 2005. The TA-55 Radiography Project is not currently active. Funds have been realigned to subproject 06-03, Radioactive Liquid Waste Treatment Facility Project. Restoration of the TA-55 Radiography Project will be considered at a future date.

[a] All funding has been realigned from subproject 06-01 to 06-03 in FY 2008.

[b] Of the total funds appropriated in FY 2006 for this project 06-D-140, the entire $141,130 or 1 percent rescission included in the Consolidated Appropriations Act, 2006 (P.L. 109-148) was applied against subproject 06-01, TA-55 Radiography Facility.

[c] Of the $2,500,000 funds appropriated in FY 2008 for 06-D-140.01, a reduction of $1,510,000 was included in the Consolidated Appropriations Act, 2008 against subproject 06-01, TA-55 Radiography Facility.

06-02: TA-55 Reinvestment Project Phases I and II, LANL[a]

TA-55 Reinvestment Phase I

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3QFY2006	4QFY2009	3QFY2009	1QFY2011	4,882	18,153

Fiscal Year	Appropriations	Obligations	Costs
2006	2,000	0	0
2007	1,500	1,799	1,744
2008	900	2,080	1,743
2009	0	521	913
Total	4,400	4,400	4,400

TA-55 Reinvestment Phase II

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
4QFY2008	TBD	TBD	TBD	TBD	TBD

Fiscal Year	Appropriations	Obligations	Costs
2008	1,079	24	24
2009	8,245	5,100	4,600
2010	5,200	5,245	5,745
2011	0	4,155	4,155
Total	14,524	14,524	14,524

A phased acquisition strategy has been developed for the TRP project. The TRP project is proposed for execution as three separate, distinct capital line item projects, TRP I, TRP II, and TRP III. The PED funding requested above supports the first two phases of TRP. PED funding for the TRP III project will be considered in the future under a separate data sheet.

The TA-55 Reinvestment Project is intended to provide for selective replacement and upgrades of major facility and infrastructure systems to NNSA's key nuclear weapons research and development facility, the Plutonium Facility (PF-4) and related structures, located at LANL's TA-55. The objective of the TA-55 Reinvestment Project is to extend the useful life of PF-4 and the safety systems that support its critical operations to assure continued capability to reliably support Defense Programs missions for an additional 25 years. The project will ensure the vitality and readiness of the NNSA nuclear security enterprise to meet the threat of the 21st century.

[a] Construction and final design funding for the TA-55 Reinvestment Project Phase I is requested via 08-D-804 and construction and final design funding for TRP II will be requested in the future via a new PDS.

The PF-4's major facility and infrastructure systems are aging and approaching the end of their service life, and, as a consequence, are beginning to require excessive maintenance. As a result, the facility is experiencing increased operating costs and reduced system reliability. Compliance with safety and regulatory requirements is critical to mission essential operations, and thus becoming more costly and cumbersome to maintain due to the physical conditions of facility support systems and equipment. This project will enhance safety and enable cost effective operations so that the facility can continue to support critical Defense Programs missions and activities.

The scope of this project includes upgrading, replacing, and retrofitting TA-55 facility and infrastructure systems such as mechanical (heating ventilation and air conditioning; high efficiency particulate air), electrical (standby and emergency power), and utility systems (process gasses and liquids, piping), safety, facility monitoring and control, structural components, architectural (i.e., coatings), and other systems and components, as candidate options. The candidate systems and scope have been defined by the facility and program management staff with engagement by the LANL facility maintenance organization through a prioritized, risk-based selection process during the pre-conceptual phase that has been refined during conceptual design.

06-03: Radioactive Liquid Waste Treatment Facility Upgrade, LANL

Fiscal Quarter				Total Estimated Cost (Design Only[a] ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q FY 2006	TBD	TBD	TBD	35,000	58,000-80,000[b]

Fiscal Year	Appropriations	Obligations	Costs
2006	5,379[c]	3,000	362
2007	10,077[d]	8,100	6,020
2008	990[e]	0	3,341
2009	2,654[f]	8,000	5,346
2010	11,000	11,000	15,031
Total	30,100	30,100	30,100

[a] The PED funds will be used to execute preliminary and final design for the NF and preliminary design for the ZLD. The final design of the ZLD will be executed using line item funding based on the design/build acquisition strategy.

[b] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are based on conceptual design estimate range and are consistent with previous budget requests. The final cost estimate developed with the final design will be used to establish the performance baseline at CD-2.

[c] Original FY 2006 appropriation was $3,000,000. At the discretion of the Program Secretarial Officer, $1,859,000 was transferred from 06-01 and $520,000 was transferred from 06-04.

[d] Original FY 2007 appropriation was $8,100,000. At the discretion of the Program Secretarial Officer, $1,977,000 was transferred from 06-01.

[e] Original FY 2008 appropriation was $0. At the discretion of the Program Secretarial Officer, $990,000 was transferred from 06-01.

[f] $2,654,000 was realigned from 06-D-140-05, PED UPF, in FY 2009.

The radioactive liquid waste (RLW) treatment and disposal capability at Los Alamos National Laboratory supports 15 technical areas, 63 buildings, and 1,800 sources of RLW. This capability must be continuously available to receive and treat liquid waste generated from Stockpile Stewardship activities. LANL has a 50-year mission need for facilities and processes that can accept, store, and treat RLW in support of this long-term mission.

Significant portions of the RLW system are over 40 years old and their reliability is significantly diminishing. The recent transuranic storage tank failure demonstrated the inability of RLW components to remain in service beyond their design life. The treatment facility is in need of significant upgrades in order to comply with current codes and standards including International Building Code, seismic design/construction codes and the National Electric Code (NEC). Recent authorization basis decisions regarding connected facilities at TA-50, where the treatment facility is located, have highlighted the need for enhanced seismic conformance. Continuous workarounds are required to keep systems running and excessive corrosion threatens system availability. Degraded and outdated facility systems pose elevated risk to workers.

This project will re-capitalize, at a minimum, the following RLW treatment capabilities at LANL and reduce the liquid discharge to Mortandad Canyon to zero:

- Transuranic (TRU) waste treatment,
- Low-level waste (LLW) treatment,
- Secondary waste treatment,
- RLW discharge system/Zero Liquid Discharge (ZLD),
- TRU influent storage, and
- LLW influent storage.

06-05, Uranium Processing Facility, Y-12 National Security Complex

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Cost Range ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q FY 2006	2Q FY 2012	TBD	TBD	299,759	$1,400,000-3,500,000

Preliminary schedule estimate for CD-4, Approve Start of Operations or Project Closeout, is 4QFY 2018.

(dollars in thousands)

	Appropriations	Obligations	Costs
2006	5,000	5,000	0
2007	5,000	5,000	677
2008	38,583	38,583	33,950
2009	90,622[a]	90,622	75,000
2010	54,478	54,478	75,000
2011	55,216	43,694	48,969
2012	50,000	38,045	26,787
2013	12,728	36,205	30,376
2014	0	0	20,868
Total	311,627	311,627	311,627

[a] $2,654,000 was realigned to 06-D-140-03, PED RLWTF, in FY 2009.

This subproject provides for preliminary and final (Title I and Title II) design for the Uranium Processing Facility (UPF), a major system acquisition that was selected in the Record of Decision for the Complex Transformation Supplemental Programmatic Environmental Impact Statement to ensure the long-term viability, safety, and security of the Enriched Uranium (EU) capability at the National Nuclear Security Administration's (NNSA's) Nuclear Security Enterprise. The UPF will support the nation's nuclear weapons stockpile, down blending of EU in support of nonproliferation, and provide uranium as feedstock for fuel for naval reactors. The goals and objectives of the UPF are as follows:

- ensure the long-term capability and improve the reliability of EU operations through consolidation of facilities;
- replacement of deteriorating, end-of-life facilities with a modern processing facility;
- significantly improve the health and safety of workers and the public by replacing marginally compliant facilities and by replacing administrative controls with engineered controls to manage the risks related to worker safety, criticality safety, fire protection, and environmental compliance;
- accomplish essential upgrades to security at Y-12 necessary to carry out mission-critical activities and implement the Graded Security Protection Policy; and
- allow the Y12 site to accomplish a 90% reduction in its high-security footprint.

The UPF will consolidate all Category 1 and 2 EU operations into a single, modern facility with state-of-the-art technologies and safeguards and security concepts and strategies. Core capabilities will include the following:

- disassembly and dismantlement of returned weapons subassemblies;
- assembly of subassemblies from refurbished and new components;
- quality evaluation to assess future reliability of weapons systems in the stockpile;
- product certification (dimensional inspection, physical testing, and radiography);
- EU metalworking (casting, rolling, forming, and machining), and
- chemical processing including conversion of scrap and salvage EU to metal and other compounds.

Most of the current operations to be replaced by this project are located in facilities that are greater than 50 years old, do not meet today's standards, and are technologically obsolete. This new facility, patterned after the Highly Enriched Uranium Materials Facility's (HEUMF) Designed Denial Facility concept, will provide modern facilities, reduce the site's highest security area by about 90%, and enable a reduction in annual operating costs by approximately 37%. This project is the key element in a new Y-12 modernization approach to accelerate Special Nuclear Material consolidation, provide near-term security enhancements, and reduce maintenance and operating costs.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, PED	N/A	N/A	N/A
Construction			
Site Preparation	N/A	N/A	N/A
Equipment	N/A	N/A	N/A
Other Construction	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, Construction	N/A	N/A	N/A
Total, TEC	N/A	N/A	N/A
Contingency, TEC	N/A	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	N/A	N/A	N/A
Conceptual Design	N/A	N/A	N/A
Start-Up	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, OPC except D&D	N/A	N/A	N/A
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	N/A	N/A	N/A
Contingency, OPC	N/A	N/A	N/A
Total, TPC	N/A	N/A	N/A
Total, Contingency	N/A	N/A	N/A

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	Various
Expected Useful Life (number of years)	Various
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total, Operations & Maintenance	N/A	N/A	N/A	N/A

9. Required D&D Information

Area	Square Feet
Area of new construction	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

Not applicable for PED.

04-D-128, Criticality Experiments Facility Project
Los Alamos National Laboratory (LANL) and Nevada Test Site (NTS)
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-3E, Move the Critical Assembly Machines from Los Alamos National Laboratory to Nevada Test Site for installation at the Device Assembly Facility (DAF), was approved on September 18, 2008, with the Total Project Cost (TPC) of $150,553,000 and CD-4 of June 2010.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

An additional $1,500,000 is requested in FY 2010 to mitigate project risks by off-setting the following cuts: (1) $260,310 government-wide rescission enacted by P.L 110-161; (2) $311,000 difference between the FY 2009 appropriation and the President's FY 2009 request; and (3) approximately $935,000 that was paid out of the project baseline contingency for transferring the facility management from the Lawrence Livermore National Laboratory (LLNL) to the NTS Management and Operating (M&O) Contractor that affected the project cost.

Prior to FY 2008, management and operation of certain facilities at the NTS were assigned to the national laboratories. The DAF was assigned to LLNL. Since the Criticality Experiments Facility (CEF) Project involves modifications to the DAF, LLNL, as the facility manager, was responsible for the authorization basis and readiness review scope of work for CEF. On September 26, 2007, the Deputy Administrator for NNSA directed that the management of all facilities at the NTS be assigned to the NTS M&O (NSTec). Therefore the LLNL scope of work on the CEF Project had to be transferred to NSTec. This transfer resulted in an increased cost to the CEF Project. This transfer of facility management and increased cost was outside the approved baseline for the project.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2B	CD-3E	CD-4	D&D Start	D&D Complete
FY 2002	08/03/2002	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2003	08/03/2002	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2004	08/03/2002	06/14/2004	4QFY 2006	TBD	TBD	TBD	N/A	N/A
FY 2005	08/03/2002	06/14/2004	4QFY 2006	12/02/2005	TBD	TBD	N/A	N/A
FY 2006	08/03/2002	06/14/2004	4QFY 2006	12/02/2005	4QFY 2006	3QFY 2008	N/A	N/A
FY 2007	08/03/2002	06/14/2004	4QFY 2006	12/02/2005	4QFY 2006	1QFY 2010	N/A	N/A
FY 2008	08/03/2002	06/14/2004	3QFY 2007	12/02/2005	3QFY 2007	3QFY 2010	N/A	N/A
FY 2009	08/03/2002	06/14/2004	4QFY2008	12/02/2005	4QFY 2008	3QFY 2010	N/A	N/A
FY 2010	08/03/2002	06/14/2004	4QFY2008	12/02/2005	9/30/2008	3QFY 2010	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2B – Approve Performance Baseline
CD-3E – Approve Transferring upgraded Critical Assembly Machines to the Nevada Test Site
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

(fiscal quarter or date)

	Performance Baseline Validation	CD-2A/3A (Start of EGS Construction)	CD-3B (Long-Lead Procurement)	CD-3C (Start Temporary Construction)	CD-3D (Start DAF Modifications)
FY 2002	NA	TBD	TBD	TBD	TBD
FY 2003	NA	TBD	TBD	TBD	TBD
FY 2004	NA	TBD	TBD	TBD	TBD
FY 2005	11/28/2005	4/14/2005	2QFY 2006	3QFY 2006	1QFY 2007
FY 2006	11/28/2005	4/14 2005	2/09/2006	5/1/2006	2/07/2007

CD-2A/3A: Start Modifications of the Entry Guard Station to add new personnel processing lane and monitors
CD-3B: Start procuring of long-lead equipment for the Critical Assembly Machines and the Device Assembly Facility (DAF) Modifications
CD-3C: Start construction of temporary offices (trailers) and outside DAF PIDAS communication lines
CD-3D: Start DAF modifications, which is the major scope of the project construction activities.

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2002	TBD	TBD	TBD	TBD	NA	TBD	TBD
FY 2003	TBD	TBD	TBD	TBD	NA	TBD	TBD
FY 2004	23,968	TBD	TBD	TBD	NA	TBD	TBD
FY 2005	25,418	77,469	102,887	42,316	NA	42,316	145,203
FY 2006	25,418	77,469	102,887	42,316	NA	42,316	145,203
FY 2007	25,418	77,469	102,887	42,316	NA	42,316	145,203
FY 2008	25,443	80,643	106,086	42,941	NA	42,941	149,027
FY 2009	25,443	80,643	106,086	43,530	NA	43,530	149,616
FY 2010	25,443	81,269	106,712	43,530	NA	43,530	150,242

4. Project Description, Justification, and Scope

Project Description

The goal of the CEF Project is to provide a long-term base criticality experiments capability, improve the security and safety posture, and maximize the use of existing facilities. This project is conceived as the best long-term solution to achieve this goal. Equipment, special nuclear material, and capabilities will be moved from TA-18, the sole remaining facility in the United States capable of performing general-purpose nuclear materials handling experiments and conducting training essential to support national security missions. TA-18 activities include: (1) research and development (R&D) of

technologies in support of Homeland Defense and counter-terrorism initiatives; (2) continued safe and efficient handling and processing of fissile materials; (3) development of technologies vital to implementing arms control and nonproliferation agreements; (4) development of emergency response technologies for response to terrorist attacks and other emergencies; and (5) training for criticality safety professionals, fissile materials handlers, emergency responders, International Atomic Energy Agency professionals, and other Federal and State organizations charged with Homeland Defense responsibilities.

Project Justification

The need for this project is based on the projected large capital investment for security and infrastructure upgrades required over the next 10 years to remain at TA-18. The NNSA completed environmental reviews and technical and cost studies to evaluate siting options for the TA-18 missions, and designated that the preferred alternative is to relocate a portion of the TA-18 missions to the Device Assembly Facility (DAF) at the NTS.

Project Scope

The DAF will be modified to accommodate a base criticality experiments capability with the existing DAF missions. Specifically: The DAF will be modified to accept four critical assemblies, create two storage vaults, two control rooms, and several offices. The existing entry guard station was modified to provide two automated entry lanes with biometrics. New personnel control fencing will be constructed within the PIDAS to allow escorted, uncleared workers access to the CEF construction sites. Classified workstations and telecommunications between the secure DAF and LANL in New Mexico will be provided. In addition, four critical assembly machines will be disassembled from TA-18, upgraded, transported and reassembled at the DAF. The critical assembly controls and safety systems will be upgraded to meet nuclear safety requirements.

FY 2010 funding will be used to complete the modifications to the DAF (i.e., Relocate the material access boundary and removal of the temporary construction facilities) and the execution of project closeout.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

Funds appropriated under this data sheet may be used to provide independent assessments of the planning and execution of this project.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2001	998[a]	998	0
FY 2002	6,426	6,426	0
FY 2003	0	0	0
FY 2004	1,591[b]	1,591	1,731
FY 2005	5,953[c]	5,953	10,696
FY 2006	8,910[d]	8,910	10,807
FY 2007	1,565	1,565	1,790
FY 2008	0	0	3
FY 2009	0	0	416
Total, PED (PED no. 01-D-103)	25,443	25,443	25,443
Construction			
FY 2004	3,768	3,768	0
FY 2005	0	0	220
FY 2006	12,870[e]	12,870	3,353
FY 2007	24,197	24,197	20,655
FY 2008	28,892[f]	28,892	35,361
FY 2009	10,042	10,042	17,000
FY 2010	1,500	1,500	4,680
Total, Construction	81,269	81,269	81,269
Total, TEC	106,712	106,712	106,712

[a] The FY 2001 Appropriations Act designated $1,000,000 for initiation of design activities for relocation of TA-18 Nuclear Materials Handling Facility at LANL. This was reduced by $2,000 by a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act.

[b] Original appropriation was $1,600,000. This was reduced by $9,441 for the mandatory rescission of 0.59 percent enacted by P.L. 108-199.

[c] Original appropriation was $6,000,000. This was reduced by $47,439 for the rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

[d] FY 2006 original Appropriation for Project Engineering and Design was $9,000,000 (PED LI: 01-D-103-07). This was reduced by $90,000 as a result of a government-wide mandatory rescission of 1.0 percent (P.L. 109-148).

[e] FY 2006 original Appropriation was $13,000,000. This was reduced by $130,000 as a result of a government-wide mandatory rescission of 1.0 percent by P.L. 109-148.

[f] Original FY 2008 appropriation was $29,152,000. This was reduced by $260,310 as a result of a mandatory rescission in the FY 2008 Consolidated Appropriations Act (P.L. 110-161).

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Other Project Cost (OPC)			
OPC except D&D			
FY 2001	2,000	2,000	2,000
FY 2002	3,245	3,245	3,245
FY 2003	4,219	4,219	4,219
FY 2004	6,334	6,334	6,334
FY 2005	4,370	4,370	4,042
FY 2006	5,842	5,842	2,344
FY 2007	1,489	1,489	2,261
FY 2008	6,788	6,788	7,526
FY 2009	6,645	6,645	6,645
FY 2010	2,598	2,598	4,914
Total, OPC except D&D	43,530	43,530	43,530
D&D			
FY 2009	NA	NA	NA
Total, D&D	NA	NA	NA
Total Project Cost (TPC)			
FY 2001	2,998	2,998	2,000
FY 2002	9,671	9,671	3,245
FY 2003	4,219	4,219	4,219
FY 2004	11,693	11,693	8,065
FY 2005	10,323	10,323	14,958
FY 2006	27,622	27,622	16,504
FY 2007	27,251	27,251	24,706
FY 2008	35,680	35,680	42,890
FY 2009	16,687	16,687	24,061
FY 2010	4,098	4,098	9,594
Total, TPC	150,242	150,242	150,242

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	25,331	25,331	24,318
Contingency	112	112	1,100
Total, PED (PED no. 01-D-103)	25,443	25,443	25,418
Construction			
Site Preparation	1,584	1,584	3,000
Equipment	3,454	3,454	2,000
Other Construction	65,256	65,256	55,892
Contingency	10,975	9,786	16,577
Total, Construction	81,269	80,080	77,469
Total, TEC	107,023	105,523	102,887
Contingency, TEC	11,087	9,898	17,677
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning & Conceptual Design	26,603	26,603	25,761
Start-Up	16,031	15,771	14,715
Contingency	896	1,156	1,840
Total, OPC except D&D	43,530	43,530	42,316
D&D	NA	NA	NA
D&D	NA	NA	NA
Contingency	NA	NA	NA
Total, D&D	NA	NA	NA
Total, OPC	43,530	43,530	42,316
Contingency, OPC	896	1,156	1,840
Total, TPC	150,242	149,053	145,203
Total, Contingency	11,983	11,054	19,517

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3QFY 2010
Expected Useful Life (number of years)	20
Expected Future Start of D&D (fiscal quarter)	3QFY 2030

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations[a]	N/A	N/A	N/A	N/A
Maintenance[a]	N/A	N/A	N/A	N/A
Total, Operations & Maintenance	N/A	N/A	N/A	N/A

9. Required D&D Information

D&D Information Being Requested	Square Feet
Area of new construction[b]	0
Area of existing facility(s) being replaced	0
Area of additional D&D space to meet the "one-for-one" requirement	NA

An existing facility is being upgraded.

10. Acquisition Approach (formerly Method of Performance)

Due to the facility's security classification, the Management and Operating contractors will perform most design and construction activities. Design of CP-9 and CP-72 was completed via a firm-fixed price contract but not constructed because they were found to be no longer needed.

[a] Facility operations and maintenance cost is part of the DAF overall operations cost; break-down cost for CEF is not practical to calculate.

[b] A portion of DAF is being modified to house the criticality experiments operations.

04-D-125, Chemistry and Metallurgy Research Building Replacement (CMRR) Project, Los Alamos National Laboratory (LANL), Los Alamos, New Mexico Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-1 for the Nuclear Facility (NF), Special Facility Equipment (SFE), and Radiological Laboratory/Utility/Office Building (RLUOB) equipment installation components of the project, and CD-2/3A for the RLUOB facility component of the project. The CMRR CD-1 was approved on May 18, 2005, which at the time had a preliminary cost range of $745,000,000 - $975,000,000. It is recognized that many of the prior planning assumptions have changed. Further discussion below addresses these changes impacting the estimate. The CD-2/3A for the RLUOB construction was approved on October 21, 2005, with a Total Project Cost (TPC) of $164,000,000. The construction of the RLUOB is being executed with a design build contract. Subsequent Critical Decisions will be sought for the establishment of the performance baselines to install SFE equipment in the RLUOB and for the NF and associated SFE equipment. The TPC of the RLUOB construction is part of the overall CMRR Project preliminary cost range.

Based upon DOE/NNSA Program direction to the project in FY 2007 and FY 2008, the project scope description in Section 4 was modified to address incorporation of the Special Facility Equipment (formerly addressed as Phase B), into each of the respective facility components of CMRR, namely the RLUOB and NF. The start of final design was approved for the SFE associated with the RLUOB in May 2007. With the completion of the RLUOB/SFE final design in FY 2008 and the anticipated establishment of the performance baseline in FY 2009, this effort is being addressed as the Equipment Installation effort necessary for the RLUOB to become programmatically operational. For the Nuclear Facility, the facility construction, equipment procurement and installation, and facility operational readiness will be addressed within the NF performance baseline.

A revised estimate to complete assessment will be performed by the project prior to authorization for NF final design. The estimate for construction of the NF is now viewed to be significantly higher (TPC above $2,000,000,000) than studied earlier during conceptual design. The funding profile reflected in Section 5 for the inclusive period of FY 2011 to FY 2014 is a funding placeholder for the NF final design only. No funding placeholder for construction of the Nuclear Facility is included in this data sheet. The decision about how far to proceed into final design will be based on numerous ongoing technical reviews and other ancillary decisions NNSA management will be making during the period of FY 2009 - 2010. A future decision to proceed with construction of the Nuclear Facility and associated equipment has been deferred pending the outcome of the current ongoing Nuclear Posture Review and other strategic decision making.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

	(fiscal quarter or date)							
	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete[a]
FY 2004	7/16/2002	1QFY2004	3QFY2006		2QFY2004	1QFY2011	N/A	N/A
FY 2005	7/16/2002	3QFY2004	3QFY2007		3QFY2005	3QFY2012	N/A	N/A
FY 2006	7/16/2002	2QFY2005	1QFY2007	4QFY2005	1QFY2006	4QFY2010	N/A	N/A
FY 2007	7/16/2002	9/30/2005	2QFY2007	1QFY2006	1QFY2006	1QFY2013	TBD	TBD
FY 2008	7/16/2002	9/30/2005	2QFY2009	10/21/2005	1QFY2006	1QFY2013	TBD	TBD
FY 2009	7/16/2002	9/30/2005	3QFY2010	TBD	TBD	TBD	TBD	TBD
FY 2010	7/16/2002	9/30/2005	3QFY2011[b]	TBD	TBD	TBD	TBD	TBD

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

	(fiscal quarter or date)			
	CD-2/3A RLUOB	CD-2/3B RLUOB SFE	CD-2/3C NF and NF SFE	CD-4
FY 2004	N/A	N/A	N/A	N/A
FY 2005	N/A	N/A	N/A	N/A
FY 2006	4QFY2005	N/A	N/A	N/A
FY 2007	10/21/2005	N/A	N/A	N/A
FY 2008	10/21/2005	N/A	N/A	N/A
FY 2009	10/21/2005	1QFY2008	TBD	TBD
FY 2010	10/21/2005	3QFY2009	TBD	TBD

CD-2/3A RLUOB – Validate Performance Baseline and Start of Construction for RLUOB
CD-2/3B RLUOB SFE (Equipment Installation) – Long Lead Procurement for RLUOB SFE
CD-2/3C - NF and NF SFE – Performance Baseline and Start of Construction for NF and NF SFE
CD-4 – Project Completion

[a] CMR D&D will not be initiated until final start-up of CMRR Nuclear Facility operations currently projected to occur no earlier than FY 2016. Inclusion of CMR D&D in the FY 2010 budget request is premature. Approval of CD-0 provides formal recognition by Department of Energy/National Nuclear Security Administration (DOE/NNSA) of the requirement for D&D of the existing CMR Building in advance of final funding determinations yet to be made as needed to support requisite programming, planning and budgeting actions in future year (FY 2011) budget submissions. This action also demonstrates NNSA/DOE compliance with the Conference Report accompanying the FY 2002 Energy and Water Development Appropriations Act (H. Rept. 107-258) "one-for-one" requirements. Section 9 provides pre-conceptual cost and schedule information for CMR D&D.

[b] Establishment of final design implementation schedule will occur at final design authorization approval.

3. Baseline and Validation Status[a]

(dollars in thousands)

	TEC, PED	TEC, Final Design/ Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2004	N/A	N/A	500,000	100,000	N/A	N/A	600,000
FY 2005	N/A	N/A	500,000	100,000	N/A	N/A	600,000
FY 2006	N/A	N/A	750,000	100,000	N/A	N/A	850,000
FY 2007	N/A	N/A	738,097	100,000	N/A	N/A	838,097
FY 2008	65,939	672,158	738,097	100,000	N/A	N/A	838,097
FY 2009	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2010	65,138	TBD	TBD	TBD	TBD	TBD	TBD

4. Project Description, Justification, and Scope

Project Description

The CMRR Project seeks to relocate and consolidate mission critical analytical chemistry, material characterization (AC/MC), and actinide research and development (R&D) capabilities, as well as providing SNM storage and large vessel handling capabilities to ensure continuous national security mission support capabilities beyond 2010 at Los Alamos National Laboratory (LANL).

Justification

In January 1999, the NNSA approved a strategy for managing risks at the CMR Building. This strategy recognized that the 50-year-old CMR Facility could not continue its mission support at an acceptable level of risk to public and worker health and safety without operational restrictions. In addition, the strategy committed NNSA and LANL to manage the existing CMR Building to a planned end of life in or around 2010, and to develop long-term facility and site plans to replace and relocate CMR capabilities elsewhere at LANL, as necessary to maintain support of national security missions. CMR capabilities are currently substantially restricted; additionally, in order to reduce costs and risks in operating the aging CMR facility, wing consolidation efforts are under way. These operational restrictions preclude the full implementation of the level of operations DOE/NNSA requires as documented through the Record of Decision for the 1999 LANL Site-Wide Environmental Impact Statement, and the 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. The CMRR project will relocate mission-critical CMR capabilities at LANL to Technical Area (TA)-55 near the existing Plutonium Facility (Building PF-4). The CMRR Project will also provide for SNM storage capabilities in order to sustain national security missions at LANL, and reduce risks to the public and workers as described in the November 2003 Final Environmental Impact Statement for CMRR and approved in the February 2004 CMRR EIS Record of Decision.

[a] The prior year TEC and OPC (exclusive of CMR D&D costs) reflected alternative selection and cost range information approved at CD-1, 3Q FY 2005. The estimated values provided in previous years reflected conceptual estimates for all CMRR Phases. The validated performance baseline for CMRR RLUOB construction was attained in 1Q FY 2006. Baseline values for subsequent components (NF and SFE) are in development. Except for limited long equipment, no construction funds will be used until the Performance Baselines have been validated for each respective component of CMRR. Advanced equipment design is necessary to reduce both technical and nuclear safety risk for the project.

Scope

The CMRR project consists of designing, constructing and achieving operational readiness for two discrete facilities to meet the national security missions assigned to LANL. The acquisition execution strategies for meeting the scope and for obtaining the operational goal for these facilities are described below.

- Radiological Laboratory/Utility/Office Building (RLUOB): Construction of a facility to house laboratory space of approximately 20,000 net square feet capable of handling radiological (<8.4g Pu^{239} equivalent) quantities of Special Nuclear Materials (SNM); a utility building sized to provide utility services (including chilled and hot water, potable hot/cold water, compressed air, and process gases) for all CMRR facility elements; office space for CMRR workers located outside of perimeter security protection systems; and space for centralized TA-55 training activities. The RLUOB is the initial element of the CMRR and is being implemented through a Design-Build (D-B) procurement approach initiated upon approval of CD-2/3(A) in October 2005. Funding for this phase is supported through this data sheet. The RLUOB design/build construction scope will be considered complete when the elements described above are built, approved for beneficial occupancy, and four of the twenty six radiological laboratories are equipped. The RLUOB becomes fully functional and operational after the completion of the equipment installation effort for this facility. Equipment installation includes gloveboxes, hoods, AC/MC instrumentation, security and communication hardware, and final facility tie-ins and operational readiness/turnover activities. The performance baseline for the RLUOB equipment installation effort will be set in FY 2009. Funding for the design, procurement, and installation/construction of the RLUOB equipment installation portion is supported through this data sheet.

- CMRR Nuclear Facility (NF): Consists of the design, construction, and operational readiness of a facility located behind perimeter security protective systems of approximately 22,500 net square feet of Hazard Category II, Security Category I nuclear laboratory space for analytical chemistry/material characterization, and actinide research & development operations. Additionally, this facility will include SNM Storage and space to accommodate large vessel handling. All associated Special Facilities Equipment (SFE) for the NF, which includes gloveboxes, hoods, and materials transfer system, will be addressed in the baseline for the NF. The CMRR NF capabilities support virtually all nuclear programs at LANL, including pit certification and surveillance, pit manufacturing, and waste operations. Additionally, the CMRR NF will operate in an integrated fashion with the existing PF-4 facility, reducing overall nuclear facility costs and improving operational efficiencies. The overall performance baseline may be established after final design.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

Funds appropriated under this data sheet may be used to provide independent assessments of the planning and execution of this project.

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED[a]			
FY 2004	9,500	0	0
FY 2005	13,567	21,701	1,847
FY 2006	27,910	13,322	19,147
FY 2007	14,161	21,777	27,213
FY 2008	0	8,338	15,079
FY 2009	0	0	1,852
Total, PED (PED 03-D-103-01)	65,138	65,138	65,138
Final Design			
FY 2004	9,941	0	0
FY 2005	10,063	0	0
FY 2006	0	18,013	14,089
FY 2007	11,000	11,991	10,000
FY 2008	48,141	49,141	24,749
FY 2009	50,194	50,194	63,250
FY 2010	15,000	15,000	15,000
FY 2011	23,600	23,600	15,000
FY 2012	13,000	13,000	20,000
FY 2013	38,100	30,000	30,000
FY 2014	57,761	40,000	30,000
FY 2015	TBD	TBD	TBD
Total, Final Design (TEC 04-D-125)	TBD	TBD	TBD
Total, Design	TBD	TBD	TBD
Construction			
FY 2004	0	0	0
FY 2005	29,621	0	0
FY 2006	54,450	74,418	1,649
FY 2007	42,422	39,682	22,323
FY 2008	26,000	38,392	50,200
FY 2009	47,000	47,001	80,000
FY 2010	40,000	40,000	40,000
FY 2011	50,000	50,000	50,000
FY 2012	37,000	37,000	37,000
FY 2013	1,900	1,900	1,900
FY 2014	0	0	0
FY 2015	TBD	TBD	TBD
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
Total, Construction (TEC 04-D-125)	TBD	TBD	TBD

[a] CMRR SFE and NF will complete preliminary design using PED funds included 03-D-103. Design beyond preliminary will be completed using TEC funds included in 04-D-125.

	(dollars in thousands)		
	Appropriations	Obligations	Costs
TEC			
FY 2004	19,441	0	0
FY 2005	53,251	21,701	1,848
FY 2006	82,360	105,753	34,885
FY 2007	67,583	73,450	59,536
FY 2008	74,141	95,871	90,028
FY 2009	97,194	97,194	143,250
FY 2010	55,000	55,000	55,000
FY 2011	73,600	73,600	65,000
FY 2012	50,000	50,000	57,000
FY 2013	40,000	31,900	31,900
FY 2014	57,761	40,000	30,000
FY 2015	TBD	TBD	TBD
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
Other Project Cost (OPC)			
OPC except D&D			
FY 2002	1,665	1,665	1,665
FY 2003	12,174	12,174	12,174
FY 2004	7,214	7,214	7,214
FY 2005	7,165	7,165	7,165
FY 2006	1,400	1,400	1,400
FY 2007	1,196	1,196	1,196
FY 2008	6,000	6,000	2,259
FY 2009	8,000	8,000	8,000
FY 2010	8,000	8,000	8,000
FY 2011	9,000	9,000	9,000
FY 2012	8,000	8,000	8,000
FY 2013	8,000	8,000	8,000
FY 2014	9,000	9,000	9,000
FY 2015	TBD	TBD	TBD
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
D&D[a]			
	TBD	TBD	TBD
Total, D&D	TBD	TBD	TBD

[a] Section 9 provides preliminary pre-conceptual cost and schedule information for CMR D&D.

	(dollars in thousands)		
	Appropriations	Obligations	Costs
OPC			
FY 2014	TBD	TBD	TBD
FY 2015	TBD	TBD	TBD
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD
FY 2019	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 2002	1,665	1,665	1,665
FY 2003	12,174	12,174	12,174
FY 2004	26,655	7,214	7,214
FY 2005	60,416	28,866	9,013
FY 2006	83,760	107,153	36,285
FY 2007	68,779	74,646	60,732
FY 2008	80,141	101,871	92,287
FY 2009	105,194	105,195	153,102
FY 2010	63,000	63,000	63,000
FY 2011	82,600	82,600	74,000
FY 2012	58,000	58,000	65,000
FY 2013	48,000	39,900	39,900
FY 2014	66,761	49,000	39,000
FY 2015	TBD	TBD	TBD
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD
FY 2019	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED & TEC)			
Design	TBD	TBD	TBD
Contingency	TBD	TBD	TBD
Total, Design (PED 03-D-103, TEC 04-D-125)	TBD	TBD	TBD
Construction			
Site Preparation			
Equipment	TBD	TBD	TBD
Other Construction	TBD	TBD	TBD
Contingency	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
Total, PED & TEC (PED 03-D-103, TEC 04-D-125)	TBD	TBD	TBD
Contingency, TEC	TBD	TBD	TBD
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning			
Conceptual Design	24,895	TBD	TBD
Start-Up	TBD	TBD	TBD
Contingency	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
D&D			
D&D	TBD	TBD	TBD
Contingency	TBD	TBD	TBD
Total, D&D	TBD	TBD	TBD
Total, OPC	TBD	TBD	TBD
Contingency, OPC			
Total, TPC	TBD	TBD	TBD
Total, Contingency	TBD	TBD	TBD

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4QFY2009[a]
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	2QFY2065

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total, Operations & Maintenance	N/A	N/A	N/A	N/A

9. Required D&D Information

As directed by the DOE Acquisition Executive at CMRR CD-0, NNSA and LANL developed a pre-conceptual cost and schedule range for the D&D requirements of the existing CMR Building located at TA-3 during the CMRR conceptual design. The initial pre-conceptual cost estimate range for D&D of the CMR Building is approximately $200,000,000 - $350,000,000 (un-escalated FY 2004 dollars) with an associated schedule estimate range of 4-5 years. (If this cost range is escalated to FY 2012, the cost estimate range increases to $350,000,000 - $500,000,000). This information was presented as part of CMRR CD-1 per Secretarial direction issued at CD-0.

During the 3rd Quarter of FY 2005, the D&D of the existing CMR facility received CD-0 in conjunction with CMRR CD-1 approval. The receipt of CD-0 for the D&D of the CMR Facility demonstrates NNSA commitment to the Conference Report (H. Rept. 107-258) accompanying the FY 2002 Energy and Water Development Appropriations Act "one-for-one" requirement. Current Future Years Nuclear Security Program/Integrated Construction Program Plan (FYNSP/ICPP) funding profiles do not include the funding for the D&D of the CMR Facility as final funding determinations have yet to be made for inclusion in the appropriate budget year for this activity. NNSA will not initiate CMR D&D activities until completion and operational start-up of the CMRR Nuclear Facility, currently projected to be no earlier than FY 2014. As such, budget formulation for CMR D&D is premature for the FY 2010 budget submission. The inclusion of the D&D CMR Facility budget will occur upon the establishment of a project number and update of the FYNSP/ICPP in out year budget cycles.

The CMR D&D commitment is reflected in this CPDS for completeness. However, as planning for this D&D activity matures, NNSA may elect to enable this effort as a separate project, execute it as an element of a wider project or program for a portfolio of D&D activities at LANL, or bundle it with other, yet undefined activities.

[a] This date corresponds to the beneficial occupancy of the RLUOB construction phase only.

Area	Square Feet
Area of new construction	400,000
Area of existing facility(s) being replaced	550,000
Area of additional D&D space to meet the "one-for-one" requirement	0

Name(s) and site location(s) of existing facility(s) to be replaced: CMR (TA-3, building 29)

10. Acquisition Approach

Design and Construction Management will be implemented by the Los Alamos National Security through the LANL Management and Operating Contract. The CMRR Acquisition Strategy is based on procurement strategies specific for each major component of the CMRR project in order to mitigate overall technical and schedule risk. The RLUOB is being implemented via LANL-issued traditional design-build subcontract based on performance specifications developed during CMRR Conceptual Design. The SFE associated with both the RLUOB and NF as well as the NF structure itself, will be implemented via one or more LANL-issued final design-bid-construction contracts. The performance baseline will be established upon completion of final design for each portion of the Project.

99-D-141-01, Pit Disassembly and Conversion Facility (PDCF)
Savannah River Site, Aiken, South Carolina
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-0/1, Approve Mission Need and Alternative Selection and Cost Range for the Pit Disassembly and Conversion Facility (PDCF) Line Item, was approved on October 31, 1997. The project completion date was estimated to be 4Q FY2004. The preliminary cost range to design, construct and start-up the facility is $2,400,000,000 - $3,200,000,000. These estimates will be adjusted when the project baseline is established. The PDCF design is approximately 70 percent complete.

A Federal Project Director at the appropriate level has been assigned to this project.

This Project Data Sheet (PDS) is an update of the FY 2009 PDS. Significant changes include:

The PDCF project was moved to the Directed Stockpile Work (DSW) Program in Defense Programs in FY 2008. Beginning in FY 2010, management responsibility for the project has migrated to the Readiness and Technical Base Facilities (RTBF) Program so that the construction of Defense Programs' programmatic facilities would be managed in one program. When the PDCF project migrated to Defense Programs, programmatic cost accounts relating to pit disassembly also migrated with the project. All of the operating costs for the pit disassembly and oxide production functions, including programmatic costs, are currently accounted as "other project costs" on this data sheet, until these costs can properly be deconvolved.

Costs considered as Other Project Costs (OPCs) in this PDS include costs that are programmatic in nature and do not attach specifically to the PDCF project. The non-OPC operating budget and costs will be captured in either DSW or RTBF operating accounts, as applicable, when the decisions are made as to where to properly separate them. Until decisions are made where to place the budget and costs that are not OPCs from the PDCF OPC accounts, the budget and costs are identified within the PDCF PDS.

The project continues with final design and will make a decision in 3Q FY 2009 as to whether and when to seek CD-2. In accordance with DOE O 413.3A, Defense Programs will revalidate the program requirements and the preferred project alternative prior to Acquisition Executive, Deputy Secretary, and Energy Systems Acquisition Advisory Board (ESAAB) consideration for approval. This Congressional PDS is not aligned with the project team’s proposed CD-2 cost, schedule, and scope baseline because of the Defense Programs’ revalidation in FY 2009. If Defense Programs revalidates the mission need, program requirements, and preferred project alternative, then the project will proceed for an early construction start date to support the plutonium oxide delivery schedules to the Mixed Oxide Fuel Fabrication Facility. Additional resources beyond what are discussed in this data sheet would be required if the mission need is validated in 3Q FY 2009.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2000	10/31/1997	10/31/1997	07/17/1999	4QFY2001	N/A	2QFY2001	4QFY2004	N/A	N/A
FY 2001	10/31/1997	10/31/1997	07/17/1999	1QFY2002	N/A	1QFY2002	3QFY2005	N/A	N/A
FY 2002	10/31/1997	10/31/1997	07/17/1999	TBD	N/A	TBD	TBD	N/A	N/A
FY 2003	10/31/1997	10/31/1997	07/17/1999	1QFY2004	N/A	TBD	TBD	N/A	N/A
FY 2004	10/31/1997	10/31/1997	07/17/1999	2QFY2004	N/A	TBD	TBD	N/A	N/A
FY 2005	10/31/1997	10/31/1997	07/17/1999	4QFY2005	N/A	2QFY2005	TBD	N/A	N/A
FY 2006	10/31/1997	10/31/1997	07/17/1999	4QFY2005	N/A	3QFY2010	TBD	N/A	N/A
FY 2007	10/31/1997	10/31/1997	07/17/1999	4QFY2007	N/A	1QFY2011	4QFY2015	N/A	N/A
FY 2008	10/31/1997	10/31/1997	07/17/1999	4QFY2009	2QFY2007	1QFY2011	2QFY2019	N/A	N/A
FY 2009	10/31/1997	10/31/1997	07/17/1999	2QFY2011	4QFY2008	TBD	TBD	N/A	N/A
FY 2010	10/31/1997	10/31/1997	07/17/1999	4QFY2011	3QFY2009	TBD	TBD	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2000	N/A	N/A	346,192	0	N/A	N/A	N/A
FY 2001	N/A	N/A	346,192	0	N/A	N/A	N/A
FY 2002	N/A	N/A	TBD	TBD	N/A	N/A	N/A
FY 2003	N/A	N/A	TBD	TBD	N/A	N/A	N/A
FY 2004	N/A	N/A	TBD	TBD	N/A	N/A	N/A
FY 2005	N/A	N/A	TBD	TBD	N/A	N/A	N/A
FY 2006	N/A	N/A	TBD	TBD	N/A	N/A	N/A
FY 2007	N/A	N/A	1,243,428	481,628	N/A	N/A	1,725,056
FY 2008	255,391	1,388,226	1,643,617	805,435	N/A	805,435	2,449,052
FY 2009	312,700	TBD	TBD	TBD	N/A	TBD	TBD
FY 2010	380,664	TBD	TBD	TBD	N/A	TBD	TBD

4. Project Description, Justification, and Scope

The PDCF is a first-of-a-kind facility. The United States has never before constructed and operated a production-scale facility for disassembling nuclear weapons pits. The PDCF, which will be built at the Savannah River Site, will disassemble surplus nuclear weapon pits and convert the resulting weapon-grade plutonium metal and other surplus weapons grade plutonium metal inventories to an oxide form in support of the material disposition program which then can be fabricated into mixed oxide (MOX) fuel for irradiation in U.S. commercial nuclear reactors. Once irradiated and converted into spent fuel, the plutonium can no longer be readily used for nuclear weapons. This project provides the Department with a state-of-the-art plutonium capability for storage, disassembly, conversion, and packaging in

support of lifecycle material management of plutonium. After completing its mission, the PDCF will be deactivated, decontaminated, and decommissioned over a three to four year period or converted for some other missions as might be applicable.

The PDCF consists of a main hardened building containing the pit disassembly plutonium processes and a number of conventional buildings and structures to house support personnel, systems, and equipment. The main plutonium processing building will occupy approximately 115,000 square feet and contain the following key areas: pit receiving, assay and storage; pit disassembly and oxide conversion; and plutonium oxide packaging, assay, storage, and shipment. This building will be equipped with storage capacity for incoming pit materials and plutonium oxide and includes areas for recovery, decontamination, and declassification of non-nuclear components resulting from the disassembly of the nuclear weapon pits. The conventional buildings and structures, which do not contain radioactive materials, will occupy approximately 50,000 square feet and contain offices; change rooms; a central control station; non-radioactive waste treatment; and packaging, storage, and shipment systems.

The scope of this subproject consists of the following activities: design and construction of the buildings and structures including design, procurement, installation, testing, demonstration and start-up of equipment to disassemble pits and convert the plutonium metal to an oxide form.

FY 2010 Description of Activities

FY 2010 activities include completing 85-90 percent of the final design.

The PDCF project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

Funds appropriated under this data sheet may be used to provide independent assessments of the planning and execution of this project.

5. Financial Schedule

.

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 1999	20,000	20,000	211
FY 2000	18,751	17,396	13,449
FY 2001	19,956	17,804	17,834
FY 2002	11,000	14,507	23,377
FY 2003	28,462	28,462	38,052
FY 2004	40,420	39,820	32,026
FY 2005	32,044	32,644	40,626
FY 2006	21,406	21,406	18,384
FY 2007	32,789	32,789	18,081
FY 2008	22,447	22,447	22,882
FY 2009	26,083	26,083	33,206
FY 2010	30,321	30,321	27,503
FY 2011	76,985	76,985	47,854
FY 2012	0	0	47,179
Total, Design	380,664	380,664	380,664
Construction			
FY 2006	0	0	0
FY 2007	0	0	0
FY 2008	0	0	0
FY 2009	0	0	0
FY 2010	0	0	0
FY 2011	0	0	0
FY 2012	178,622	178,622	178,622
FY 2013	234,546	234,546	234,546
FY 2014	216,566	216,566	216,566
FY 2015	TBD	TBD	TBD
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
TEC			
FY 1999	20,000	20,000	211
FY 2000	18,751	17,396	13,449
FY 2001	19,956	17,804	17,834
FY 2002	11,000	14,507	23,377
FY 2003	28,462	28,462	38,052
FY 2004	40,420	39,820	32,026
FY 2005	32,044	32,644	40,626
FY 2006	21,406	21,406	18,384
FY 2007	32,789	32,789	18,081
FY 2008	22,447	22,447	22,882
FY 2009	26,083	26,083	33,206
FY 2010	30,321	30,321	27,503
FY 2011	76,985	76,985	47,854
FY 2012	178,622	178,622	225,801
FY 2013	234,546	234,546	234,546
FY 2014	216,566	216,566	216,566
FY 2015	TBD	TBD	TBD

	(dollars in thousands)		
	Appropriations	Obligations	Costs
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD
Total TEC	TBD	TBD	TBD
Other Project Cost (OPC)			
OPC except D&D			
FY 1999	18,378	18,378	17,401
FY 2000	29,369	29,369	24,488
FY 2001	27,193	27,193	29,191
FY 2002	27,699	27,699	23,649
FY 2003	27,884	27,884	29,970
FY 2004	33,161	32,935	30,828
FY 2005	25,658	25,658	26,727
FY 2006	47,395	47,298	33,770
FY 2007	22,000	22,273	21,930
FY 2008	6,353	6,003	15,562
FY 2009	68,084	68,084	68,084
FY 2010	70,229	70,229	79,236
FY 2011	69,620	69,620	69,620
FY 2012	48,686	48,686	48,686
FY 2013	56,805	56,805	56,805
FY 2014	71,304	71,304	71,304
FY 2015	TBD	TBD	TBD
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD
FY 2019	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
D&D	N/A	N/A	N/A
FY			
Total, D&D	N/A	N/A	N/A
Total, OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 1999	38,378	38,378	17,612
FY 2000	48,120	46,765	37,937
FY 2001	47,149	44,997	47,025
FY 2002	38,699	42,206	47,026
FY 2003	56,346	56,346	68,022
FY 2004	73,581	72,755	62,854
FY 2005	57,702	58,302	67,353
FY 2006	68,801	68,704	52,154
FY 2007	54,789	55,062	40,011
FY 2008	28,800	28,450	38,444
FY 2009	94,167	94,167	101,290
FY 2010	100,550	100,550	106,739
FY 2011	146,605	146,605	117,474
FY 2012	227,308	227,308	274,487
FY 2013	291,351	291,351	291,351
FY 2014	287,870	287,870	287,870
FY 2015	TBD	TBD	TBD

(dollars in thousands)

	Appropriations	Obligations	Costs
FY 2016	TBD	TBD	TBD
FY 2017	TBD	TBD	TBD
FY 2018	TBD	TBD	TBD
FY 2019	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	TBD	312,700	TBD
Contingency	0	0	TBD
Total, Design	TBD	312,700	TBD
Construction			
Site Preparation	TBD	TBD	TBD
Equipment	TBD	TBD	TBD
Other Construction	TBD	TBD	TBD
Contingency	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
Contingency, TEC	TBD	TBD	TBD
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	TBD	TBD	TBD
Conceptual Design			
Start-Up	TBD	TBD	TBD
Contingency	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	TBD	TBD	TBD
Contingency, OPC			
Total, TPC	TBD	TBD	TBD
Total, Contingency	TBD	TBD	TBD

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Sub-Project 01 – Pit Disassembly and Conversion Facility

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2QFY2019
Expected Useful Life (number of years)	7 ½ years
Expected Future Start of D&D of this capital asset (fiscal quarter)	TBD

(Related Funding requirements)

Sub-Project 01 – Pit Disassembly and Conversion Facility

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

9. Required D&D Information

Area	Square Feet
Area of new construction	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

Pit Disassembly and Conversion Facility

A cost plus fixed-fee contract for preliminary design and a cost plus award-fee contract for detailed design has been utilized for the PDCF. The design oversight and design authority responsibilities are being performed by the cost plus award-fee Savannah River Site M&O contractor. Technology development and plutonium oxide process design oversight is being performed by Los Alamos National Laboratory. The design contract includes an option to provide engineering support during the construction phase (Title III), which DOE will determine during the remaining Title II design effort. This approach includes the use of the US Army Corps of Engineers as the Construction Manager and overall project integrator from FY 2009 through testing and turnover phase.

It is anticipated that fixed-price and cost plus construction sub-contracts for the PDCF will be awarded on the basis of competitive bidding. With construction of the Mixed Oxide Fuel Fabrication Facility (MOX) and Waste Solidification Building (WSB) starting prior to PDCF construction, the PDCF procurement approach will have the benefit of being able to take into consideration lessons learned from both of these procurement activities. Furthermore, lessons learned from the Waste Treatment Plant at Hanford/WA, Highly Enriched Uranium Material Facility Oak Ridge/TN, and Salt Waste Processing Facility/Savannah River Site, SC is being considered and incorporated within the PDCF design and construction baseline.

Secure Transportation Asset

Overview

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Secure Transportation Asset (STA)			
Operations and Equipment	128,343	127,701	138,772
Program Direction	83,180	86,738	96,143
Total, Secure Transportation Asset	**211,523**	**214,439**	**234,915**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Operations and Equipment				
Operations and Equipment	158,322	160,165	156,897	159,224
Program Direction	95,580	97,279	98,678	99,922
Total, Operations and Equipment	**253,902**	**257,444**	**255,575**	**259,146**

Description

Secure Transportation Asset (STA) program safely and securely transports nuclear weapons, weapons components, and special nuclear materials to meet projected Department of Energy (DOE), Department of Defense (DoD), and other customer requirements.

The STA Government Performance and Results Act (GPRA) unit contains two activities that contribute to GPRA Unit Program Goal 2.1.34.00 – Operations and Equipment, and Program Direction. Program Direction in this account provides primarily for the federal agents and transportation workforce and Congress established a separate program account to more accurately reflect program activities. STA is a Departmental asset. STA's transportation service is critical in meeting the transformation goals and objectives of the National Security Enterprise.

The workload requirements for this program have escalated significantly to support the dismantlement and maintenance schedule for the nuclear weapons stockpile and the Secretarial initiative to consolidate the storage of nuclear material. The transportation requirements result in the need for higher levels of funding to support new vehicle and equipment replacement and enhancements, as well as recruitment and training of the federal agent workforce. These long-lead efforts are required to effectively increase mission capacity. The challenge to increase the capacity of the program is coupled with and impacted by increasingly complex national security concerns and the requirements of Graded Security Protection Policy (GSP). The increasingly uncertain threat environment necessitates the implementation of force multiplier technologies and operational enhancements for intelligence gathering and front-end reconnaissance. STA's resources will implement an operationally focused and intelligence driven operation, focusing on the detection and deterrence of potential threats while sustaining capabilities to defend, recapture and recover.

With planned NNSA Transformation and Stockpile Reduction and Replacement initiatives, future workload will exceed the STA current capacity. Nuclear material consolidation campaigns require STA

to increase transportation capability to meet shipping requirements. For the short term, the NNSA STA Advisory Board (STAAB) will balance and prioritize customer requests against STA capability. In the long-term, the STA will manage the accretion of resources as capacity requirements are reduced when the NNSA "Complex Transformation" initiatives are concluded.

Major FY 2008 Achievements

- Safely and securely completed 100% of shipments without compromise/loss of nuclear weapons/components or a release of radioactive material;
- Completed 109 convoy equivalents;
- Reduced the cost per convoy from $2.65M in FY 2002 to $1.73M;
- Produced 3 Safeguard Transporters (SGTs) for a total of 42;
- Transportation for the Lawrence Livermore National Laboratory deinventory on schedule;
- Transportation for the Hanford Site deinventory 55% complete;
- Transportation of 6M container campaign complete;
- Transportation for B-61 refurbishment complete;
- Transportation W74/80 refurbishment on schedule;
- Transportation of Pits on schedule to support production;
- Completed participation in Diablo Bravo Exercise;
- Increased federal agent work force by 21. Achieved federal agent end strength of 363;
- Completed Integrated Safety Management System description;
- Supported Category IV plutonium-238 source recovery from Italy (maritime shipment);
- Delivered Category I highly enriched uranium (HEU) feed material to support the Medical Isotope Program (airlift);
- Delivered Kodak HEU to Savannah River Site, and
- Established an Injury Review Council for Federal Employee Compensation Act (FECA) compliance.

Major Outyear Priorities and Assumptions

The outyear projections for STA total $1,026,067,000 for FY 2011 through FY 2014. The primary objective of the STA program is to continue completing 100 percent of shipments safely and securely without compromise/loss of nuclear weapons/components or a release of radioactive material. In order to support the escalating workload requirements, while maintaining the safety and security of shipments,

the STA program will increase the cumulative number of Safeguard Transporters in operation for a total of 45 in FY 2009. The STA program also intends to maintain the agent manpower. The implementation of a disciplined transportation planning process across the complex will result in transportation schedules that balance workload requirements, training, maintenance, and agent quality of life.

A major priority will be the replacement of the aging aviation assets. Two DC-9s and one C-9 have reached the end of their effective life-cycle. STA plans to acquire a total of three transport category aircraft. One 737 type aircraft will be purchased each year in FY 2010, FY 2011, and FY 2012 to replace the aging aircraft.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.34.00, Secure Transportation Asset											
Annual percentage of shipments completed safely and securely without compromise/loss of nuclear weapons/components or a release of radioactive material (Annual Outcome)	R: 100%	R: 100% T: 100%	R: 100% T: 100%	R: 100% T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	Annually, ensure that 100% of shipments are completed safely and securely without compromise/loss of nuclear weapons/components or a release of radioactive material.
Annual cost per convoy expressed in terms of millions of dollars (Efficiency)	R: $1.90	R: $2.10 T: $1.80	R: $1.69 T: $1.80	R: $1.73 T: $1.79	N/A	N/A	N/A	N/A	N/A	N/A	By FY 2008, achieve a cost per convoy equivalent of $1.79M.
Annual number of secure convoys completed (Annual Output)	R: 106 T: 105	R: 93 T: 115	R: 113 T: 115	R: 109 T: 118	N/A	N/A	N/A	N/A	N/A	N/A	By FY 2008, achieve 118 convoy equivalents.
Annual percentage of Transportation Shipping Requests (TSRs) delivered by the scheduled delivery date (Efficiency)	N/A	N/A	N/A	N/A	Baseline	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	Annually, ensure that 90% of TSRs are delivered by the scheduled delivery date.
Cumulative number of Safeguard Transporters (SGTs) in operation (Long-term Output)	R: 33 T: 33	R: 36 T : 36	R: 39 T: 38	R: 42 T: 42	T: 45	N/A	N/A	N/A	N/A	N/A	By FY 2009, achieve an operational SGT fleet of 45.[b]
Annual percentage of Unit Readiness to perform assigned convoy mission-weeks (Efficiency)	N/A	N/A	N/A	N/A	Baseline	T: 80%	T: 80%	T: 80%	T: 80%	T: 90%	By FY 2014, ensure Operational Units have a 90% readiness rate to perform assigned convoy mission-weeks.[a]
Cumulative number of Federal Agents at the end of each year (Long-term Output)	R: 318 T: 335	R: 324 T: 355	R: 351 T: 355	R: 373 T: 385	T: 390	N/A	N/A	N/A	N/A	N/A	By the end of FY 2009, achieve end strength of 390 Agents. [c]

[a] Performance indicator is baselined in FY 2009. Outyear targets are estimates, pending baselining results.

[b] As a result of programming decisions, the target to complete the SGT production in FY 2011 with a total production of 51 was modified to reflect the completion of 45 SGTs by 2009. The impacts associated with this change will be evaluated in the near future.

[c] The end point target was adjusted to align with the Omnibus appropriation and near-term transportation requirements. STA will continue to conduct Agent Candidate classes to address attrition and maintain the flow of agents into the agent force. Until the nuclear security enterprise is stabilized and the transportation requirements are clearer, STA will maintain the agent force at 390. When transportation projections document the additional Agent force, STA will ramp up the agent force. Meanwhile PD funds will be utilized to address PD-related demands that were not projected during the budgeting cycle.

Secure Transportation Asset

Operations and Equipment

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Operations and Equipment			
Mission Capacity	72,358	70,107	75,038
Security/Safety Capability	18,168	20,617	26,472
Infrastructure and C5 Systems	29,769	25,978	23,217
Program Management	8,048	10,999	14,045
Total, Operations and Equipment	**128,343**	**127,701**	**138,772**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Operations and Equipment				
Mission Capacity	82,721	82,893	80,286	80,695
Security/Safety Capability	27,516	28,124	27,883	28,582
Infrastructure and C5 Systems	33,486	34,226	33,933	34,783
Program Management	14,599	14,922	14,795	15,164
Total, Operations and Equipment	**158,322**	**160,165**	**156,897**	**159,224**

Description

Within the STA Operations and Equipment Activity, each of four subprograms makes unique contributions to the GPRA Unit Program Goal 2.1.34 regarding the safety and security of the nuclear stockpile. These subprograms accomplish the following: (1) Mission Capacity - provides agent candidate training to maintain federal agent workforce, provides mission-essential agent equipment, maintains and expands the transportation fleet, provides aviation services, optimizes transport operations, and utilizes contract drivers to move empty vehicles; (2) Security/Safety Capability - develops and implements new fleet technologies, intensifies agent training, and implements Security, Safety, and Emergency Response programs; (3) Infrastructure and C5ISR systems (command and control, communications, computers, cyber, intelligence, surveillance, and reconnaissance) - provides facility maintenance, support for construction projects, and C5 systems; (4) Program Management - provides corporate functions and business operations that control, assist, and direct secure transport operations.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Mission Capacity	**72,358**	**70,107**	**75,038**

The program objective is to maintain the mission capacity of the STA program to support the dismantlement and maintenance schedule for the nuclear weapons stockpile and Secretarial Initiative to consolidate the storage of nuclear material and support counter proliferation programs. The Department is moving forward to aggressively dispose and consolidate materials in the FY 2010 to FY 2013 timeframe. These activities required expansion of the STA systems capacity through equipment purchases and maintenance of the increased Federal Agent manpower to fulfill the present schedule. Workload requirements will be allocated among the National Defense priorities as established by the Secure Transportation Asset Advisory Board. This goal includes the following activities: (1) Annually, conduct an Agent Candidate Training (ACT) class to maintain the agent end-strength. STA conducts ACT classes; to address attrition, maintain a consistent flow of agents into the agent force and maintain training expertise. Funding supports the recruiting, equipping, and training of federal agent candidates necessary to maintain the work force impacted by attrition**.** (2) Replaces the aging vehicle fleet with newly designed vehicles. Funding supports the design, engineering, testing, and fielding of specialized vehicles and trailers that counter current threat scenarios. (3) Maintains readiness posture of the STA fleet. Funding supports the inspection, testing, and maintenance of escort vehicles, secure trailers, armored tractors, mobile communication and defensive systems. It also supports the operation of three vehicle maintenance facilities. Aircraft are used to move agents to staging points to minimize travel time. As the complex moves toward consolidation of materials and centralization of operations, STA will adapt to new shipping patterns and delivery timelines. Aircraft are also used to support the Limited Life Components Program and continuous alert aircraft to support emergency response for the Nuclear Emergency Search Team (NEST), Accident Response Group (ARG), Radiological Assistance Program (RAP), and Joint Tactical Operations Team (JTOT). Funding supports the operation and maintenance of two DC-9s, one C-9, one G3, one Learjet 35, and two Twin Otters.

Mission requirements for the forty-year old aircraft have increased in step with the overall increase in program requirements. STA will focus resources to replace these aging assets, purchasing the first of three Boeing 737s and the associated parts, spares and tools required to manage and maintain the acquired aircraft in FY 2010.

Security/Safety Capability	**18,168**	**20,617**	**26,472**

Provides support to the program objective of strengthening the STA security and safety capability. This goal includes the following sub-elements: (1) Identifies, designs, and tests new fleet and mission technologies. Funding supports on-going upgrades and enhancements to the secure trailers, analyzing intelligence data, disseminating information and the application of emerging physical security technology. (2) Sustains and supports intensified training. Funding supports the technical equipment, logistics, curriculum development, and staffing necessary to conduct Special Response Force (SRF), Operational Readiness Testing (ORT), and agent sustainment training. (3) Maintains security and safety programs. Funding supports liaison with state and local law enforcement organizations; maintaining a human reliability program for federal agents and staff; analyzing security methods and equipment; conducting vulnerability assessments; developing the Site Safeguards and Security Plan (including Force-on-Force validation exercises), and combat simulation computer modeling; and

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010

conducting safety studies and safety engineering for the Safety Basis, Nuclear Explosive Safety, and over-the-road safety issues. (4) Maintains the NNSA Emergency Operations Center (EOC) in Albuquerque, NM, as well as trains and exercises the STA response capability. Funding supports the Emergency Management Program to include Federal Agent Incident Command System refresher and sustainment training.

The focus in FY 2010 will be to operate the Transportation Safeguards System (TSS) within the safety and security licenses, based on the updated/upgraded Site Safeguards and Security Plan, and maintaining agent skills to meet the GSP requirements. STA will maintain the federal agent force, equipment and training tempo to meet GSP and workload requirements.

STA will also conduct environmental testing and a Nuclear Explosive Safety Study (NESS) of the Overland Palletized Unit Shipper (OPUS) and will field the first production unit.

Infrastructure and C5 Systems	**29,769**	**25,978**	**23,217**

Provides support to the program goal of expanding, modernizing, and maintaining the physical platforms that the STA operates. This goal includes the following sub-elements: (1) Modernize and maintain classified command and control, communication, computer, and cyber (C5) systems activities to enhance required oversight of nuclear convoys. Funding supports operation of the Transportation Emergency Control Centers; communications maintenance; electronic systems depot maintenance; and the costs for operating relay stations in five states. (2) Expand, upgrade and maintain the STA facilities and equipment to support the increase in federal agents and workload. Funding supports the utilities, maintenance, upgrades, required expansion projects, and leases for 80 facilities and their respective equipment.

The FY 2010 focus will be on upgrading NTS satellite training facility to better accommodate a realistic over-the-road convoy operations training capability.

Program Management	**8,048**	**10,999**	**14,045**

Provides support to the program goal of creating a well-managed, responsive, and accountable organization by employing effective business practices. This goal includes the following: (1) Provide for corporate functions and business operations that control, assist, and direct secure transport operations. Includes supplies, equipment and technical document production and regulation. (2) Assess, evaluate and improve work functions and processes. Funding supports quality studies, self-inspections, professional development, routine STA intranet web support, configuration management, and business integration activities.

Total, Secure Transportation Asset, Operations and Equipment	**128,343**	**127,701**	**138,772**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Mission Capacity	
The increase is attributable to escalating vehicle maintenance cost. Savings realized from the reduction of the quantity and decreased ACT class sizes, along with deceleration of vehicle production activities support the procurement of one (1) Boeing 737 to replace aging aircraft.	+4,931
Security/Safety Capability	
The increase is associated with (1) the cost of maintaining an effective Human Reliability Program for Federal Agents and staff; (2) increased Federal Agent training (e.g., ORT, SRF, and JTX) and equipment essential to maintain critical skills necessary to defend against evolving threats. (3) Field the first production unit of OPUS.	+5,855
Infrastructure and C5 Systems	
The decrease is a result of funding shifts from Vehicle communications systems to address increased fuel costs and escalated maintenance costs associated with aging vehicles.	-2,761
Program Management	
The net increase will provide for general site support to all STA Federal Agent Commands. Support includes supplies, equipment and services required to maintain Federal Agent qualifications and mission-related duties. Also supports the staff at STA facilities. Supports the internal review and oversight functions, which assess Agent training venues, contractor performance and transportation activities to ensure compliance with laws and regulations. Supports management's flexibility in responding to changes in security conditions, mission priorities and overall fiscal responsibilities.	+3,046
Total Funding Change, Operations and Equipment	**+11,071**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	9,873	0	0
Capital Equipment	3,000	3,000	21,100
Total, Capital Equipment	**12,873**	**3,000**	**21,100**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	0	0	0	0
Capital Equipment	21,200	21,200	10,300	0
Total, Capital Equipment	**21,200**	**21,200**	**10,300**	**0**

Capital operating expenditures are associated with procurement of specialized escort vehicles for all fiscal years. The additional vehicles are required to meet projected workload, replacing aging vehicles and initiate a steady state lifecycle. Escort vehicles are critical in providing safe and secure transportation support to the increased workload associated with material consolidation and Complex Transformation initiatives.

In FY 2010 through FY 2013, the increased capital expenditures are for the purchase of 737 type aircraft. In FY 2013, funding will support the modification of aircraft cargo doors to meet future payload configurations.

Secure Transportation Asset

Program Direction

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Program Direction			
Salaries and Benefits	73,244	75,226	81,225
Travel	8,741	10,188	11,331
Other Related Expenses	1,195	1,324	3,587
Total, Program Direction	**83,180**	**86,738**	**96,143**
Total, Full Time Equivalents	**567**	**647**	**647**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Program Direction				
Salaries and Benefits	82,157	83,844	84,846	85,658
Travel	11,482	11,827	12,182	12,521
Other Related Expenses	1,941	1,608	1,650	1,743
Total, Program Direction	**95,580**	**97,279**	**98,678**	**99,922**
Total, Full Time Equivalents	**647**	**667**	**667**	**667**

Description

The STA Program Direction makes unique contributions to the GPRA Program Unit Goal 2.1.34 regarding the safety and security of the nuclear stockpile by providing personnel to: (1) conduct armed escorts of nuclear weapons, material, and components; (2) track nuclear convoys and provide emergency response capability; (3) perform staff oversight of three federal agent commands; (4) supervise the design and implementation of classified security technologies; (5) provide critical skills training to the federal agent force and staff; (6) staff and operate the Training and Logistics Command and conduct of two 20-week training classes per year for new agents; and (7) perform administrative and logistical functions for the organization.

Detailed Justification

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Salaries and Benefits	**73,244**	**75,226**	**81,225**

Provides salaries and benefits for the program staff at Albuquerque, NM; Fort Chaffee, AR; and Washington, DC, as well as the federal agents and support staff at the three federal agent force locations (Albuquerque, NM; Oak Ridge, TN; and, Amarillo, TX). Includes overtime, workmen's compensation, and health/retirement benefits associated with federal agents, secondary positions, and support staff.

Travel	**8,741**	**10,188**	**11,331**

Provides for travel associated with annual secure convoys, training at other federal facilities and military installations, and program oversight.

Other Related Expenses	**1,195**	**1,324**	**3,587**

Provides required certification training for the handling of nuclear materials by federal agent forces, as well as staff professional development. Provides for Permanent Change of Station (PCS) moves and other Contractual Services.

Total, Program Direction	**83,180**	**86,738**	**96,143**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Salaries and Benefits	
The increase is due to the projected addition of federal agents to compensate for attrition and direct operational secondary personnel. Reflects the impact of conducting an Agent candidate training (ACT) class to maintain federal agent manpower. Consequently, there will be significant increases in salaries, benefits, and overtime. There will also be an increase in support staff positions because of the larger agent force. STA projects a total of 647 FTE's.	+5,999
Travel	
The increase reflects higher travel costs associated with a larger agent/support force. With the addition of Federal Agents and secondary positions there are additional travel costs both for missions and for training purposes.	+1,143
Other Related Expenses	
The increase is based upon additional training and supporting training venues, such as at the Nevada Test Site. Additional PCS costs will be necessary for movement between federal agent commands.	+2,263
Total Funding Change, Secure Transportation Asset, Program Direction	**+9,405**

Nuclear Counterterrorism Incident Response

Funding Profile by Subprogram[a]

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Nuclear Counterterrorism Incident Response (Homeland Security)[b]			
Emergency Response (Homeland Security)[b]	131,455	132,918	139,048
National Technical Nuclear Forensics (Homeland Security)[b]	12,000	12,557	10,217
Emergency Management (Homeland Security)[b]	6,479	7,428	7,726
Operations Support (Homeland Security)[b]	8,721	8,207	8,536
International Emergency Management and Cooperation	0	4,515	7,181
Nuclear Counterterrorism (Homeland Security)[b]	0	49,653	49,228
Total, Nuclear Counterterrorism Incident Response	**158,655**	**215,278**	**221,936**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Nuclear Counterterrorism Incident Response				
Emergency Response (Homeland Security)[b]	138,939	139,222	139,899	141,100
National Technical Nuclear Forensics (Homeland Security)[b]	10,384	10,400	10,500	10,400
Emergency Management (Homeland Security)[b]	7,852	7,500	7,000	6,850
Operations Support (Homeland Security)[b]	8,675	8,692	8,799	8,750
International Emergency Management and Cooperation	7,298	7,300	7,310	7,200
Nuclear Counterterrorism (Homeland Security)[b]	50,030	49,800	49,000	48,000
Total, Nuclear Counterterrorism Incident Response	**223,178**	**222,914**	**222,508**	**222,300**

Description

The Nuclear Counterterrorism Incident Response (NCTIR) program, formerly the Nuclear Weapons Incident Response program, responds to and mitigates nuclear and radiological incidents worldwide and has a lead role in defending the Nation from the threat of nuclear terrorism.

The National Nuclear Security Administration (NNSA) Emergency Operations program remains the United States (U.S.) government's primary capability for radiological and nuclear emergency response and for providing security to our Nation from the threat of nuclear terrorism. Through the development, implementation and coordination of programs and systems designed to serve as a last line of defense in the event of a nuclear terrorist incident or other types of radiological accident, the Office of Emergency Operations maintains a high level of readiness for protecting and serving the U.S. and its allies – a readiness level that provides the U.S. Government with quickly deployable, dedicated resources capable

[a] Effective June 1, 2007, the Office of International Emergency Management and Cooperation was functionally transferred from the Office of Defense Nuclear Nonproliferation (DNN) to Nuclear Counterterrorism Incident Response (NCTIR) in an effort to consolidate emergency mission, functions, authorities and activities within NNSA. Funding that was managed by the NCTIR program, but still resided in the DNN budget, was $6,249,000 for FY 2008, reflecting planned program activities including increases for the Bratislava Agreement. Effective December 2007, the Office of Nuclear Counterterrorism Design Support was functionally transferred from the Office of Defense Programs (DP) to NCTIR in an effort to consolidate emergency mission, functions, authorities and activities within NNSA. FY 2008 funds totaling $53,000,000 resided in DP; however, NCTIR managed the program.

[b] Office of Management and Budget (OMB) Homeland Security designation.

of responding rapidly and comprehensively to nuclear or radiological incidents worldwide. The September 11, 2001, attacks signaled a major change in both the intelligence picture and the tactics of the terrorists. Accordingly, the country's, as well as NCTIR's, national response posture has changed to meet the new challenges in the war against terrorism especially those related to countering nuclear terrorism. The result has been NCTIR's increasing focus on redefining relationships with old partners such as the Federal Bureau of Investigation (FBI), and defining relationships with other partners, such as the Department of Homeland Security (DHS). Even as basic emergency operations activities continue to increase, NCTIR increasingly serves as the Federal Government's comprehensive defense of the Nation against the nuclear terrorism threat.

Since FY 2006, NCTIR manages the activities and funding for the Emergency Operations Centers and threat assessment within the "Operations Support" activity. Also, effective June 1, 2007, the Office of International Emergency Management and Cooperation transferred from the Office of Defense Nuclear Nonproliferation to the NCTIR program in an effort to consolidate international emergency missions, functions, authorities and activities within NNSA. In December 2007, the Office of Nuclear Counterterrorism Design Support was also functionally transferred from the Office of Defense Programs to NCTIR to consolidate activities within NNSA aimed at countering nuclear terrorism. The transition of these Offices to NCTIR has helped to further the goals and mission of NCTIR and provides a unified, single center of excellence to counter nuclear terrorism on many fronts.

The International Emergency Management and Cooperation subprogram reduces the risks of international nuclear and radiological events by strengthening emergency preparedness and response capabilities worldwide and radioactive operations through information sharing, program coordination, and technical assistance to foreign governments and international organizations.

In FY 2006, NCTIR fully implemented its single Readiness measure after testing its concepts for three quarters in FY 2005. Readiness encompasses trained personnel, reliable and operational equipment and communications ready to respond to and mitigate nuclear and radiological incidents worldwide. This puts NCTIR's focus on what is critically important, ties the measure to nearly 100 percent of the program's budget, forces a focus on all problem areas, and makes performance measurement a powerful management tool. In FY 2009, NCTIR added two additional components to the Readiness measure, related to transportation of first responders, to further characterize our ability to respond.

This budget includes continued funding for the Render Safe Research and Development Program and the Render Safe Stabilization Operations (formerly Stabilization Implementation within Emergency Response) and National Technical Nuclear Forensics (NTNF) programs. It further accomplishes some minor reprioritization of requirements and includes growth at approved escalation rates. This Program budget represents the minimum required to accomplish vital national security missions.

The NCTIR program functions primarily as a homeland security related activity which also uses its resources and expertise as a unique foreign policy asset for the additional application of international emergency response. Within the NCTIR program, the Emergency Response Homeland Security (HS), Emergency Management HS, National Technical Nuclear Forensics HS, Operations Support HS, International Emergency Management and Cooperation, and Nuclear Counterterrorism HS subprograms each make unique contributions to GPRA Unit Program Goal 2.1.35.00. The Emergency Response HS maintains and provides specialized technical expertise in response to nuclear/radiological incidents, including those involving nuclear weapons. These capabilities include immediate situation resolution, longer-term consequence management, and issues relating to human health. These response teams include the Nuclear Emergency Support Team (NEST) and other assets. The Emergency Management

HS provides for the comprehensive, integrated emergency planning, preparedness, and response programs throughout the Department's field operations. The program develops and implements specific programs, plans and systems to minimize the impact of emergencies on national security, worker and public safety, and the environment. The program oversees the implementation of emergency management policy, preparedness, and response activities within the NNSA. The National Technical Nuclear Forensics HS supports implementation of operations and research and development as well as builds upon nuclear disposition activities already underway, including pre- and post- detonation nuclear forensics. Operations Support activities support Headquarters' emergency response operations through the Headquarters' Watch Office and Operations Centers. Program staffs participate in tests and exercises to improve communication and notification capabilities and procedures. NCTIR manages and operates the Headquarters Emergency Communications Network to facilitate unclassified and classified videoconferences in support of Department-wide task forces, meetings/briefings, exercises/drills and all DOE site emergencies. The International Emergency Management and Cooperation Program conducts training, provides technical assistance, and develops programs, plans and infrastructure to strengthen emergency management systems worldwide. The Nuclear Counterterrorism (NC) Program works collaboratively with the Department of Homeland Security, the Defense Threat Reduction Agency, and DOE's Offices of Nonproliferation Research and Development, Nuclear Energy, Defense Nuclear Nonproliferation and Health, Safety and Security and the intelligence community on Improvised Nuclear Device (IND) concepts. The NC program draws on the full range of tools, techniques and expertise developed within the nuclear weapons design laboratories.

Major FY 2008 Achievements

- Deployed multiple field teams to conduct special events and elevated threats including 34 high profile special events and 47 emergency responses around the world in support of Homeland Security, Federal Bureau of Investigation (FBI) and Department of State; including National Special Security Events, and National Security Events. These events included: State of the Union; Super Bowl; several NASCAR events; Papal visits to DC and New York; Annapolis Conference; Marine Corps Marathon; Republican and Democratic National Conventions, MLB and NBA All-Star Games; Rolling Thunder; UN General Assembly; and Radiological Assistance Program (RAP) support to Chicago police department and aerial monitoring.

- Responded to a radiological contamination incident at the National Institute for Standards and Technology (NIST) in Boulder, CO, and assisted the Department of Commerce with dose assessments for potentially contaminated individuals.

- Participated in 137 interagency national and international counterterrorism exercises, including: Marble Challenge (2), Top Officials Exercise 4 (TOPOFF 4); Ardent Sentry 2008; and led the Diablo Bravo 2008 nuclear weapon accident-incident exercise, which was a Tier 2 National Level Exercise, supported by Department of Defense (DoD) and the FBI.

- Participated in Eagle Horizon 08, a major interagency continuity exercise.

- Continued support to the FBI of its render safe capability and completed the first-ever Stabilization tool kit, which will be field tested and training conducted in FY 2009.

- Prepared for the first-ever end to end post-detonation IND nuclear forensics exercise, OAK PHOENIX, incorporating notification/deployment, sample collection, lab analysis, and data evaluation phases.

- Continued Global Initiative to Combat Nuclear Terrorism (GICNT) support through outreach, interagency, and international efforts designed to improve the capabilities of participant nations for response, mitigation, and investigation of terrorist use of nuclear and radioactive materials. Individual events with the GICNT included multiple workshops in China, the 2008 Summer Olympics in Beijing, and conferences in Spain, Morocco, International Atomic Energy Agency (IAEA), and the Baltic States.

- Improved the capability of Triage, a radiological reach-back capability, to provide first responders with expert analysis of detector readings and enhanced hands-on training and workshops.

Major Outyear Priorities and Assumptions

The outyear projections for Nuclear Counterterrorism Incident Response total $890,900,000 for FY 2011 through FY 2014. The trend through the five-year period is relatively flat but funding is targeted to specific areas of the program including - Equipment and Training, Render Safe Stabilization Operations, and International Emergency Management and Cooperation. These initiatives support scientific breakthroughs from Render Safe Research and Development in support of stabilization equipment and training for FBI teams and the continued implementation of international emergency management training and outreach activities to ensure its mission of reducing the risk of international nuclear or radiological events by strengthening emergency preparedness and response capabilities worldwide.

The NCTIR outyear budgets will concentrate on the programs that contribute the most to vital national security missions. Deferred requirements will be reprioritized based on fact of life changes. The program will focus to correct deficiencies surfaced by quarterly evaluation of the readiness performance measure, and necessary upgrades to the Emergency Operations Centers.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.35.00, Nuclear Weapons Incident Response											
Emergency Operations Readiness Index measures the overall organizational readiness to respond to and mitigate radiological or nuclear incidents worldwide (This Index is measured from 1 to 100 with higher numbers meaning better readiness--the first three quarters will be expressed as the readiness at those given points in time where as the year end will be expressed as the average readiness for the year's four quarters) (Efficiency)	R : 71	R: 82 T: 91	R: 91 T: 91	R: 91 T: 91	T: 91	T: 91	T: 91	T: 91	T: 91	T: 91	Annually, maintain an Emergency Operations Readiness Index of 91 or higher.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Emergency Response (Homeland Security)	**131,455**	**132,918**	**139,048**

The Office of Emergency Response serves as the last line of national defense in the face of a nuclear terrorist incident or other type of radiological accident. The mission is to protect the public, environment, and the emergency responders from terrorist and non-terrorist events by providing a responsive, flexible, efficient, and effective radiological emergency response framework and capability for the Nation by applying NNSA's unique technical expertise resident within the Department of Energy (DOE) complex. The strategic approach for emergency response activities is to ensure a central point of contact and an integrated response to emergencies. Specific attention is focused on providing the appropriate technical response to any nuclear emergency within the Department, the U.S. and abroad. This is accomplished by ensuring that the appropriate infrastructure is in place to provide command, control, communications, and properly organized, trained and equipped response personnel to successfully resolve an emergency event.

▪ **Nuclear Emergency Support Team (NEST)**	**89,818**	**87,300**	**92,249**

Under the provisions of the Atomic Energy Act of 1954 and Presidential Decision Directives 39 and 62, National Security Presidential Directives (NSPD) 28, NSPD 17/Homeland Security Presidential Directive (HSPD) 4, and NSPD 46/HSPD 15, government agencies are directed to plan for, train, and resource a robust capability to combat terrorism, especially in the area of Weapons of Mass Destruction (WMD). The Nuclear Emergency Support Team (NEST) program was initiated in 1974 to provide DOE/NNSA technical assistance to a Lead Federal Agency (LFA), whether it be DHS, DOE, FBI, Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC), or Department of Defense (DoD), to deal with incidents, including terrorist threats, that involve the use of nuclear materials. NEST is comprised of three functional elements in the detection of nuclear devices: searching for, rendering safe, and command and control of the asset. Furthermore, there are five primary teams dedicated to the execution of these functions: Accident Response Group (ARG), Radiological Assistance Program (RAP), Nuclear/Radiological Advisory Team (NRAT), Search Response Team (SRT), and Joint Technical Operations Team (JTOT). The NEST program has been structured to address threats posed by domestic and foreign terrorists likely to have both the will and means to employ WMD. The NEST response assumes that such an act might occur with little, if any, advanced warning.

The NEST program has been structured to address threats posed by domestic and foreign terrorists likely to have both the will and means to employ WMD. The NEST response assumes that such an act might occur with little, if any, advanced warning. Under such circumstances, NEST would respond to assist in the identification, characterization, rendering safe and final disposition of any nuclear weapon or radioactive device. Additionally, NEST has the capability to search for possible additional devices that may have been emplaced. Finally, the NEST Technology Integration program keeps responders equipped with cutting edge equipment and analysis methods.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
▪ **Other Assets**	**25,637**	**26,919**	**27,449**

The HS Emergency Response program also maintains the following additional assets to provide assistance to local, state and other federal agencies and conduct exercises in response to emergencies involving nuclear/radiological materials.

These assets also provide support to the NEST programs to ensure the safe resolution of an incident and protect public safety and the environment.

- The Aerial Measuring System (AMS) detects and maps radioactive material at an emergency scene to determine contamination levels using fixed wing and rotary aircraft.
- The Atmospheric Release Advisory Capability (ARAC) develops and disseminates predictive dose and deposition plots generated by sophisticated computer models.
- The Federal Radiological Monitoring Assessment Center (FRMAC) / Consequence Management Teams provide the technical capabilities focused on radiological consequence management to assist and coordinate federal radiological monitoring and assessment activities and effects with DHS, Federal Emergency Management Agency (FEMA), NRC, EPA, DOD, state and local agencies, and others.

The Radiation Emergency Assistance Center/Training Site (REAC/TS) provides advice and medical consultation for injuries resulting from radiation exposure and contamination and serves as a training facility. REAC/TS operates the Cytogenetic Biodosimetry Laboratory (CBL) that has the capability to perform clinical dose assessments for potentially exposed individuals to very low levels of radiation. The CBL is the only federally funded civilian facility of its kind in the country. Additionally, REAC/TS provides training to the medical community and maintains a database of medical responders trained to treat radiation injuries within the U.S. and abroad.

▪ **Render Safe Stabilization Operations**	**16,000**	**18,699**	**19,350**

Stabilization Implementation was a program element initiated in NCTIR in FY 2008. In FY 2009 the program was renamed Render Safe Stabilization Operations (RSSO) since it starts to operationally deploy technologies developed by the Render Safe R&D program. The RSSO program is working with the FBI to develop the teams to use these technologies without extensive training, to isolate and stabilize a nuclear device until the national response assets arrive to render it safe.

The Render Safe Research and Development (RS R&D) Program continues to research technologies that can be used to stabilize and render safe a nuclear device. Currently, the RS R&D portfolio is focused on stabilization technologies. Research is promising, and several technologies developed by the RS R&D Program are in initial production to be used by RSSO stabilization teams. The requested RSSO funding will make this possible. The RSSO program is also leveraging technologies developed by other government agencies. In FY 2010, the funding requested for Stabilization Operations will facilitate the interchange of information

between NCTIR and other agencies, obtain and maintain equipment, develop and train the stabilization field and home teams with the FBI, and deploy the first generation of stabilization equipment to selected FBI teams across the country, thus improving the national emergency response capability and fully integrating this technology with response elements and associated deployed technologies.

National Technical Nuclear Forensics (Homeland Security)	**12,000**	**12,557**	**10,217**

The Office of National Technical Nuclear Forensics (NTNF) provides operational support to Pre-Detonation Device and Post-Detonation technical nuclear forensics program. The NTNF program is a HSC/NSC sponsored policy initiative, which aims to establish missions, institutionalize roles and responsibilities and enable operational support for pre-detonation and post-detonation nuclear forensics and attribution programs including training and exercises, equipment purchases and maintenance, logistics, and deployment readiness to support ground sample collection and Deployable Field Laboratory operations. Major program elements include:

- concept of operations development and techniques, tactics and procedures;
- modeling, signatures development, knowledge base and data management;
- support to FBI in collection of pre-detonation device forensics evidence;
- maintain G-Tunnel capability to support NTNF;
- support to FBI in collection and analysis of post-detonation ground samples;
- establish Home Team capability, and
- training, drills, and exercises.

Emergency Management (Homeland Security)	**6,479**	**7,428**	**7,726**

The Office of Emergency Management develops and implements specific programs, plans, and systems to minimize the impacts of emergencies on worker and public health and safety, the environment, and national security. This is accomplished by promulgating appropriate Departmental requirements and implementing guidance; developing and conducting training and other emergency preparedness activities; supporting readiness assurance activities; and, participating in interagency activities. The objective is to have a fully implemented and fully integrated Departmental comprehensive emergency management system throughout the DOE complex. In FY 2010, the Office of Emergency Management will conduct 6-8 no-notice exercises at DOE sites to gauge emergency preparedness at DOE/NNSA sites.

The Office of NNSA Emergency Management Implementation is responsible for implementing and coordinating emergency management policy, preparedness, and response activities with NNSA, including managing the NNSA Headquarters emergency preparedness and response effort and coordinating NNSA field and contractor implementation of DOE and NNSA emergency management policy. This office serves as the single point of contact for coordinating among NNSA Headquarters offices, site offices, sites, facilities, and contractors to ensure compliance with, and implementation of, Departmental and NNSA-specific emergency management policy, plans and performance expectations.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

The Emergency Operations Training Academy (EOTA) is an academically accepted training and development center that remains on the cutting edge of technology and innovation. It is the Office of Emergency Operations point of service for training development and oversight.

The Continuity Program (CP) continues to include responsibility for all of DOE and is an HSC/NSC sponsored policy initiative. These programs develop the Headquarters and the field Continuity of Operations and Continuity of Government plans that are updated constantly. Periodic training and exercises are required. The NNSA and DOE continue to participate in major interagency exercises sponsored by DHS on an annual basis. Beginning in FY 2008, funding is included for Continuity of Government activities previously funded by the former Office of Security and Safety Performance Assurance. In FY 2010, the CP plans to complete the NCS-10 (Federal) communications equipment and training requirements for the national capital region as well as Albuquerque.

Operations Support (Homeland Security) 8,721 8,207 8,536

Emergency Operations Support operates the DOE Emergency Operations Centers and the Emergency Communications Network (ECN). The DOE Headquarters Emergency Operations Center provides the core functions of supporting Departmental command, control, communications and situational intelligence requirements for all types of DOE emergency situations. The goal of the Emergency Communications Network Program is to provide the DOE/NNSA national emergency response community a world-class, state-of-the-art, high speed, global emergency communications network to support the exchange of classified and unclassified voice, data and video information.

International Emergency Management and Cooperation 0 4,515 7,181

The International Emergency Management and Cooperation (IEMC) subprogram conducts training, provides technical assistance, and develops programs, plans and infrastructure to strengthen and harmonize emergency management systems worldwide. Current ongoing cooperation involves China, Brazil, Argentina, India, Pakistan, Japan, France, South Korea, Taiwan, Finland, Armenia, Sweden, Norway, and Russia. NNSA will continue liaison with, and participate in projects sponsored by, international organizations (IAEA, European Union (EU), North Atlantic Treaty Organization (NATO), Group of 8, Arctic Council), exhibiting leadership under assistance and cooperation agreements to provide consistent emergency plans and procedures, effective early warning and notification of nuclear/radiological incidents or accidents, and delivery of assistance to an affected nation should an incident/accident occur.

The IEMC subprogram supports the IAEA in developing and implementing new standards and guidance for emergency management affecting all member states. The IEMC is also providing communication and radiation monitoring equipment and technical assistance for IAEA's emergency program to address incidents and accidents including lost sources. The program supports emergency response cooperative activities bilaterally and under various Global Initiatives to ensure programs are in place to protect emergency personnel, the public and the environment from the consequences of nuclear/radiological incidents; conducts emergency drills and exercises involving nuclear facility

workers and local and national government counterparts; and develops and conducts training courses for nuclear facility emergency staff and other emergency responders. The subprogram is developing emergency management training courses for emergency managers in Asian countries (China, Malaysia, Philippines, South Korea) and South American countries (Brazil, Argentina, Chile) for the areas of hazards assessment, monitoring, and medical management of a radiological emergency.

The subprogram will also plan, conduct and analyze the results of the tracer experiment to be conducted in China in 2010 in an international workshop which will be held to discuss the results that will be incorporated into the National Atmospheric Release Advisory Center (NARAC) plume model systems. Differences between worldwide plume modeling and dispersion programs developed by the NARAC and systems developed by Japan, EU, and Russia will be documented and harmonized. The NARAC plume modeling and graphic information system will be integrated with these systems for a worldwide capability for nuclear/radiological incidents. This function was previously conducted under the Office of Defense Nuclear Nonproliferation. In an effort to consolidate emergency mission, functions, authorities and activities within NNSA, IEMC was transferred to NCTIR. Funding that was managed by the NCTIR program, but still resided in the DNN budget, was $6,249,000 for FY 2008.

Nuclear Counterterrorism (Homeland Security)	**0**	**49,653**	**49,228**

The Nuclear Counterterrorism (NCT) program serves as the single point of contact for nuclear counterterrorism in the US Government, directly supporting other agencies needs relative to Improvised Nuclear Device (IND) design and assessment activities. NCT provides the necessary analysis of NNSA-specific data needed by other agencies to counter the threat of a terrorist nuclear device. The NCT program draws on the full range of tools, techniques and expertise developed within the nuclear weapons design laboratories. This function was previously conducted under Defense Programs in Directed Stockpile Work. Although the majority of this budget is for nuclear assessment and development of nuclear-related tools, in FY 2010, NCT anticipates deployment of a next-generation explosives detector for use by national first responders.

Total, Nuclear Counterterrorism Incident Response	**158,655**	**215,278**	**221,936**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Emergency Response (Homeland Security)	
▪ **Nuclear Emergency Support Team (NEST)**	
This increase reflects escalation in the Emergency Response subprograms comprising NEST. Funding for Emergency Response represents costs associated with the conduct of operations necessary for first responder priorities in state-of-readiness and -agility for the response teams to deal with complex multi-faceted nuclear threats. Additionally, aging equipment requires increased investment in maintenance and calibration to maintain standards.	+4,949
▪ **Other Assets**	
This increase reflects escalation in the Emergency Response subprograms comprising Other Assets, (namely Consequence Management program).	+530
▪ **Render Safe Stabilization Operations**	
Increase in funding for program support of HSC/NSC activity for development and deployment of first generation equipment with stabilization teams for the isolation and stabilization of devices until national response teams can arrive to render it safe.	+651
Subtotal, Emergency Response	**+6,130**
National Technical Nuclear Forensics (Homeland Security)	
Decrease in funding still maintains a level of support of this HSC/NSC activity to further establish missions, institutionalize roles and responsibilities and refine operational support for pre-detonation and post-detonation nuclear forensics, attribution and ongoing disposition programs.	-2,340
Emergency Management (Homeland Security)	
This increase in funding supports training required for increased mission responsibilities, as well as RAPTER course deliveries locally in various RAP regions. This increase also provides funding for Continuity Programs to support the mission for all of DOE Continuity planning, training, exercises and operations activities previously funded by, and transferred from, the former Office of Security and Safety Performance Assurance.	+298

	FY 2010 vs. FY 2009 ($000)
Operations Support (Homeland Security)	
Increases Emergency Operations Centers funding at a level needed for funding of maintenance of the ECN to support high priority NNSA/DOE missions.	+329
International Emergency Management and Cooperation (IEMC)	
This increase results from the planned growth in international outreach efforts. This increase will ensure that the IEMC program continues to address the most serious emergency management concerns in the priority countries of China, India and Pakistan while continuing and completing ongoing emergency management projects with the IAEA, Brazil, Argentina, Chile, Armenia and Georgia. The IEMC's program planned growth in base program of outreach activities will continue to ensure its mission of reducing the risk of international nuclear and radiological events by strengthening emergency preparedness and response capabilities worldwide.	+2,666
Nuclear Counterterrorism (Homeland Security)	
This decrease results from reallocation within NCTIR to ensure that efforts to combat the war on nuclear terrorism continue for existing customers and stakeholders along with technical aspects this program can bring to bear on the NCTIR mission. The NCT base program will continue to ensure its mission of reducing the risks of potential INDs. Funding requested represents revised investment mix in R&D for tools, techniques and procedures in such areas as multi-dimensional modeling; an IND tool kit; proactive information control, and various other activities.	-425
Total Funding Change, Nuclear Counterterrorism Incident Response	**+6,658**

Capital Operating Expenses and Construction Summary[a]

Capital Operating Expenses

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	0	500	1,200
Capital Equipment	701	716	732
Total, Capital Equipment	**701**	**1,216**	**1,932**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	1,400	753	590	607
Capital Equipment	748	764	781	798
Total, Capital Equipment	**2,148**	**1,517**	**1,371**	**1,405**

[a] Funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects. The program no longer budgets separately for capital equipment and general plant projects. Funding shown reflects estimates based on actual FY 2008 obligations. GPP funds in FY 2009 – FY 2011 represent funding for reconfiguration of space adjacent to Kirtland Air Force Base flight line for the SORD (Stabilization Operations Readiness and Deployment) Facility.

Facilities and Infrastructure Recapitalization Program

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Facilities and Infrastructure Recapitalization Program			
Operations and Maintenance (O&M)			
Recapitalization	87,414	69,226	130,507
Facility Disposition	21,300	0	0
Infrastructure Planning	7,627	10,324	14,452
Subtotal, Operations and Maintenance (O&M)	**116,341**	**79,550**	**144,959**
Construction	61,520	67,899	9,963
Total, Facilities and Infrastructure Recapitalization Program	**177,861**	**147,449**	**154,922**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Facilities and Infrastructure Recapitalization Program				
Operations and Maintenance (O&M)				
Recapitalization	145,065	142,048	152,073	0
Facility Disposition	0	0	0	0
Infrastructure Planning	11,699	12,702	2,614	0
Subtotal, Operations and Maintenance (O&M)	**156,764**	**154,750**	**154,687**	**0**
Construction	0	0	0	0
Total, Facilities and Infrastructure Recapitalization Program	**156,764**	**154,750**	**154,687**	**0**

Description

The Facilities and Infrastructure Recapitalization Program (FIRP) continues its mission to restore, rebuild and revitalize the physical infrastructure of the nuclear security enterprise. The program funding is utilized to address an integrated, prioritized series of repair and infrastructure projects focusing on elimination of legacy deferred maintenance that significantly increases the operational efficiency and effectiveness of the NNSA nuclear security enterprise sites. FIRP is able to readily respond to changing missions, priorities and decisions affecting both sites and their facilities within the nuclear security enterprise through the implementation of its Integrated Prioritized Project List (IPPL) that targets the most degraded and most mission-relevant facilities and infrastructure deficiencies first.

FIRP has four subprograms, three of which require funding in FY 2010: Recapitalization, Infrastructure Planning, and Construction. The Facility Disposition subprogram achieved its long-term goal to fund a cumulative 3,000,000 gross square feet (gsf) for disposition by FY 2008. The FIRP Recapitalization subprogram funds projects that target legacy deferred maintenance reduction and repair of (non-programmatic) mission facilities and infrastructure projects that support transformation of the complex. These projects are vital to restoring the facilities that accommodate the people, equipment, and material necessary to support scientific research, production, or testing to conduct the Stockpile Stewardship Program. The FIRP Infrastructure Planning subprogram funds planning activities for upcoming Recapitalization projects. Its primary objective is to ensure that projects are adequately planned in

advance of project start. This permits the timely use of Recapitalization funds and effective project execution, using a graded approach to meet the requirements of DOE Order 413.3A, "*Program and Project Management for the Acquisition of Capital Assets*". The FIRP Construction subprogram funds selected utility line-item construction projects across the nuclear security enterprise to further reduce the legacy deferred maintenance backlog. This satisfies a critical need for improvement to NNSA sites' utilities infrastructure.

FIRP is complementary to the ongoing programmatic base maintenance and infrastructure efforts at NNSA sites. Maintenance and infrastructure are primarily funded by Readiness in Technical Base and Facilities (RTBF) and through site overhead allocations to ensure that facilities necessary for immediate programmatic workload activities are sufficiently maintained. FIRP addresses the additional sustained investments above the RTBF base for focused reduction of deferred maintenance to extend facility lifetimes, reduce the risk of unplanned system and equipment failures, increase operational efficiency and effectiveness, and allow for the recapitalization of aging facility systems. FIRP works in partnership with RTBF to assure the facilities and infrastructure of the nuclear security enterprise are restored to an appropriate condition to support both the Stockpile Stewardship Program mission and transformation of the complex, and to institutionalize responsible and accountable facility management practices.

FIRP is effectively executing the Program and reports the corresponding planned and actual performance results in the Congressional Budget Request, self-assessment and during the NNSA Administrator's Program Reviews. The FIRP's program partners, NNSA sites, and M&O contractors have committed to the achievement of the FIRP annual performance goals. The success of FIRP is attributed to strong central management of the program; independent and objective oversight; and an ongoing partnership between Headquarters programs, NNSA Site Offices, and NNSA M&O contractors.

Major FY 2008 Achievements

- By the end of 2008, the Facility Disposition subprogram funded the demolition of more than 3,100,000 gsf of excess facilities. This marked the achievement of the 3,000,000 gsf long-term goal of the Disposition subprogram one year earlier than scheduled.

- The Roof Asset Management Program was awarded the government-wide 2008 General Services Administration Achievement Award for Real Property Innovation. Benefits of the Roof Asset Management Program include improved cost efficiencies, improved quality and life extension of NNSA's roofing assets, consistent approach and common standards for optimal roofing repairs and replacement, additional deferred maintenance reduction and a management structure that can integrate additional funding sources.

- All FIRP line item construction projects were rated as "Green" for cost and schedule by the DOE Office of Engineering and Construction Management (OECM).

Major Outyear Priorities and Assumptions

The outyear funding projections for FIRP total $466,201,000 (FY 2011-FY 2014). The FIRP is a finite program with a Congressionally-mandated end date of FY 2013. The outyear funding projections for FIRP totaled $779,199,000 in the FY 2009 Congressional Budget Request. The outyear funding for FY 2011-FY 2014 reflects a decrease of about 40 percent from the FY 2009 Congressional Budget

Request. The decrease is due to reductions in FIRP funding levels, no funding request for FIRP in FY 2014, and no funding request for the Construction subprogram beyond FY 2010. Any further reductions to FIRP funding levels in FY 2010 and the outyears (FY 2011-FY 2014) will jeopardize the program's ability to achieve its $900,000,000 deferred maintenance goal.

NNSA aligned the Facility Condition Index (FCI) performance indicator in the FY 2009 Congressional Budget Request to be consistent with the Federal Real Property Council (FRPC) and DOE mission-dependency categories and goals. The long-term performance goals are: (1) By 2014, maintain the condition of mission-critical facilities and infrastructure at an FCI level of 5 percent; (2) By 2014, improve the condition of mission dependent, not critical facilities and infrastructure to an FCI level of 8% or less, and were implemented starting in FY 2008. These long-term targets are consistent with the National Research Council's assessment level of good to adequate for facility condition, from the "Stewardship of Federal Facilities" publication. A good rating corresponds to an FCI of 5 percent, whereas, an adequate rating corresponds to an FCI of 10 percent.

FIRP continues to use an IPPL that enables the program to prioritize and fund outyear legacy deferred maintenance reduction projects that significantly reduce NNSA's deferred maintenance backlog to acceptable levels and support the Stockpile Stewardship Program mission and transformation of the complex. From FY 2011-FY 2013, FIRP plans to fund the elimination of an additional $146,000,000 in deferred maintenance to reach the $900,000,000 goal.

Annual Performance Results and Targets

(R = Results; T= Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.36.00, Facilities and Infrastructure Recapitalization Program											
Deferred Maintenance Reduction: Annual dollar value and cumulative percentage of legacy deferred maintenance baseline of $900 million; funded for elimination by FY 2013 (Long-term Output)	R: $178M (23%) Deferred maintenance remains stabilized T: $155M (21%) Stabilize deferred maintenance by the end of FY 2005	R: $118M (32.8%) T: $60M (28%)	R: $75M (56%) T: $60M (38%)	R: $93M (73%) T: $80 (64%)	T: $62M (80%)	T: $52M (86%)	T: $50M (92%)	T: $48M (97%)	T: $48M (100%)	N/A	Eliminate $900,000,000 of NNSA's legacy deferred maintenance backlog by 2013. [a]
Footprint Reduction: Annual gross square feet (gsf) of NNSA excess facilities space funded for elimination; and cumulative percentage of FY 2002-FY 2009 total goal of three million gsf eliminated (Long-term Output)	R: 514,000 (75%) T: 350,000 (69%)	R: 316,000 [b] (85%) T: 175,000 (79%)	R: 264,000 (96%) T: 225,000 (92%)	R: 292,000 (106%) T: 225,000 (100%)	N/A	N/A	N/A	N/A	N/A	N/A	By 2009, eliminate 3,000,000 gsf of excess facility space. [c]
Mission-critical Facilities: Annual NNSA complex-wide aggregate Facility Condition Index (FCI), as measured by deferred maintenance costs per replacement plant value, for all mission-critical facilities and infrastructure. (Jointly with Readiness in Technical Base and Facilities) (Efficiency)	R: 7.4% T: 9%	R: 6.7% T: 7.4%	R: 6.5% T: 6.8%	R: 4.26% T: 5%	T:5%	T: 5%	T: 5%	T: 5%	T:5%	T:5%	By 2013, maintain the condition of mission critical facilities and infrastructure at an FCI level of 5% .[d]
Mission-dependent Facilities: Annual NNSA complex-wide aggregate Facility Condition Index (FCI), as measured by deferred maintenance costs per replacement plant value, for all mission-dependent, not critical facilities and infrastructure. (Jointly with Readiness in Technical Base and Facilities) (Efficiency)	N/A	N/A	N/A	R: 8.92% T: 8.25%	T: 8.75%	T: 8.6%	T: 8.45%	T: 8.3%	T:8.15%	T: 8.0%	By 2014, improve mission dependent, not critical facilities and infrastructure to an FCI level of 8%. [d]

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target

[a] (1) The program's deferred maintenance goal has been adjusted to eliminate of $900,000,000 of deferred maintenance by FY 2013 as a result of aligning deferred maintenance buydown with reduced facility requirements envisioned by the ongoing transformation of the complex. The cumulative change is reflected in FY 2007, the same year that the analysis was completed. (2) The FY 2007 cumulative percentage includes $31,786,476 of FY 2003 baseline DM funded in the FY 2004 Disposition subprogram. (3) The original 2009 date for elimination of the deferred maintenance backlog slipped to 2013 due to constrained outyear funding. The FY 2006 Defense Authorization Bill extends the FIRP end date by two years (from 2011 to 2013) to enable FIRP to accomplish its mission. (4) The FY 2008 cumulative percentage includes $1,879,524 of FY 2003 legacy DM funded in the FY 2004 Disposition subprogram; $23,000,000 of FY 2003 legacy deferred maintenance funded in the FY 2003 Recapitalization subprogram and submitted as a result of a baseline validation exercise; and $42,000,000 of FY 2004 legacy DM funded between FY 2004-2008.

[b] Reflects a 3,000 gross square feet adjustment downward from the DOE FY 2006 Performance and Accountability Report.

[c] (1) The program achieved the FY 2009 performance goal of demolishing 3,000,000 gsf of facilities in FY 2008, one year early. (2) No funding is requested for program activities in FY 2009. (3) The cumulative percentage includes 228,542 gsf funded in FY 2002 and completed in FY 2003; 167,924 gsf of excess facilities funded in FY 2003, but demolished in FY 2004; and 50,521 gsf funded in FY 2003, completed in FY 2005 and noted in FY 2007 results.

[d] (1) NNSA redefined the Facility Condition Index (FCI) performance indicator in the FY 2009-FY 2013 President's Budget to be consistent with the Federal Real Property Council (FRPC) and DOE mission-dependency categories and goals. The NNSA transitioned from the "mission-essential (ME)" designation for facilities to the FRPC revised mission dependency categories: mission-critical (MC) and mission dependant, not critical (MDNC) in 2007. The new MC and MDNC categories and the associated facilities lists are not a direct correlation to the previous ME facilities list. Thus, the MC FCI is not based on the same group of facilities as the ME FCI. The ME facilities list was approximately 1,600 buildings, whereas the validated MC facilities list is a subset of approximately 200 buildings and the MDNC facilities list is approximately 1800 buildings. The last year of reporting FCI for ME facilities was FY 2007. The FY 2007 results for ME FCI can be found under the MC FCI results.

(2) The long-term performance goals for the MC and MDNC FCI are 5 percent for mission-critical facilities (1) By 2014, maintain the condition of mission critical facilities and infrastructure at an FCI level of 5% and (2) By 2014, improve the condition of MDNC facilities and infrastructure to an FCI level of 8% or less. These long-term targets are consistent with the National Research Council's publication Stewardship of Federal Facilities assessment level of good to adequate for facility condition. A good rating corresponds to an FCI of 5%, whereas, an adequate rating corresponds to an FCI of 10%.

Detailed Justification

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Recapitalization	**87,414**	**69,226**	**130,507**

Recapitalization funds capital renewal and sustainability projects required to restore the facilities and infrastructure comprising the nuclear security enterprise to an acceptable condition. Recapitalization funds projects in accordance with established criteria and priorities that target deferred maintenance reduction and repair (non-programmatic) of facilities and infrastructure. These projects are vital to restoring the facilities that accommodate the people, equipment, and material necessary to support scientific research, production, or testing to conduct the Stockpile Stewardship Program, the primary NNSA mission. Recapitalization also includes construction/renovation projects (non-programmatic) that renovate landlord or multi-program facilities, address adaptive reuse (conversion) or alterations to existing facilities, bring existing production and laboratory facilities into compliance with mandated codes and/or standards, or reduce the site landlord's total ownership costs of facilities and infrastructure. FIRP has invested approximately $75,000,000 (FY 2004-FY 2008) in its complex-wide Roof Asset Management Program and will provide $10,000,000 in FY 2009 and FY 2010 to maintain a corporate approach for the management of NNSA's roofing assets.

Facility Disposition	**21,300**	**0**	**0**

Facility Disposition subprogram funds the decontamination, dismantlement, removal and disposal of excess facilities that have been deactivated. This includes facilities that are excess to current and future NNSA mission requirements, and are not contaminated by weapons processes. The program achieved the FY 2009 performance goal of demolishing 3,000,000 gsf of facilities in FY 2008, one year ahead of schedule; therefore no funding is requested for program activities in FY 2010.

Infrastructure Planning	**7,627**	**10,324**	**14,452**

Infrastructure Planning funds planning activities for the upcoming year's Recapitalization projects. The subprogram supports: the establishment of Recapitalization project baselines; planning and design for priority general infrastructure projects, to include FIRP utility line items; contract preparation and other activities necessary to ensure the readiness to obligate and execute funds. Infrastructure Planning also funds Other Project Costs in anticipation of FIRP Project Engineering and Design (PED) and construction for FIRP utility line items. Other key activities funded by this subprogram include assessments of the physical condition of the complex to aid in the prioritization of deferred maintenance reduction and facility consolidation efforts; and procurement support of small business contracts.

FIRP Construction	**61,520**	**67,899**	**9,963**

FIRP Construction funds select utility line item construction projects across the complex, which are expected to result in increased efficiencies. The projects typically include: central steam systems and distribution, electrical power distribution, central chilled water facilities and distribution, water supply systems, sanitary waste disposal systems, and natural gas distribution systems. FIRP Construction also funds the PED of utility line item construction projects.

▪ **07-D-253, TA-I Heating Systems Modernization, SNL**	**12,751**	**15,282**	**9,963**

This project will upgrade Sandia's 50-year old, mission essential, Technical Area-I (TA-I) heating utility to a reliable, cost effective, safe and environmentally friendly heating system that mitigates

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010

risks and extends the useful life of this infrastructure to the year 2035. New building heating systems will be constructed for approximately 50 buildings of various sizes, situated throughout TA-I and adjacent areas. The natural gas distribution utility will be modified to deliver natural gas to each building in a reliable and safe manner. The existing steam to hot water conversion equipment will be removed and, in many cases, new boiler(s) and piping will be installed in the same space. In other locations, new stand-alone facilities may be required due to the lack of space in building equipment rooms. This project is a design-bid-build acquisition. The M&O contractor is providing the direct project management, direct construction management and administering the design and construction contracts. Design services are being provided by an experienced small business qualified engineering firm on a firm, fixed price contract. The design services contract was established based on best value to the government, considering qualifications and price. Construction services are being accomplished by multiple small business firm fixed price contracts awarded on the basis of competitive bids to pre-qualified contractors. PED funding was provided under 05-D-160 for Architect-Engineering services to develop and complete preliminary and final (Title I and II) design of this project. The HSM project reduces the deferred maintenance backlog by $37,420,000.

Total, Facilities and Infrastructure Recapitalization Program	**177,861**	**147,449**	**154,922**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Recapitalization	
The increase is the result of redirecting funds from FIRP Construction into the Recapitalization subprogram. This supports the deferred maintenance buydown performance target of $900,000,000 by FY 2013. FIRP Recapitalization funding remains essential to continued progress in restoring the condition of mission essential facilities and infrastructure across the nuclear security enterprise to an acceptable condition.	+61,281
Infrastructure Planning	
The increase is in alignment with the level of planning required to support the continuation of credible, up-front planning and baselining of FY 2011 Recapitalization projects. These activities will ensure the effective and efficient expenditure of program funds. Since projects are planned one year prior to execution, the budget request must support the $14,558,000 increase in FY 2011 for Recapitalization requirements.	+4,128
Construction	
The decrease is the result of requesting funds for only one utility line item construction project in FY 2010.	-57,936
Total Funding Change, Facilities and Infrastructure Recapitalization Program	**+7,473**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	30,845	20,145	37,977
Capital Equipment	990	623	1,175
Total, Capital Equipment	**31,835**	**20,768**	**39,152**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	41,878	41,460	44,507	0
Capital Equipment	1,295	1,282	1,376	0
Total, Capital Equipment	**43,173**	**42,742**	**45,883**	**0**

Construction Projects[b] [c]

(dollars in thousands)

Major Item of Equipment	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2008	FY 2009	FY 2010	Unappro-priated Balance
08-D-601, Mercury Highway, NTS	19,000	0	7,651	11,349	0	0
08-D-602, Potable Water System, Y-12	48,906	0	22,070	26,836	0	0
07-D-253, TA-I Heating Systems Modernization, SNL	52,496	14,500	12,751	15,282	9,963	0
06-D-160, Facilities and Infrastructure Recapitalization Program Project and Engineering and Design, VL	6,767	6,767	0	0	0	0
06-D-601, Electrical Distribution System Upgrade, PX	16,721	10,389	2,452	3,880	0	0
06-D-602, Gas Main and Distribution System Upgrade, PX	8,672	6,809	1,863	0	0	0
06-D-603, Steam Plant Life Extension Project, Y-12	43,818	18,533	14,733	10,552	0	0
05-D-160, Facilities and Infrastructure Recapitalization Program, Project Engineering and Design, VL	20,215	20,215	0	0	0	0
Total, Construction			**61,520**	**67,899**	**9,963**	

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

[b] The TEC estimate is for design only for the PED projects included in 06-D-160 and 05-D-160.

[c] These represent construction estimates. Design TEC estimates are reported in the appropriate PED project.

08-D-601, Mercury Highway, Nevada Test Site
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) are CD-2 and CD-3 approved September 30, 2008 with a Total Project Cost (TPC) of $13,842,000 and CD-4 of December 31, 2009.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS. Significant Changes are as follows:

- Notifying Congress that the project baseline cost, schedule, and scope were approved in September 2008. The approved cost baseline for the awarded scope is $13,442,000. The awarded scope includes the 19.3 miles which was included in the FY2009 budget and an additional 2.8 miles to reach Area 23 within the Mercury Township.

- Notifying Congress that due to the favorable construction market conditions in Nevada, an additional 8 to 9 miles of the Mercury Highway could be reconstructed with no additional budget authority. The balance of the current approved baseline (13,442,000) will be used first and then the remaining appropriated funds (19,000,000). The additional 8 to 9 miles will complete the reconstruction of the entire Mercury Highway up to Gate 700. Gate 700 is where most of the Air Force vehicular traffic enters the base. Not resurfacing this portion of the Highway will cause potential disruption of operations at the Air Force base and potentially damage the working relationship with the Air Force which makes a significant contribution to the cost of operating the Nevada Test Site.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2008	07/07/2006	1QFY 2008	N/A	2Q FY 2009	2Q FY 2009	1Q FY 2010	N/A	N/A
FY 2009	07/07/2006	09/26/2007	N/A	2Q FY 2009	2Q FY 2009	1Q FY 2010	N/A	N/A
FY 2010	07/07/2006	09/26/2007	6/30/2009[a]	9/30/2008	9/30/2008	1Q FY 2010	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2/3 – Approve Performance Baseline and Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

[a] Design of the additional 8 to 9 miles of the Highway.

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2006	N/A	15,050-18,250	15,050-18,250	450	N/A	450	15,500-18,700
FY 2007	N/A	15,050-18,250	15,050-18,250	450	N/A	450	15,500-18,700
FY 2008	N/A	15,050-18,250	15,050-18,250	450	N/A	450	15,500-18,700
FY 2009	N/A	16,900-19,500	16,900-19,500	400	N/A	400	17,300-19,900
FY 2010	N/A	19,000	19,000	400	N/A	400	19,400

4. Project Description, Justification, and Scope

The project will provide for the rebuilding and restoration of up to 31 miles of the Mercury Highway at the Nevada Test Site.

Justification
The NTS is a major national asset and serves important needs of the National Nuclear Security Administration (NNSA) and other Federal Departments.

Major NNSA missions at the NTS include Test Readiness, Directed Stockpile Work, Campaign 1, Campaign 2, and Campaign 4, as well as missions from the Department of Defense and Homeland Security. In addition, there are missions at the NTS associated with the storage of radiologically contaminated hazardous wastes.

Mercury Highway is the primary access highway for any activity at the NTS, including subcritical experiments and future missions. This all-weather, paved, asphaltic-concrete road has been in service for over 40 years. All personnel, heavy equipment, and supplies entering and/or exiting the NTS depend upon this access route. The pavement surface has severely deteriorated because of age, ground motion from underground nuclear events, and heavy truck traffic. Trucks frequently carry loads that far exceed normal highway limits, i.e., H-20 highway wheel-loading.

Mercury Highway has been identified as a safety issue regarding the transport of special nuclear material and high explosives. The protection of workers and the environment by addressing the issue *before* accidents can occur is consistent with the Department of Energy Secretary's direction notwithstanding a cost/benefit analysis. It is not considered good stewardship at the NTS to wait until problems occur (based upon "user complaints or accident statistics") before developing a project, especially considering the time required to get a line item project approved and executed.

In addition to meeting the Facilities and Infrastructure Recapitalization Program (FIRP) goals of buying down deferred maintenance, the execution of this project will also meet the mission need for NTS programs. The following is a listing, with a brief explanation of function, of some of the more important programs and/or facilities that depend on Mercury Highway as their primary access route.

1. The Device Assembly Facility (Area 6). This is primary location of all nuclear explosive operations at NTS. This area also supports the relocated Criticality Experiments Facility (CEF).

2. U1a/U1h Complex (Area 1). Utilized for dynamic subcritical experiments involving special nuclear materials and hydrodynamics.

3. The Control Point (CP) Complex (Area 6). Command center for all forward area testing. Also houses fire fighting and security centers.

4. The Area 6 Construction Facilities. Heavy-duty maintenance and equipment repair facility, and a decontamination facility. It also includes the Atlas Machine facility.

5. High Explosives Facilities (Area 4). The Big Explosives Experimental Facility (BEEF) is an aboveground high-explosives test bed.

6. An Explosive Ordnance Disposal Site (Area 11). This is a Resource Conservation and Recovery Act permitted treatment unit.

7. The Area 3 Radioactive Waste Management Site (Area 3). Bulk low-level waste is disposed of in selected subsidence craters.

8. Industrial Complex (Area 1). Maintenance and storage area for large-hole drilling equipment. Complex also includes a concrete batch plant and storage areas for bulk construction materials.

9. Area 12. This area contains tunnels supporting programs involving the detonation of conventional or prototype explosives and munitions.

10. Test Readiness (Areas 6, 2, 3, 12, 19, and 20). To maintain the critical technologies, staff skills, and infrastructure at NTS to enable resumption of nuclear testing.

11. Unusual Missions by others (some classified) are scattered west and north of Mercury Highway such as X-Tunnel DEMIL, Dipole Hail, Counter Terrorism, and Exercises at multiple sites.

Scope

This project will rehabilitate and improve approximately 31 miles of the Mercury Highway in total. This will bring the reconstructed area to Gate 700, which is the main gate for Air Force activities. The 31 miles include the initial construction of the 15.6 miles as stated in the FY 2009 budget request plus the additive alternative in the project of 3.7 miles (for the initial 19.3 miles). This portion of the project brings the reconstruction to the UIa/UIh complex and to the BEEF facility. The additional construction of approximately 2.8 miles in Area 23 (within the Mercury Township), and the additional 8 to 9 miles from the Rainer Mesa Road to Gate 700 make up the remainder of the 31 miles of reconstruction. No additional budget authority is requested. Scope specific to the additional 8 to 9 miles includes surveying, designing, and resurfacing/reconstructing (potential soft spots) the two-lane Highway. The resurfacing will be performed by completely removing the existing deteriorated asphaltic concrete, grounding it to a predefined size and using it as base material; relaying a 3 inch thick new asphaltic concrete. Where soft spots are encountered, the entire base and sub-base will be removed and replaced with engineered materials and resurfaced with asphaltic concrete. Other strategies will be used where appropriate such as full depth asphalt overlay in sections where soil disturbance would be an issue because of the potential for encountering radiological contamination. If the work is delayed, costs will go up and contractor interest would go down because of the anticipated infusion of stimulus roadwork elsewhere which is more attractive to contractors than working under the restrictive working requirements imposed at the Nevada Test Site.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2008	600	600	400
FY 2009	0	0	200
Total, Design	600	600	600
Construction			
FY 2008	7,051[a]	7,051	0
FY 2009	11,349	11,349	18,400
FY 2010	0	0	0
Total, Construction	18,400	18,400	18,400
TEC			
FY 2008	7,651	7,651	400
FY 2009	11,349	11,349	18,600
FY 2010	0	0	0
Total, TEC	19,000	19,000	19,000
Other Project Cost (OPC)			
OPC except D&D			
FY 2006	300	300	83
FY 2007	100	100	317
Total, OPC except D&D	400	400	400
D&D			
FY N/A	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
OPC			
FY 2006	300	300	83
FY 2007	100	100	317
Total, OPC	400	400	400

[a] Original FY 2008 appropriation was $7,720,000. This was reduced by $68,935 as a result of a mandatory rescission in the FY 2008 Consolidated Appropriations Act (P.L. 110-161).

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Total Project Cost (TPC)			
FY 2006	300	300	83
FY 2007	100	100	317
FY 2008	7,651	7,651	400
FY 2009	11,349	11,349	18,600
FY 2010	0	0	0
Total, TPC	19,400	19,400	19,400

6. Details of Project Cost Estimate

	(dollars in thousands)		
	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Repackage Drawings	50	50	TBD
Prepare & Evaluate RFP	130	130	TBD
Project & Design Management	300	300	TBD
New design for 8-9 miles	875		TBD
Contingency	120	120	
Total, Design	1,475	600	TBD
Construction			
Site Preparation	N/A	N/A	N/A
Equipment	N/A	N/A	NA
Other Construction	16,025	16,865	12,750
Contingency	1,500	1,886	3,050
Total, Construction	17,525	18,751	15,800
Total, TEC	19,000	19,351	15,800
Contingency, TEC	1620	2,006	3,050
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	0	0	0
Conceptual Design	400	400	410
Start-Up	0	0	0
Contingency	0	0	40
Total, OPC except D&D	400	400	450
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	400	400	450
Contingency, OPC	0	0	40
Total, TPC	19,400	19,751	16,250
Total, Contingency	1,620	2,006	3,090

7. Schedule of Project Costs

For schedule of project costs, see Section 5, "Financial Schedule."

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q FY 2010
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

9. Required D&D Information

Area	Square Feet
Area of new construction	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

10. Acquisition Approach

This project will be a design-bid-build acquisition. Nearly all design work was done by the site Managing and Operating Contractor as part of a previous project. Using FY 2008 capital construction funds, the design and other documents will be packaged by the Managing and Operating Contractor into a Request for Proposal to be sent out to road building contractors. A Performance Baseline will be established based on the government estimate and an analysis of bid proposals received. Upon receipt of proposals the project team will submit the required documents for CD-2 and 3 approval. Upon CD-2 and 3 approvals, the Managing and Operating Contractor will award a subcontract for construction based on the best proposal received. The Managing & Operating Contractor will monitor the construction work to confirm compliance with design drawings and specifications, ensure required field tests are conducted per acceptance criteria, and verify all proposed field changes are reviewed and approved by the Design Authority. The Federal Project Director will oversee the Managing and Operating Contractor, for the construction oversight of this project.

07-D-253, TA-1 Heating Systems Modernization
Sandia National Laboratories, New Mexico
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-3B, Approve Start of Construction for remaining work packages (FY 2008 and FY 2009 Packages), which was approved on February 21, 2008 with a Total Project Cost (TPC) of $60,995,000 and CD-4 date of March 31, 2011.

The Project Total Estimated Cost (TEC) and TPC were reduced to implement the government-wide rescission enacted by Public Law 110-161. The TPC and TEC were further reduced by $150,000 in OPC because of cost savings related to the cost of asbestos removal.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1 (Design Start)	(Design/PED Complete)	CD-2	CD-3 (Construction Start	CD-4 (Construction Complete)	D&D Start	D&D Complete
FY2006	12/03/03	03/09/05	3QFY2006	1QFY2006	2QFY2007	2QFY2011	1QFY2010	1QFY2011
FY2007	N/A	N/A	6/21/06	11/17/05	2QFY2007	2QFY2011	1QFY2010	1QFY2011
FY2008	N/A	N/A	N/A	N/A	2QFY2007	2QFY2011	1QFY2010	1QFY2011
FY2009	N/A	N/A	N/A	N/A	2QFY2008	2QFY2011	1QFY2010	1QFY2011
FY2010	N/A	N/A	N/A	N/A	2/21/2008	2QFY2011	1QFY2010	1QFY2011

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

(fiscal quarter or date)

	CD-3A (Start Construction for FY07 Packages)	CD-3B (Start Construction for FY08 and FY09 Packages)
FY2006	2QFY2007	N/A
FY2007	2QFY2007	N/A
FY2008	2QFY2007	N/A
FY2009	3/13/2007	2QFY2008
FY2010	N/A	2/21/2008

CD-3A – Start of Construction for FY 2007 procurement packages
CD-3B – Start of Construction for FY 2008 and FY 2009 procurement packages

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D[a]	OPC, Total	TPC
FY 2006	5,976	49,524	55,500	3,178	6,159	3,178	58,678
FY 2007	5,869	49,524	55,393[b]	3,178	6,159	3,178	58,571
FY 2008	5,869	49,524	55,393	3,178	6,159	3,178	58,571
FY 2009	4,848[c]	53,704	58,552	3,178	6,159	3,178	61,730
FY 2010	4,848	52,496	57,344	3,028[d]	6,159	3,028	60,372

4. Project Description, Justification, and Scope

Project Description

New building heating systems will be designed and constructed for approximately 50 buildings of various sizes, situated throughout Technical Area I and adjacent areas. The natural gas distribution utility will be modified to deliver natural gas to each building in a reliable and safe manner. The existing steam to hot water conversion equipment will be removed and, in many cases, the new boiler(s) and piping will be installed in the same space. In other locations, new stand-alone facilities may be required because of the lack of space in the building.

The central steam plant will be decommissioned, abated (asbestos, lead paint, etc.), and demolished. The tanks and piping will be removed and made available for reapplication or salvage. Finally, the steam pits that contain asbestos materials will be abated and abandoned in place. All steam and condensate piping will be abandoned in place.

[a] D&D costs are included in the Total Estimated Cost (TEC).

[b] The TEC and TPC reflect rescissions to PED funds (05-D-160-010) included in the Department of Defense Appropriations Acts of 2005 and 2006.

[c] The TEC and TPC reflect PED reduction in BCP 07-03 and Construction contingency increase in proposed BCP 08-01.

[d] $150,000 was removed from the OPC portion of the project because of cost savings related to the cost of asbestos removal.

Project Justification
The objective of Sandia's Technical Area – I (TA-I) Heating Systems Modernization (HSM) project is to prevent further degradation of the 50-year old, mission essential, TA-I heating utility by upgrading to a reliable, cost effective, safe and environmentally friendly heating system that mitigates risks and extends the useful life of this infrastructure to the year 2035. The project will eliminate the current deferred maintenance associated with the central steam plant and the steam/condensate distribution system, as well as the steam to hot water conversion equipment in the affected buildings. The environmental risk associated with operation of the central steam plant and the buried, leaking steam/condensate distribution system will be substantially mitigated as well.

Project Scope
The Sandia National Laboratories Albuquerque facilities include five technical areas and several remote sites. These facilities include a total of 10,400 employees, contractors, and resident visitors. Technical Area – I (TA-I) houses 50 percent of this workforce in 3.6 million sq. ft. of buildings over a 320-acre site. The HSM project will upgrade the heating systems that serve approximately 50 buildings and 3.0 million sq. ft. throughout TA-I. The natural gas distribution utility will be modified to deliver natural gas to each building in a reliable and safe manner. The existing steam to hot water conversion equipment will be removed and, in many cases, the new boiler(s) and piping will be installed in the same space. In other locations, new stand-alone facilities may be required because of the lack of space in the building.

The central steam plant will be decommissioned, abated (asbestos, lead paint, etc.), and demolished. The fuel oil system that serves as a second energy source for the central steam plant will have the inventory reduced either through salvage or through burning, and the remainder pumped out for removal. The tanks and piping will be removed and made available for reapplication or salvage. All steam and condensate piping will be abandoned in place.

The project will:
- Provide sufficient capacity to serve the building requirements, including space heating, domestic water heating, humidification, and process loads;
- Be compatible with the existing and planned building systems and serve the range of operating conditions required in the buildings;
- Provide systems to serve for the foreseeable future (25 years), with sufficient flexibility to support changing requirements;
- Address multiple reliability needs based on current and planned building use;
- Meet or exceed requirements of applicable codes and standards to assure a safe environment for maintenance and operations personnel as well as building occupants, and
- Comply with applicable environmental regulations.

The anticipated deferred maintenance reduction associated with this project is $37,420,000.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY05	2,976	2,976	1,896
FY06	2,571[a]	2,571	2,703
FY07	0	0	249
FY08	(699)[b]	(699)	0
FY09	0	0	0
Total, PED (05-D-160-01)	4,848	4,848	4,848
Construction			
FY07	14,500	14,500	12,847
FY08	12,751[c]	12,751	13,545
FY09	15,282	15,282	12,597
FY10	9,963	9,963	9,733
FY11	0	0	3,774
Total, Construction	52,496	52,496	52,496
TEC			
FY05	2,976	2,976	1,896
FY06	2,571	2,571	2,703
FY07	14,500	14,500	13,096
FY08	12,052	12,052	13,545
FY09	15,282	15,282	12,597
FY10	9,963	9,963	9,733
FY11	0	0	3,774
Total, TEC	57,344	57,344	57,344
Other Project Cost (OPC)			
OPC except D&D			
FY03	450	450	176
FY04	1,000	1,000	654
FY05	100	100	415
FY06	85	85	48
FY07	500	500	222
FY08	350	350	208
FY09	500	500	630
FY10	43	43	355
FY11	0	0	320
Total, OPC except D&D	3,028	3,028	3,028
D&D (included in TEC)	6,159	6,159	6,159

[a] Original FY 2006 appropriation was $2,893,000. $322,000 was realigned within PDS 05-D-160 from subproject 05-D-160-01 to 05-D-160-02 Electrical Distribution Systems Upgrade Project.

[b] $699,000 was utilized as a use of prior year balances offset to Weapons Activities in FY 2008.

[c] Original FY 2008 appropriation was $12,866,000. This was reduced by $114,886 as a result of a mandatory rescission in the FY 2008 Consolidated Appropriations Act (P.L. 110-161), resulting in the reduction in TEC and TPC at $12,751,114.

	(dollars in thousands)		
	Appropriations	Obligations	Costs
OPC (See above)			
Total Project Cost (TPC)			
FY03	450	450	176
FY04	1000	1000	654
FY05	3076	3076	2311
FY06	2656	2656	2751
FY07	15000	15000	13318
FY08	12402	12402	13753
FY09	15782	15782	13227
FY10	10006	10006	10088
FY11	0	0	4094
Total, TPC	60,372	60,372	60,372

6. Details of Project Cost Estimate

	(dollars in thousands)		
	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	4,848	4,848	4,807
Contingency	0	0	1,169
Total, PED	4,848	4,848	5,976
Construction			
Site Preparation	39,033	39,033	31,297
Equipment	2,458	2,458	3,159
Other Construction	7,840	7,840	8,156
Contingency	3,165	3,638	6,912
Total, Construction	52,496	52,969	49,524
Total, TEC	57,344	57,817	55,500
Contingency, TEC	3,165	3,638	8,081
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	176	176	176
Conceptual Design	905	905	905
Start-Up	1,735	1,885	1,895
Contingency	212	212	202
Total, OPC except D&D	3,028	3,178	3,178
D&D (included in TEC)	0	0	0
Total, OPC	3,028	3,178	3,178
Contingency, OPC	212	212	202

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total, TPC	60,372	60,995	58,678
Total, Contingency	3,377	3,850	8,283

7. Schedule of Project Costs

For schedule of project costs, see Section 5, "Financial Schedule."

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2QFY2011*
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this capital asset (fiscal quarter)	1QFY10

*Beneficial Occupancy will occur throughout the construction period as buildings are completed. Date shown is CD-4.

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	1,659	N/A	36,389
Maintenance	N/A	450	N/A	8,596
Total, Operations & Maintenance	N/A	2,109	N/A	44,985

9. Required D&D Information

Area	Square Feet
Area of new construction	2,100
Area of existing facility(s) being replaced	18,307
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: SNLA, Bldg 605

10. Acquisition Approach

This project will be a design-bid-build acquisition. The Management and Operating contractor will provide the direct project management, direct construction management and administer the design and construction contracts. Design services are being provided by an experienced, small business qualified engineering firm on a firm, fixed price basis. The design services contract was established based on best value to the government, considering qualifications and price. Construction services will be

accomplished by multiple, small business, firm fixed price contracts awarded on the basis of competitive bids to pre-qualified contractors.

Site Stewardship

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Operations and Maintenance			
Environmental Projects and Operations	0	0	41,288
Nuclear Materials Integration	0	0	20,000
Stewardship Planning	0	0	29,086
Total, Operations and Maintenance	**0**	**0**	**90,374**
Construction	**0**	**0**	**0**
Total, Site Stewardship	**0**	**0**	**90,374**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Operations and Maintenance				
Environmental Projects and Operations	39,026	37,468	36,040	36,900
Nuclear Materials Integration	15,000	15,000	10,000	10,000
Stewardship Planning	13,889	39,168	21,221	158,829
Total, Operations and Maintenance	**67,915**	**91,636**	**67,261**	**205,729**
Construction	**22,000**	**0**	**24,000**	**40,000**
Total, Site Stewardship	**89,915**	**91,636**	**91,261**	**245,729**

Description

The goal of the Site Stewardship is to ensure environmental compliance and energy and operational efficiency throughout the nuclear security enterprise, while modernizing, streamlining, consolidating, and sustaining the stewardship and vitality of the sites as they transition within NNSA's plans for transformation. This program will consolidate most activities managed by the Office of Infrastructure and Environment under a single Government Performance Results Act (GPRA) unit, titled Site Stewardship. This GPRA unit will encompass activities currently conducted under Environmental Projects and Operations (EPO) and include new subprogram elements for Nuclear Materials Integration (NMI). The GPRA unit also includes Stewardship Planning, which supports facility deactivation and demolition and energy saving projects. The objective of Site Stewardship is to maintain facility and overall site stewardship by ensuring that all regulatory and energy efficiency requirements are being met, that Special Nuclear Material (SNM) is being dispositioned, and that NNSA excess facilities are appropriately disposed of (sold, transferred, or demolished) in order to better focus resources in support of the overall NNSA mission.

Integration of these program responsibilities, functions, and funding into a single Site Stewardship GPRA unit allows the Associate Administrator for Infrastructure and Environment (AAIE) to focus on environment and energy, and provides the flexibility in program management, priority-setting, and funding capability throughout the Planning, Programming, Budgeting, and Evaluation (PPBE) process. The consolidation of these activities is synergistic to the NNSA mission by ensuring a balance among subprograms that provide common stewardship contributions to the Government Performance and Results Act Unit Program Goal 2.1.60.00.

Environmental Projects and Operations is a regulatory driven subprogram that provides Long-Term Stewardship (LTS) at NNSA sites once the cleanup mission at an NNSA site has been completed by the Office of Environmental Management. It ensures NNSA is compliant with environmental policy requirements and regulations associated with federal, state, and local requirements at NNSA sites where there is an ongoing mission.

Nuclear Materials Integration provides focused attention on the consolidation and disposition of specific NNSA special nuclear materials. Current activities include the de-inventory of security category I and II SNM from Lawrence Livermore National Laboratory (LLNL) and the disposition of inactive actinides.

Stewardship Planning includes funding for the initial operating costs associated with maintaining uninterrupted planning and execution of Site Stewardship line item construction projects through the accomplishment of project activities and facility deactivation and demolition projects. Current FY 2010 activities also include, the Pantex Renewable Energy Project at the Pantex Plant.

Construction funding is expected to be included the Site Stewardship Line Item (SSLI) construction projects beginning in FY 2011. The stewardship line item construction projects will be identified and prioritized at each of the sites across the nuclear security enterprise and will address environmental compliance and energy and operational efficiency, as well as modernization projects of sites as they transition within NNSA's plans for transformation, such as facility deactivation and demolition activities.

Major FY 2008 Achievements

This is a new GPRA unit beginning in FY 2010. For specific FY 2008 achievements for the former EPO GPRA unit see the respective section in the EPO budget.

Major Outyear Priorities and Assumptions

The current outyear projections for Site Stewardship are $518,541,000 for FY 2011 through FY 2014. In the first three years of this four-year trend, funds are relatively level with a slight increase for Stewardship Line Item Construction projects starting in FY 2011 and an increase in the outyears to fund the critical and persistent needs of a stewardship program that supports and is aligned with the NNSA mission and proposed transformation. NNSA is evaluating options for Site Stewardship in the outyears, including FY 2014, to ensure that attention continues to be directed toward maintaining the infrastructure complex wide and to address NNSA near term facility deactivation and demolition needs and energy requirements. Specific use of these funds is part of the ongoing decisions that are related to transforming the nuclear security enterprise.

Two construction projects were identified during the FY 2010 NNSA internal PPBE process for inclusion in the Site Stewardship Program in FY 2011. The SSLI construction projects have financial controls and apply direct appropriations to an integrated, prioritized series of projects and activities resulting in increased operational efficiency for the nuclear security enterprise. All projects will be managed in accordance with project management principles embodied in DOE Order 413.3. These projects are listed in the Construction Projects table in the Capital Operating Expenses and Construction Summary section of this document. Facility deactivation and the demolition of NNSA's large inventory of excess facilities will also be funded.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.60.00, Site Stewardship											
Annual percentage of environmental monitoring and remediation deliverables that are required by regulatory agreements to be conducted at NNSA sites under Long Term Stewardship (LTS) that are executed on schedule and in compliance with all acceptance criteria (Annual Output)	N/A	N/A	N/A	R: 100%	T: 95% [a]	T: 95%	T: 95%	T: 95%	T: 95%	T: 95%	Annually, submit on schedule and receive regulator approval of at least 95% of all environmental monitoring and remediation deliverables that are required at NNSA sites under LTS by regulatory agreements.
Cumulative percentage of security category I/II Special Nuclear Material removed from Lawrence Livermore National Laboratory. (Long-term Output)	N/A	N/A	N/A	R: 35%	T: 50% [b]	T: 80%	T: 90%	T: 100%	N/A	N/A	By the end of 2012, all security category I and II SNM removed from the Lawrence Livermore National Laboratory.
Cumulative cost savings totaling 12% over six years for the NNSA Long Term Stewardship program demonstrated by comparison of the actual annual costs of performing the Stewardship activities at a site as compared to the budgeted annual costs of performing these same activities using Earned Value Management (EVM) principles with a target savings of 2% per year (Long-term Efficiency)	N/A	N/A	N/A	Baseline	T: 2.0% [c]	T: 2.0%	T: 2.0%	T: 2.0%	T: 2.0%	T: 2.0%	Over a six year period (FY 2009-FY 2014 achieve a cumulative 12% cost savings when applying this measure.

[a] Target is associated with the previous Environmental Projects and Operations GPRA Unit.

[b] Target is associated with activities previously contained in the Readiness in Technical Base and Facilities GPRA Unit.

[c] Target is associated with the previous Environmental Projects and Operations GPRA Unit.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Environmental Projects and Operations	**0**	**0**	**41,288**

The Environmental Projects and Operations (EPO) subprogram provides for the continuance of Long Term Stewardship (LTS) activities that are regulatory driven to reduce risks to human health and the environment at NNSA sites and adjacent areas through two mechanisms: (1) by operating and maintaining environmental cleanup systems installed by the Office of Environmental Management as part of the Legacy Environmental Cleanup projects at NNSA sites; and (2) performing long-term environmental monitoring activities and analyses in a cost-effective manner that assures compliance with federal, state, and local requirements. EPO provides effective oversight of these activities and ensures integration of a responsible environmental stewardship program with the NNSA's stockpile stewardship and nuclear security efforts. In FY 2010, NNSA is responsible for LTS at five sites: Kansas City Plant, Lawrence Livermore National Laboratory (LLNL) Main Site, Site 300, Pantex Plant, and Sandia National Laboratories.

The EPO subprogram supports LTS activities such as groundwater treatment; environmental monitoring of surface water, ground water, and soils; operating and maintenance of landfill remedies; and reporting and liaison requirements for various states to meet post-completion regulatory cleanup requirements. The NNSA, working in concert with other Federal agencies, states, and affected stakeholders, executes its LTS activities in a cost-effective, compliant, and safe manner consistent with end states that support the nuclear security enterprise mission.

Nuclear Materials Integration	**0**	**0**	**20,000**

In September 2007 NNSA announced its intention to place increased emphasis and management oversight on efforts to manage and integrate the consolidation of nuclear materials excess to the NNSA mission at NNSA Sites. FY 2009 activities are funded within the RTBF account.

In FY 2010, the ongoing inactive actinides program will continue to support the treatment, consolidation and disposition of NNSA special nuclear material (SNM) that is no longer required to support the weapons mission. The effort to complete the de-inventory of security category I/II SNM from LLNL by the end of 2012 will continue. By the end of FY 2010 80 percent of the material will have been prepared for off-site shipment.

Stewardship Planning	**0**	**0**	**29,086**

Stewardship Planning funds planning activities needed to continue efficient design and execution of line-item construction projects. The primary objective is to ensure that stewardship projects are adequately planned in advance of project start to permit the timely obligation of construction funds and effective project execution. The Stewardship Planning subprogram supports: the establishment of all Site Stewardship project baselines; planning and design for prioritized general stewardship projects and for stewardship utility line items; and contract preparation and other activities necessary to ensure the readiness to obligate and execute funds. Stewardship Planning also funds Other Project Costs (OPC) in anticipation of Project Engineering and Design (PED) and construction for Site Stewardship line items.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010

The subprogram also provides for excess facility deactivation and demolition by funding the elimination of NNSA excess real property through demolition, sale, transfer and the preparation of process-contaminated facilities for transfer to DOE Office of Environmental Management (EM) for final disposition. Projects selected to be funded will be required to identify surveillance and maintenance savings and cost avoidance benefits across the complex, as a result of the deactivation and demolition of excess facilities.

▪ **Pantex Renewable Energy Project, Pantex**	**0**	**0**	**28,000**

The FY 2010 funding request for the Pantex Renewable Energy Project (PREP) at the Pantex Plant will create a more flexible, more reliable, and environmentally friendly source of renewable energy that supports DOE/NNSA operating goals and missions. The PREP will generate surplus electrical energy, reduce greenhouse gas emissions at local power plants, enhance energy security, and create jobs. This project will play a key role in satisfying NNSA's renewable energy objectives consistent with DOE Order 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*.

Total, Operations and Maintenance	**0**	**0**	**90,374**
Total, Site Stewardship	**0**	**0**	**90,374**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Operations and Maintenance	
▪ **Environmental Projects and Operations**	
This increase is due to Environmental Projects and Operations being consolidated into the Site Stewardship as a subprogram and will continue to maintain compliance with Federal and State regulatory requirements.	+41,288[a]
▪ **Nuclear Materials Integration**	
This increase is due to Nuclear Materials Integration being consolidated into the Site Stewardship as a subprogram. Funding supports the de-inventory of security category I/II SNM from LLNL by the end of FY 2012 and the consolidation and disposition of inactive actinides at a level consistent with FY 2009.	+20,000[b]
▪ **Stewardship Planning**	
This increase is to ensure there is funding to support the planning requirements associated with line item construction projects one year prior to execution, ensuring the effective and efficient expenditure of program funds. The majority of this funding increase is to fund the Pantex Renewable Energy Project design and construction activities.	+29,086
Total, Operations and Maintenance	**+90,374**
Total Funding Change, Site Stewardship	**+90,374**

[a] Previously funded under Weapons Activities Environmental Projects and Operations as a separate GPRA Unit.

[b] Previously funded within Weapons Activities Readiness in Technical Base and Facilities GPRA Unit.

Capital Operating Expenses and Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	0	0	0
Capital Equipment	0	0	0
Total, Capital Equipment	**0**	**0**	**0**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	0	0	0	0
Capital Equipment	0	0	0	0
Total, Capital Equipment	**0**	**0**	**0**	**0**

Outyear Construction Projects

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
11-D-XXX, Sanitary Effluent Reclamation Facility, LANL	15,000	0	0	0
11-D-XXX, Fire Protection Lead-Ins,Cells and Bays, Pantex	7,000	0	24,000	40,000
Total, Construction	**22,000**	**0**	**24,000**	**40,000**

Pantex Renewable Energy Project, Pantex
Project Data Sheet (PDS) is for an Operating Expense Project

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-0, Approve Mission Need that was approved on March 16, 2009 with a preliminary cost range of $20,000,000 to $28,000,000 for Phase 1 of this project. The preliminary CD-4 date is FY 2012.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is new for FY 2010.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2009	2QFY2009	3QFY2009	4QFY2009	4QFY2009	4QFY2010	3QFY2012	N/A	N/A
FY 2010	2QFY2009	3QFY2009	4QFY2009	4QFY2010	4QFY2010	3QFY2012	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range and Long-lead procurement
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete –Completion of D&D work

	Performance Baseline Validation	CD 2A	CD 2/3
FY 2009		4QFY2009	
FY 2010			4QFY2010

CD-2A – Approve Long Lead Procurement
CD-2/3 – Approve Performance Baseline and Start of Construction

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2010	1,000	27,000	TBD	200	0	200	TBD

4. Project Description, Justification, and Scope

Project Description
The Pantex Renewable Energy Project (PREP) will provide the capability to generate and distribute electricity as a renewable energy source. As a minimum, the installed capacity will be sufficient to meet or exceed Pantex Plant demands. Depending on project scope, the potential exists to generate surplus electrical energy allowing DOE/NNSA to maximize credit for the use of renewable energy sources.

This project will play a key role in satisfying the NNSA's renewable energy objectives in support of DOE Order 430.2B, Departmental Energy and Renewable Energy, Transportation Management, and Executive Order 13423. It will reduce green house gas emissions at local power plants, enhance energy security, create jobs, and lay the foundation for the future.

Project Justification
The PREP will provide a renewable energy source critical to Plant operations and in compliance with Executive Order 13423. This project also promotes energy security by providing reliable, clean and affordable energy for the Pantex Plant. The PREP will generate surplus electrical energy to allow DOE/NNSA to maximize credit for the use of renewable energy sources. An overarching parameter for this project is to create a more flexible, more reliable, and environmentally friendly renewable energy source which supports the DOE/NNSA operating goals and mission. The installation of renewable energy capacity at Pantex supports this goal and allows DOE/NNSA to meet the national vision for 20 percent renewable energy by 2030.

Project Scope
The ultimate size of the PREP is dependent upon available funding. Current plans are to provide 75MW of electrical generating capacity (EGC), however; the initial funding only supports the construction of a 10MW to 15MW system. The project also includes infrastructure to support the installation, maintenance, and operations for renewable energy generating capability.

This project shall, as a stated objective, work with Texas Tech University (TTU) to allow for renewable energy research to be conducted at, around, and in the vicinity of the Pantex site. It is anticipated that this project will be executed via a cooperative agreement.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
FY 2010	1,000	1,000	950
FY 2011	TBD	TBD	50
FY 2012	TBD	TBD	TBD
FY 2013	TBD	TBD	TBD
Total, Design (Wind Farm)	TBD	TBD	TBD
Construction			
FY 2010	27,000	27,000	20,000
FY 2011	TBD	TBD	7,000
FY 2012	TBD	TBD	TBD
FY 2013	TBD	TBD	TBD
Total, Construction	TBD	TBD	TBD
TEC			
FY 2010	28,000	28,000	20,50
FY 2011	TBD	TBD	7,050
FY 2012	TBD	TBD	TBD
FY 2013	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD
Other Project Cost (OPC)			
OPC except D&D			
FY 2010	200	200	200
FY 2011	TBD	TBD	TBD
FY 2012	TBD	TBD	TBD
FY 2013	TBD	TBD	TBD
Total, OPC except D&D	TBD	TBD	TBD
D&D (included in TEC)	0	0	0
OPC (See above)			
Total Project Cost (TPC)			
FY 2010	28,200	28,200	21,150
FY 2011	TBD	TBD	7,050
FY 2012	TBD	TBD	TBD
FY 2013	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	1,000	N/A	N/A
Contingency	TBD	N/A	N/A
Total, PED	TBD	N/A	N/A
Construction			
Site Preparation	TBD	N/A	N/A
Equipment	27,000	N/A	N/A
Other Construction	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Construction	TBD	N/A	N/A
Total, TEC	TBD	N/A	N/A
Contingency, TEC	TBD	N/A	N/A
Other Project Cost (OPC)	TBD	N/A	N/A
OPC except D&D			
Conceptual Planning	50	N/A	N/A
Conceptual Design	150	N/A	N/A
Start-Up	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, OPC except D&D	TBD	N/A	N/A
D&D (included in TEC)	0	N/A	N/A
Total, OPC	TBD	N/A	N/A
Contingency, OPC	TBD	N/A	N/A
Total, TPC	TBD	N/A	N/A
Total, Contingency	TBD	N/A	N/A

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3QFY2012
Expected Useful Life (number of years)	25
Expected Future Start of D&D of this capital asset (fiscal quarter)	FY2037

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	TBD	TBD	TBD	TBD
Maintenance	TBD	TBD	TBD	TBD
Total, Operations & Maintenance	TBD	TBD	TBD	TBD

9. Required D&D Information

Area	Square Feet
Area of new construction (N/A Not a facility)	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

Project will utilize a Design-Build approach partnering with firms experienced with renewable energy generation projects. Alternatives being evaluated include cooperative agreements, vendor supplied equipment, Energy Savings Performance Contracts, etc.

Long-lead equipment procurement will be authorized at CD-2A.

Environmental Projects and Operations

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Environmental Projects and Operations			
Long-Term Stewardship	17,272	38,596	0
Total, Environmental Projects and Operations	**17,272**	**38,596**	**0**

Budget Structure Changes

The Environmental Projects and Operations Long-Term Stewardship activities have been realigned to Site Stewardship. The new Site Stewardship Government Performance and Results Act (GPRA) unit in FY 2010 integrates program elements managed under the Associate Administrator for Infrastructure and Environment into one funding entity that will operate under a consistent policy. The subprogram elements within this new GPRA unit are either previously identified GPRA units or new program responsibilities that have resource requirements (Environmental Projects and Operations, Transformation Disposition, Infrastructure Sustainability, Nuclear Materials Integration, and construction projects) that are being combined.

Integration of these responsibilities, functions and funding into a single site stewardship GPRA unit provides both focus and flexibility in program management, priority-setting and funding capability throughout the Planning, Programming, Budgeting, and Evaluation (PPBE) process. The Site Stewardship mission will ensure environmentally compliant and energy efficient operations throughout the Nuclear Security Enterprise, and modernize, streamline, and sustain the vitality of the utilities and physical infrastructure.

Major FY 2008 Achievements

- Signed Chemical Commodities Superfund Consent Decree at Kansas City Plant.

- Submitted all regulatory documents on time for the Kansas City Plant, Lawrence Livermore National Laboratory and Sandia National Laboratories.

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Environmental Projects and Operations/Long-Term Stewardship	
The decease reflects the total amount that was planned for Environmental Projects and Operations activities in FY 2010, being consolidated within the new Site Stewardship GPRA Unit as a subprogram.	-38,596
Total Funding Change, Environmental Projects and Operations	**-38,596**

Safeguards and Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Safeguards and Security (S&S)			
Defense Nuclear Security (Homeland Security)			
Operations and Maintenance	728,023	689,510	700,044
Construction	71,110	45,698	49,000
Subtotal, Defense Nuclear Security	**799,133**	**735,208**	**749,044**
Offset for S&S Work for Others	(34,000)	0	0
Total, Defense Nuclear Security	**765,133**	**735,208**	**749,044**
Cyber Security (Homeland Security)	**105,287**	**121,286**	**122,511**
Total, Safeguards and Security	**870,420**	**856,494**	**871,555**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Safeguards and Security (S&S)				
Defense Nuclear Security (Homeland Security)				
Operations and Maintenance	701,233	707,911	750,972	750,271
Construction	52,000	44,430	0	0
Total, Defense Nuclear Security	**753,233**	**752,341**	**750,972**	**750,271**
Cyber Security (Homeland Security)	**123,197**	**123,050**	**122,826**	**122,711**
Total, Safeguards and Security	**876,430**	**875,391**	**873,798**	**872,982**

Mission

Safeguards and Security (S&S) is comprised of two Government Performance and Results Act (GPRA) units. The Defense Nuclear Security program, managed by National Nuclear Security Administration (NNSA) Associate Administrator for Defense Nuclear Security, provides protection for NNSA personnel, facilities, nuclear weapons, and information from a full spectrum of threats, most notably from terrorism, which has become of paramount concern since the September 11, 2001, attacks in the United States. The Cyber Security program, managed by the NNSA Chief Information Officer, provides the requisite guidance needed to ensure that sufficient information technology and information management security safeguards are implemented throughout the NNSA Nuclear Security Enterprise.

Defense Nuclear Security Cost Recovery Strategy for 2010

The Request includes a changed approach to funding NNSA's Defense Nuclear Security (DNS) activities for FY 2010 only. Funding approaches for S&S will continue to be evaluated by the Department, including evaluating full cost recovery for Cyber Security, for future budgets.

Because Safeguards and Security activities are required for all work conducted at NNSA sites, NNSA must recover applicable costs from all customers, including Work for Others (WFO), in order to comply with Departmental and Administration policy. NNSA sites receive direct appropriations from the Defense Nuclear Security and Cyber Security programs, allocable costs recovered from WFO customers, and site indirect funds for activities that are generally considered overhead or institutional in nature. In addition, NNSA sites may direct charge WFO customers that require support at levels higher than the base program described above and from other NNSA programs for activities that have a causal-beneficial relationship to only that program.

In the FY 2010-2014 President's Request, all Cyber Security activities are funded through direct appropriations.

The direct appropriations for Defense Nuclear Security (DNS) provide for mission-driven activities focused on eliminating or mitigating identified vulnerabilities across the Nuclear Security Enterprise. These activities include the majority of protective forces, weapons and support equipment, physical barrier systems, and activities reducing the number of locations with "targets of interest". WFO funds an allocable share of the above activities through full cost recovery. The site funds S&S activities that are institutional in nature and have a causal-beneficial relationship to the entire site as an indirect expense.

The NNSA Management and Operating (M&O) contractors have provided estimates for full cost recovery of DNS activities that support and/or benefit WFO customers for FY 2010. The table below provides an estimate of costs that will be recovered from WFO customers. Please note that in FY 2008 DOE utilized the former WFO Offset process that was not based upon full cost recovery. There is no provision for Full Cost Recovery in the FY 2009 Omnibus Appropriation.

Estimates of Security Cost Recovered by Defense Nuclear Security

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Defense Nuclear Security			
Kansas City Plant	500	0	500
Livermore National Laboratory	12,500	0	12,500
Los Alamos National Laboratory	2,536	0	10,122
Nevada Test Site	2,634	0	2,634
Pantex Plant	100	0	100
Sandia National Laboratory	15,000	0	24,000
Y-12 Plant	42	0	42
Total Security Cost Recovered	**33,312**	**0**	**49,898**
Offset Charged	-34,000		
Security Costs Recovered			49,898

Defense Nuclear Security Direct Funded Activities

Most of the NNSA DNS work is funded through direct appropriations. The appropriations are used to eliminate or mitigate identified vulnerabilities through security systems and personnel resources. The table below reflects both direct funded activities and the funding expected to be recovered through full cost recovery to provide a complete profile of DNS activities.

Estimates of Direct Charges by Site for the Security Program

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Headquarters	38,371	21,545	40,000
Kansas City Plant	10,748	10,843	11,060
Livermore National Laboratory	95,475	96,531	95,477
Los Alamos National Laboratory	107,866	105,203	108,000
Nevada Test Site	78,814	79,666	76,000
NNSA Service Center	7,731	7,759	8,000
Pantex Plant	150,679	125,397	135,595
Sandia National Laboratory	67,883	68,244	61,244
Savannah River Plant	10,842	12,420	12,668
Y-12 Plant	159,614	161,902	152,000
Construction	71,110	45,698	49,000
Subtotal, Direct funded activities	**799,133**	**735,208**	**749,044**
Plus WFO (Offset is negative)	-34,000	0	49,898
Total, DNS funding	**765,133**	**735,208**	**798,942**

Defense Nuclear Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Defense Nuclear Security			
Operations and Maintenance (Homeland Security)			
Protective Forces	439,106	418,694	443,000
Physical Security Systems	120,873	77,245	74,000
Transportation	1,007	420	0
Information Security	21,072	25,880	25,300
Personnel Security	29,460	31,263	30,600
Materials Control and Accountability	23,978	35,929	35,200
Program Management	82,527	71,364	83,944
Technology Deployment, Physical Security	10,000	9,431	8,000
Graded Security Protection Policy (formerly DBT)	0	19,284	0
Total, Operations and Maintenance (Homeland Security)	**728,023**	**689,510**	**700,044**
Construction (Homeland Security)	71,110	45,698	49,000
Subtotal, Defense Nuclear Security	**799,133**	**735,208**	**749,044**
Offset for S&S Work for Others	-34,000	0	0
Total, Defense Nuclear Security with Offset	**765,133**	**735,208**	**749,044**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Defense Nuclear Security				
Operations and Maintenance (Homeland Security)				
Protective Forces	443,360	447,305	465,803	462,947
Physical Security Systems	77,370	74,727	84,602	84,478
Information Security	26,276	27,353	27,664	27,979
Personnel Security	32,116	33,431	33,812	34,196
Materials Control and Accountability	36,495	37,990	38,423	38,859
Program Management	77,588	78,747	92,215	93,263
Technology Deployment, Physical Security	8,028	8,358	8,453	8,549
Total, Operations and Maintenance (Homeland Security)	**701,233**	**707,911**	**750,972**	**750,271**
Construction (Homeland Security)	52,000	44,430	0	0
Total, Defense Nuclear Security	**753,233**	**752,341**	**750,972**	**750,271**

Description

The Defense Nuclear Security (DNS) program makes unique contributions to Strategic Goal 02.1.57.00 by protecting DOE interests from theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts which may cause unacceptable adverse impacts on national security, program continuity, and the health and safety of employees, the public or the environment.

During FY 2010, the DNS program will focus on eliminating or mitigating identified vulnerabilities across the Nuclear Security Enterprise. While maintaining our security posture consistent with the 2003 Design Basis Threat (DBT), DNS will identify upgrades that will be required to comply with the Department's new Graded Security Protection (GSP) policy. NNSA's activities will focus on full integration of security requirements and ensure we build security in and not have to add it on after the fact. We will focus on consolidation of Special Nuclear Material (SNM) holdings, utilization of enhanced technologies and minimization of ongoing and costly protective force personnel costs. The program introduced new performance measures in the FY 2010 budget, in support of Complex Transformation. DNS continues to develop credible targets in support of the Modernization/Infrastructure Recapitalization performance measures.

In FY 2010, there will be a direct-funded base program for security and the WFO program will be charged for security through full cost recovery. Activities that are institutional in nature and benefit the entire site should be charged to each sites' indirect cost pool. Estimates of the recovery from WFO are included in the S&S overview.

The Defense Nuclear Security program is a Homeland Security related activity.

Major FY 2008 Achievements

Vulnerability Assessment Peer Review Process: Defense Nuclear Security has led a year-long effort to improve the quality and consistency of the site-level vulnerability assessments. These assessments, and the resulting security strategies, provide the foundation for the physical protection of NNSA sites. Defense Nuclear Security's efforts have focused on improving the rigor and formality of the analysis process at each site, working with the sites to identify better and more cost effective security upgrades, and employing risk management in the development of the site security strategy.

Graded Security Protection Policy implementation planning: Using the lessons learned from the recently completed 2003 DBT policy, Defense Nuclear Security has adopted a project-oriented approach that provides for the comprehensive management of all activities covered in the site implementation plans - including detailed cost, scope, and schedule data for each site. With the issuance in FY 2008 of the Department's GSP, which replaced the 2005 DBT, DNS efforts will focus on reassessing the site-level activities contained within the implementation plans to determine their utility in meeting the new GSP. Following completion of the revised vulnerability assessments new implementation plans will be developed for each of the four enduring Category I sites. A follow-on assessment effort will also be conducted at all NNSA sites to determine upgrades, if any, for full compliance against the entire set of protection levels contained in the GSP policy - including "mission critical" activities, operations, and/or facilities.

Tactical Response Force (TRF) Implementation: Defense Nuclear Security is working with the sites to identify best practices that can be applied to the site efforts to train, equip, and deploy the tactical response forces (TRF) needed to protect our Category I special nuclear material and nuclear weapons

sites. The TRF concept represents a radical change in the security strategy employed at NNSA sites - with a marked shift from a defensive posture to an offensive strategy that takes the fight to the adversary. This shift will place greater emphasis on tactical training, team and individual training, and the use of heavy weapons and advanced armament.

Building security into new facilities: Defense Nuclear Security has been working to ensure that sound security principles and inherently secure design approaches are used in the construction of new NNSA nuclear facilities. This effort, which includes the publication of a comprehensive security design manual and the use of in-depth facility construction reviews, will significantly improve the security for new facilities while reducing the costs of securing these facilities.

Program Management: Defense Nuclear Security has made significant gains in improving the corporate management of the field security program. Budget requests from the sites are now tied to clear and understandable requirements, with greater detail and fidelity in the resource costs for sustaining the field security program, including funding and staffing needs. The budget review and validation approach has been improved, with additional emphasis given to validation of site security activities and assessment of the budget requests against efficiency and effectiveness measures. Funding needs are now tied to clear program outputs and extraneous costs and activities are being removed from the program. Budget execution is being managed through quarterly functional reporting and change control mechanisms have been incorporated into all site security operations.

Major Outyear Priorities and Assumptions

The outyear projections for Defense Nuclear Security total $3,006,817,000 for FY 2011 through FY 2014. The trend through the five-year period is level, which allows for maintaining a security protection posture consistent with the 2003 DBT. A full analysis is being conducted to ascertain cost and schedule estimates in order to implement new requirements identified in the 2008 GSP.

To improve the efficiency of the NNSA security operation, Defense Nuclear Security will continue its efforts to reduce the costs of protective forces across NNSA. Defense Nuclear Security is actively engaged with the inter-agency community to identify, field test and deploy state of the art detection and weapons systems that will lead to more efficient utilization of security police officers. Additionally, greater emphasis will also be placed on using risk acceptance methodologies to understand the relative value of additional security increases and defer investments in areas where the risk of adverse security outcomes are at acceptable levels.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.57.00, Defense Nuclear Security											
Cumulative percentage of progress, measured in milestones completed, towards implementation of all Graded Security Protection (GSP) Policy at NNSA sites. (Long-term Output)[a]	R: 39% T: 6%	R: 100% T: 100%	N/A	N/A	T: 100%	T: 50%	T: 50%	N/A	N/A	N/A	Measure 100% of implementation plans (IPs) developed at NNSA sites in FY 2009. Measure 50% of future FY 2010 IPs in FY 2010 and 50% in FY 2011.
Cumulative percentage of completion towards modernizing the National Nuclear Security Administration's protective forces in accordance with Tactical Response Force (TRF), as known as "Elite Forces", requirements. (Long-term Output)	N/A	N/A	N/A	N/A	T: 40%	T: 60%	T: 100%	N/A	N/A	N/A	By 2011complete TRF implementation.
Standardize the procurement process and security equipment, such as vehicles, weapons, ammunition across the National Nuclear Security Administration Defense Nuclear Security complex by 2011. [b] (Annual Output)[b]	N/A	N/A	N/A	N/A	T: 50%	T: 100%	N/A	N/A	N/A	N/A	Standardize 100% of the procurement process and security equipment by FY 2010.
Cumulative cost savings achieved by implementing a common procurement system for selected security equipment. (Efficiency)[b]	N/A	N/A	N/A	N/A	T: Baseline	T: 5%	T: 10%	T:15%	T:20%	N/A	Achieve a cumulative 20% savings from established baseline by FY 2013.

[a] The Department replaced the 2005 Design Basis Threat with the Graded Security Protection policy, issued in FY 2008.

[b] New performance indicator added in FY 2009.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Physical Security	**728,023**	**689,510**	**700,044**

Physical Security integrates personnel, equipment and procedures to protect a facility's physical assets and resources against theft, sabotage, diversion, or other criminal acts. Each NNSA site or facility has an approved Site Safeguards and Security Plan (SSSP) or a facility Master Security Plan detailing protection measures and resources needed to safeguard site security interests. The Physical Security program will: continue to improve security to counter known and projected adversary threat capabilities; manage a focused program to identify and deploy improved physical security systems and equipment; work to improve the integration between personnel (protective forces) and technology capabilities; and address protective force overtime rates. Other initiatives include reducing security overhead costs and addressing life cycle equipment issues. The technology deployment endeavor will work with DOE laboratories and parallel government efforts to deploy technologies that demonstrate promise to improve effectiveness and minimize cost growth.

- **Protective Forces** **439,106** **418,694** **443,000**

  These forces are a site's primary front-line protection, consisting of armed uniformed officers. Protective Forces are an integral part of a site's security posture, trained and practiced in various tactics and procedures to protect site interests. In FY 2010, the request will allow sites to maintain additional forces hired to meet the 2003 DBT. In addition to providing daily site protection, these forces function as first responders, train to manage chemical and biological events, and provide special contingency response capabilities. Funding needs are determined by Site Safeguards and Security Plans (SSSPs) supported by Vulnerability Assessments, and protection strategies designed to ensure adequate protective force staffing levels, equipment, facilities, training, management and administrative support.

- **Physical Security Systems** **120,873** **77,245** **74,000**

  Physical Security Systems provide intrusion detection and assessment capabilities, access controls, and performance testing and maintenance of security systems according to the approved site performance testing plan. In FY 2010, the request supports focus on life cycle replacement of assessment, detection and other security systems and equipment and implement new technologies to maximize cost effectiveness as we fully integrate security capital asset requirements into the NNSA site ten-year planning process.

- **Transportation** **1,007** **420** **0**

  The Transportation subcategory has been eliminated in FY 2010. Support of the movement and consolidation of special nuclear material inventories is now included in Protective Forces.

- **Information Security** **21,072** **25,880** **25,300**

  Information Security provides protection for the classification and declassification of information, critical infrastructure, technical surveillance countermeasures (TSCM), and operations security. In FY 2010, the request supports continued reviews of classified and sensitive information, to ensure proper document marking, storage and protection of information.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
▪ **Personnel Security**	**29,460**	**31,263**	**30,600**

Personnel Security encompasses the processes for security clearance determinations to ensure that individuals are eligible for access to classified information or matter, and/or access to, or control over, special nuclear material or nuclear weapons. In FY 2010, the request continues this effort, and supports the Human Reliability Program, Control of Classified Visits, and Security Awareness Programs.

▪ **Materials Control and Accountability**	**23,978**	**35,929**	**35,200**

Materials Control and Accountability (MC&A) provides for the control and accountability of special nuclear material and other accountable nuclear materials through measurements, quality assurance, accounting, containment, surveillance, and physical inventory. In FY 2010, the request provides for tracking movements of accountable nuclear materials between sites and reporting those movements to a national level tracking system.

▪ **Program Management**	**82,527**	**71,364**	**83,944**

Program Management provides direction, oversight and administration, planning, training, and development for security programs. In FY 2010, the request provides for the assessment of security implementation efforts through the review of updated security plans and performance testing, review of vulnerability assessments, and revised threat and vulnerability analysis. To formalize the process, a detailed Program Management Plan, including annual performance goals and baselines for each site's security program, is in place.

▪ **Technology Deployment, Physical Security**	**10,000**	**9,431**	**8,000**

This effort will identify and facilitate the deployment of security technology to address both short- and long-term solutions to specific physical security and MC&A needs at NNSA sites. In FY 2010, the request ensures focus on promising, emerging technologies that will provide operational efficiencies for the NNSA security program.

▪ **Graded Security Protection Policy (GSP) (formerly Design Basis Threat)**	**0**	**19,284**	**0**

GSP funding will provide for implementation of the 2008 GSP policy in accordance with approved implementation plans. DNS is currently working with each NNSA site to develop cost estimates. Implementation plans will be developed during the FY 2011 budget planning process.

Construction	**71,110**	**45,698**	**49,000**

The Construction program includes the cost of new and ongoing line-item construction projects that support the safeguards and security mission within the Nuclear Security Enterprise. FY 2010 funding of $49,000,000 is requested for a new start, 10-D-170 Security Improvement Project, Y-12 National Security Complex.

Total, Defense Nuclear Security	**799,133**	**735,208**	**749,044**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)

Defense Nuclear Security (Physical Security)

- **Protective Forces**

  Funding requested for Protective Forces provides for specialized training and sustains protective forces hired in support of the 2003 DBT and to begin planning activities for implementation of the 2008 GSP and TRF policy. Increase reflects escalation in salaries of 4% or more, negotiated in the union contracts, that exceeds standard escalation rates. Also supports Advanced Technology weapons including Remotely Operated Weapons Systems (ROWS) upgrades. +24,306

- **Physical Security Systems**

  The decrease allows for only essential upgrades to existing physical security systems, as well as systems maintenance and improvements to compensate for life cycle concerns. -3,245

- **Transportation**

  Eliminated in the FY 2010 budget. No longer used as a subcategory. -420

- **Information Security**

  The decrease does not significantly impact the implementation of a more formalized information protection program, including enhanced procedures for documentation, and centralized storage of classified and sensitive information. -580

- **Personnel Security**

  Reflects a reduction to support services for adjudication services that are now performed by Federal employees. -663

- **Materials Control and Accountability**

  The decrease will have minimum impact on programmatic efforts in support of materials consolidation, and revised processes and procedures for process and item monitoring for more timely and accurate tracking of accountable nuclear material. -729

	FY 2010 vs. FY 2009 ($000)
▪ **Program Management** The increase reflects emphasis on Vulnerability Analysis, Performance Testing, and Survey and Self-Assessment activities in support of Departmental requirements (DOE Order 470.1), including the revised Graded Security Protection policy. Also includes focus on oversight and performance assurance activities to ensure program performance objectives are achieved.	+12,580
▪ **Technology Deployment, Physical Security** The decrease does not significantly impact planned deployment of technology to address specific physical security and MC&A needs at NNSA sites.	-1,431
▪ **Graded Security Protection Policy (GSP) (formerly DBT)** The decrease reflects suspension of 2005 DBT activities in FY 2008 due to issuance of the 2008 GSP policy. Programming requirements and cost estimates to support security upgrades to implement the GSP policy are being constructed and are expected to be available by late spring 2009.	-19,284
Construction	
Funding for one new construction start 10-D-170 Security Improvements Project, Y-12 ($49,000,000).	+3,302
Total, Defense Nuclear Security	**+13,836**

Capital Operating Expenses and Construction Summary[a]

Capital Operating Expenses

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	15,505	15,846	16,195
Capital Equipment	7,653	7,821	7,993
Total, Capital Equipment	**23,158**	**23,667**	**24,188**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	16,551	16,915	17,287	17,667
Capital Equipment	8,169	8,349	8,533	8,721
Total, Capital Equipment	**24,720**	**25,264**	**25,820**	**26,388**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2008	FY 2009	FY 2010	Unappro-priated Balance
05-D-170, Project Engineering and Design (PED), VL	53,515	44,590	7,847	1,078	0	0
08-D-701, NMSSUP II, LANL	222,050	0	48,550	44,620	0	128,880
08-D-702, Material Security and Consolidation Project, INL	14,713	0	14,713	0	0	0
10-D-170, Security Improvements Program, Y-12	TBD	0	0	0	49,000	TBD
Total, Construction			**71,110**	**45,698**	**49,000**	**128,880**

Outyear Construction Projects

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
08-D-701, NMSSUP II, LANL	49,000	36,130	0	0
10-D-170, Security Improvement Program, Y-12	3,000	8,300	0	0
Total, Construction	**52,000**	**44,430**	**0**	**0**

[a] Funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects. The program no longer budgets separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on FY 2008 obligations.

10-D-701, Security Improvements Project (SIP)
Y-12 National Security Complex, Oak Ridge, Tennessee
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent DOE 0 413.3A approved Critical Decision (CD) is CD-1, Approve Alternative Selection and Cost Range, approved in October 2007 with preliminary cost range of $62,000,000 to $96,000,000 and preliminary CD-4 date range of March 2014 to September 2014.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is new for construction.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2010	01/23/04	10/11/07	01/09/09	4QFY2009	1QFY2010	3QFY2013	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2010	10,454	TBD	TBD	16,177	N/A	16,177	TBD

4. Project Description, Justification, and Scope

Project Description
The Security Improvements Project (SIP) will install a new security system to manage and integrate personnel security and access control systems at the Y-12 National Security Complex (Y-12). The National Nuclear Security Administration (NNSA) supported Argus system: an integrated intrusion detection, alarm-monitoring, access control system; will be installed in the existing Y-12 Central Alarm Station (CAS) and Secondary Alarm Station (SAS).

The scope of the project is:

Install Argus Host System in existing CAS and SAS;
Implement Argus for Highly Enriched Uranium Materials Facility (HEUMF);
Connect balance of plant using gateways, and
Argus access control limited to only HEUMF.

In addition, the project scope will procure and install the Training and Update System (TAUS) to take advantage of common maintenance and support provided for Argus implementation.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

No construction funds will be used until the project performance baseline has been validated and CD-3 has been approved.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2006	1,496	0	0
FY 2007	0	0	0
FY 2008	7,847	7,602	6.014
FY 2009	1,111	2,528	3,952
FY 2010	0	324	488
Total, PED (05-D-170-02)	10,454	10,454	10,454
Construction			
FY 2010	49,000	49,000	TBD
FY 2011	3,000	3,000	TBD
FY 2012	8,300	8,300	TBD
FY 2013	0	0	TBD
Total, Construction	TBD	TBD	TBD
TEC			
FY 2006	1,496	0	0
FY 2007	0	0	0
FY 2008	7,847	7,602	6,014
FY 2009	1,111	2,528	3,952
FY 2010	49,000	49,324	TBD
FY 2011	3,000	3,000	TBD
FY 2012	8,300	8,300	TBD
FY 2013	TBD	TBD	TBD
Total, TEC	TBD	TBD	TBD

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Other Project Cost (OPC)			
OPC except D&D			
Prior years cost	3,104	3,104	3,104
FY 2007	2,530	2,530	2,530
FY 2008	878	878	878
FY 2009	802	802	802
FY 2010	530	530	530
FY 2011	2,628	2,628	2,628
FY 2012	3,477	3,477	3,477
FY 2013	2,228	2,228	2,228
Total, OPC except D&D	16,177	16,177	16,177
D&D			
FY	0	0	0
Total, D&D	0	0	0
OPC			
FY	0	0	0
Total, OPC	0	0	0
Total Project Cost (TPC)			
FY 2006	4,600	3,104	3,104
FY 2007	2,530	2,530	2,530
FY 2008	8,725	8,480	6,892
FY 2009	1,913	3,330	4,754
FY 2010	49,530	49,854	TBD
FY 2011	5,628	5,628	TBD
FY 2012	11,777	11,777	TBD
FY 2013	TBD	TBD	TBD
Total, TPC	TBD	TBD	TBD

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	9,200	N/A	N/A
Contingency	1,254	N/A	N/A
Total, PED	10,454	N/A	N/A
Construction			
Site Preparation	TBD	N/A	N/A
Equipment	TBD	N/A	N/A
Other Construction	TBD	N/A	N/A
Contingency	TBD	N/A	N/A
Total, Construction	TBD	N/A	N/A
Total, TEC	TBD	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	7,107	N/A	N/A
Conceptual Design	1,560	N/A	N/A
Start-Up	4,570	N/A	N/A
Contingency	3,000	N/A	N/A
Total, OPC except D&D	16,177	N/A	N/A
D&D			
D&D	0	N/A	N/A
Contingency	0	N/A	N/A
Total, D&D	0	N/A	N/A
Total, OPC	16,177	N/A	N/A
Total, TPC	TBD	N/A	N/A

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3QFY2013
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this capital asset (fiscal quarter)	3QFY2043

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	3,200	N/A	N/A
Maintenance	N/A	800	N/A	N/A
Total, Operations & Maintenance	N/A	4,000	N/A	N/A

9. Required D&D Information

The limited D&D is considered incidental to construction and has been included in the construction costs.

Area	Square Feet
Area of new construction	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

NNSA has assigned management and execution of this project to Y-12 Major contracts will be a firm-fixed price. Interfaces between the contractor(s) and other entities at Y-12 will be managed by a dedicated project team and minimized to facilitate clear lines of responsibilities and contractual obligations. The contracts will be incrementally funded by annual appropriations.

Cyber Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Cyber Security (Homeland Security)			
Infrastructure Program	71,777	93,776	99,011
Enterprise Secure Computing	19,500	25,500	21,500
Technology Application Development	2,010	2,010	2,000
Classified Diskless Workstation Operations	12,000	0	0
Total, Cyber Security (Homeland Security)	**105,287**	**121,286**	**122,511**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Cyber Security (Homeland Security)				
Infrastructure Program	99,697	95,550	95,326	95,211
Enterprise Secure Computing	21,500	25,500	25,500	25,500
Technology Application Development	2,000	2,000	2,000	2,000
Classified Diskless Workstation Operations	0	0	0	0
Total, Cyber Security (Homeland Security)	**123,197**	**123,050**	**122,826**	**122,711**

Description

The National Nuclear Security Administration (NNSA) Cyber Security Program provides the requisite guidance needed to ensure that sufficient information technology and information management security safeguards are implemented throughout the NNSA enterprise in compliance with the Department of Energy's (DOE) Defense-in-Depth Cyber Security strategy and the NNSA Information Management Strategic Plan. The goal of the NNSA cyber security program is to ensure that sufficient information technology and information management security safeguards are implemented throughout the NNSA enterprise to adequately protect the NNSA information assets. The Cyber Security Program is a Homeland Security related activity.

The Cyber Security Program makes contributions to Strategic Goal 2.1.58.00. NNSA continues to maintain its Cyber Security defenses against cyber threats that are increasing in number, complexity, and sophistication while supporting the application of advanced information technologies to the NNSA national security and other missions. NNSA sites continue to improve the scope and quality of cyber security programs through implementation of NNSA cyber security guidance and by addressing the increasing number of requirements issued by OMB.

The NNSA Cyber Security program implements a flexible, comprehensive, and risk-based cyber security program that (a) adequately protects the NNSA information and information assets; (b) is predicated on Executive Orders; national standards; laws and regulations; and Departmental (where appropriate) and NNSA orders, manuals, directives, and guidance; and (c) results in a policy-driven cyber security architecture; aligned with the NNSA enterprise architecture; a programmatic framework and methodology that is based on current policies and procedures; and a management approach that integrates all of the components of a comprehensive cyber security program; ensures alignment of the

program with the NNSA and Departmental strategic plans and relevant plans of the Offices of the CIO; and supports the NNSA mission.

The NNSA strategy for a long term cyber security program is composed of several components, including planning, policy, management and technology, services, and performance management.

- Planning – Planning is supported by a collaborative effort to understand the threat landscape and identify weaknesses through compliance reviews and performance, measurement. This information is fed back into the planning activities to generate both a long-term strategic plan and an annual tactical plan. Processes and documentation produced include cyber security working group, strategic and tactical plans, and both a Departmental threat statement and risk assessment.
- Cyber security policy and guidance – The policy component is very closely aligned with both the governance program and the planning component. Cyber security policies establish the high-level goals and outcomes for the overall DOE Cyber Security Program. Enhanced through guidance, and performance metrics, the policy is in place to drive the program's implementation. The focus is on top-level "thin-policy" supported by guidance at the Departmental level.
- Architecture and Technology – Installing well-defined, high level department structure, processes and principles puts the department in position to successfully manage the technology it employs. To achieve the best possible results from this structure and to ensure that a standard approach across the department is achieved, the set of sub processes, which fall within the leadership decision process, address the management and technology component. Products stemming from this component include architectural guidance, enterprise licensing of security tools and products, and a technology review and development process.
- Services – Sizeable changes to any organization can be difficult. As field sites adapt to the new processes and policies, it is the role of the Office of the Chief Information Officer (OCIO) to facilitate that adjustment through various services and through the performance of several key initiatives that protect the entire department. The aim of these services is to develop an intelligent, proactive approach to mitigate the security threat to the department. Processes stemming from this component include cyber security communications, education and awareness, asset management, advice and assistance, and awards and recognition.
- Performance Measurement – Performance measurement provides a clear and consistent way to measure success and demonstrate results to senior management. Process and documents stemming from this component include compliance review and monitoring and cyber security metrics.

Major FY 2008 Achievements

The Department's effort to convert its classified computer workstations to a diskless architecture was completed September 30, 2008. Ongoing maintenance and operations of the diskless classified workstations will remain with the Department's classified program offices.

The Cyber Security Infrastructure Program provided for improvements in the areas of Defense-in-Depth Cyber Security Strategy and the NNSA Information Management Strategic Plan; and provided for current certification and accreditation packages improvements across the complex resulting in an official Authority to Operate, signed by the Designated Approval Authority.

In FY 2008, NNSA underwent a major revitalization of its cyber security program with policies published via a suite of documents: (1) the program baseline, or Program Cyber Security Plan (PCSP)

(i.e., NNSA Policy NAP 14.1C); (2) NNSA Certification and Accreditation Process (i.e., NNSA Policy NAP 14.2C); and (3) Transmission of Secret Restricted Data on SIPRNET (i.e., NNSA Policy NAP 14.3B). In addition, NNSA has published the Risk Assessment Methodology and the NNSA Threat Statement to facilitate more of a "consistent" approach to quantifying threats and residual risks throughout the nuclear security enterprise.

The Enterprise Secure Network (ESN) was fully operational by the 3rd Quarter of FY 2008. Further capability enhancements to the network necessary to meet emerging mission requirements will be funded within the outyear target.

Major Outyear Priorities and Assumptions

The outyear projections for Cyber Security total $491,784,000 for FY 2011 through FY 2014. With the increased prioritization of cyber security within NNSA, the program is working to develop a more robust set of performance metrics to better align the budget requirements to anticipated and demonstrated NNSA Cyber Security Program performance outcomes.

The Cyber Security program will sustain the NNSA infrastructure and upgrade elements that will counter cyber threats from external and internal attacks using the latest available technologies.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.58.00, Cyber Security											
Annual average percentage of Cyber Security reviews conducted by the Office of Health, Safety, and Security (HSS) at NNSA sites that resulted in the rating of "effective" (based on the last HSS review at each site over 2 Cyber Security topical areas). (Long-term Outcome)	R: 57% T: 80%	R : 41% T: 57%	R : 57% T: 57%	T: 100%	T: 100%	T: 100%	T: 100%	T : 100%	T : 100%	T : 100%	Annually, achieve an effective rating of at least 100% of OA Cyber Security reviews.
Annual percentage of Cyber Security Site Assessment Visits (SAV) conducted by the Office of the Chief Information Officer (OCIO) Cyber Security Program Manager (CSPM) at NNSA sites that resulted in the rating of "effective". (Annual Output)	N/A	N/A	N/A	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	Annually, achieve an effective rating of 100% of OCIO SAV.
Annual number of NNSA information assets reviewed for certification and accreditation. (Efficiency)	N/A	N/A	N/A	T: 30	T: 35	T: 40	T: 45	T: 55	T: 65	T: 65	By FY 2013, increase the number of assets reviewed per year to 65.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
▪ **Infrastructure Program**	**71,777**	**93,776**	**99,011**

The infrastructure program supports the cyber security operations and activities at NNSA sites. The cyber security operations and infrastructure program is built around a defense-in-depth approach for achieving cyber security in a highly networked environment. The defense-in-depth approach is a combination of known best practices and cost strategy that relies on the intelligent application of techniques and technologies which exist today. The defense-in-depth approach consists of three major components: personnel, technology and operations. This approach recommends a balance between the protection capability and cost, performance, and operational considerations. The implementation of this approach will provide the personnel and cyber security technology to maintain a cyber security posture that complies with all DOE and NNSA policies and processes while addressing the increasing number and complexity of cyber security threats, vulnerabilities and risks. In FY 2010 the request will provide for the implementation of:

- Enhance cyber security capability
- Daily operations
- Cyber security infrastructure
- Risk management

▪ **Enterprise Secure Computing**	**19,500**	**25,500**	**21,500**

Enterprise Secure Computing provides state-of-the-art enterprise level classified computing infrastructure that enables effective collaboration and information sharing necessary for the NNSA complex. In FY 2010 activities will focus on daily operations, infrastructure enhancements and application deployment.

▪ **Technology Application Development**	**2,010**	**2,010**	**2,000**

Technology Application Development is responsible for developing and advancing policies and initiatives that will support short and long-term solutions to specific cyber security needs at the NNSA sites and headquarters locations. Technological innovation, research and development are critical components for NNSA to protect its assets in national and global technology driven environment. The research and technology development efforts will focus on emerging technologies and leverage existing technology resources to create a more secure environment. In addition, new strategies can be developed to support cyber security activity across NNSA and foster collaboration between organizations. In FY 2010 activities will focus on the enhancement of cyber security capability in the area of incident management and disk encryptions.

▪ **Classified Diskless Workstation Operations**	**12,000**	**0**	**0**

Project successfully completed in FY 2008.

Total, Cyber Security	**105,287**	**121,286**	**122,511**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
▪ **Cyber Security (Homeland Security)**	
Infrastructure Program: This increase supports infrastructure at NNSA landlord sites for the implementation of the Department's revitalization plan, unclassified system certification and accreditation processes (Continuous Asset Monitoring System, CAMS).	+5,235
Enterprise Secure Computing: The decrease is a result of a shift in funding to support the increased Infrastructure program while maintaining Enterprise Secure Computing daily operations.	-4,000
Technology Application Development: The decrease delays cyber security technology development and research for new tools.	-10
Total, Cyber Security	**+1,225**

Capital Operating Expenses and Construction Summary[a]

Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011
General Plant Projects	0	0	0
Capital Equipment	506	517	528
Total, Capital Equipment	**506**	**517**	**528**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
General Plant Projects	0	0	0	0
Capital Equipment	540	552	564	576
Total, Capital Equipment	**540**	**552**	**564**	**576**

[a]Funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects. The program no longer budget separately for capital equipment and general plant projects. Funding shown reflects estimates based on projected FY 2008 obligations.

Congressionally Directed Projects

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Congressionally Directed Projects	**47,232**	**22,836**	**0**

Description

The FY 2009 Omnibus Appropriations Act (P.L. 111-8) included 13 congressionally directed projects within the Weapons Activities appropriation. Starting in FY 2008, funding for congressionally directed projects was appropriated as a separate funding line although specific projects may relate to ongoing work in a specific programmatic area.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Congressionally Directed Projects			
• Advanced Engineering Environment for Sandia National Laboratory (MA)	1,478	1,427	0
• Atomic Testing Musuem in Las Vegas, NV, for Operations and Maintenance (NV)	591	0	0
• Cimtrak Cyber Security (IN) for cyber security software	985	952	0
• Secure Advanced Supercomputing Platform at Nextedge (OH) Enables the construction of a classified work space at the Nextedge facility in which Lexis-Nexis will install a classified computing system (including software) to support its intelligence and Homeland Security customers in determining activities valued to the nation.	3,940	3,806	0
• Multi-Disciplined Integrated Collaborative Environment (MDICE) (MO)	985	952	0
• Laboratory for Advanced Laser-Target Interactions (OH) Provides funding to Ohio State University to expand its small-scale laser user facility	1,970	2,379	0
• National Museum of Nuclear Science and History in Albuquerque, NM, for the Musuem Site (NM)	739	0	0
• Nevada Test Site for Operations and Infrastructure Improvements (NV)	17,730	0	0
• North Dakota State University (Fargo) to support computing Capability (ND)	7,880	0	0

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
• Center for Computational Simulation and Visualization (IN)	0	4,757	0
• Northwest Indiana Computational Grid at Notre Dame and Purdue Calumet Universities (IN) Funding enables the building of the Northwest Indiana Computational Grid network and provides Northwest Indiana with a high speed connection to Argonne National Laboratory and several European research institutions including the CERN particle physics Laboratory.	5,910		0
• Secure Wireless Devices and Sensors (IN)	246	0	0
• Technical Product Data Initiative (OH)	985	952	0
• University of Nevada-Las Vegas for In-Situ Nanomechanics (NV)	345	0	0
• University of Texas in Austin, Texas, to complete the construction of the Petawatt Laser (TX)	3,448	0	0
• Arrowhead Center, NM State University, Las Cruces, NM, to promote economic prosperity in New Mexico through economic development	0	952	0
• Restore Manhattan Project Sites (NM), LANL, Los Alamos, NM, for historic preservation	0	475	0
• Renewable Energy Planning (NV), NNSA, Nevada Test Site, for planning to maximize renewable energy production	0	475	0
• Electronic Record for Worker Safety and Health (NV), UNLV, Clark County, project to digitize NTS workers' records to help Nevada Site Office improve response to worker claims	0	1,427	0
• Distributed data-driven test environment (OH)	0	3,330	0
• Matter Radiation Interactions in Extremes (MARIE) (NM)	0	952	
Total, Congressionally Directed Projects	**47,232**	**22,836**	**0**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Congressionally Directed Projects	
Decrease results from no follow-on funding being requested for these projects.	-22,836
Total, Congressionally Directed Projects	**-22,836**

Defense Nuclear Nonproliferation

Defense Nuclear Nonproliferation

Table of Contents

Defense Nuclear Nonproliferation

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 defense nuclear nonproliferation 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, and the purchase of not to exceed one passenger motor vehicle for replacement only, [$1,482,350,000] *$2,136,709,* to remain available until expended[:]. [Provided, That, of the amount appropriated in this paragraph, $1,903,000 shall be used for projects specified under the heading. "Congressionally Directed Defense Nuclear Nonproliferation Projects" in the text and table under this heading in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act).]

Explanation of Change

The FY 2010 Request increase is primarily funding for the Mixed Oxide Fuel Fabrication Facility (MFFF) and the Waste Solidification Building (WSB), which is being requested within the Defense Nuclear Nonproliferation appropriation. In addition, funding for International Nuclear Materials Protection and Cooperation reflects the increased numbers of border crossing sites and Megaports addressed in the Second Line of Defense Program; and increased MPC&A upgrades at Russian nuclear facilities. Funding for Nonproliferation and International Security supports an increase for the Next Generation Safeguards Initiative. Funding has also been requested for denuclearization of North Korea

Defense Nuclear Nonproliferation

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2009 Supplemental Request	FY 2010 Request
Defense Nuclear Nonproliferation				
Nonproliferation and Verification Research and Development	379,649	363,792	0	297,300
Nonproliferation and International Security	149,993	150,000	9,500	207,202
International Nuclear Materials Protection and Cooperation	624,482	400,000	55,000	552,300
Elimination of Weapons-Grade Plutonium Production	180,190	141,299		24,507
Fissile Materials Disposition	66,235	41,774		701,900
Global Threat Reduction Initiative	199,448	395,000	25,000	353,500
International Nuclear Fuel Bank	49,545	0		
Congressional Directed Projects	7,380	1,903		
Subtotal, Defense Nuclear Nonproliferation	**1,656,922**	**1,493,768**	**89,500**	**2,136,709**
Use of Prior Year Balances	0	-11,418		0
Total, Defense Nuclear Nonproliferation	**1,656,922**	**1,482,350**	**89,500**	**2,136,709**
Rescission of Prior Year Balances	-322,000	0		
Total, Defense Nuclear Nonproliferation (OMB Scoring)	**1,334,922**	**1,482,350**	**89,500**	**2,136,709**

NOTES: The FY 2008 Current Appropriation column includes international contributions of $6,473,368 to Defense Nuclear Nonproliferation programs. FY 2008 subprogram amounts as shown reflect a rescission of $15,279,000 as cited in the FY 2008 Consolidated Appropriations Act (P.L. 110-161). FY 2009 funds appropriated in Other Defense Activities for Fissile Materials Disposition, and in Weapons Activities for the Waste Solidification Building funds are not reflected in the above table.

Public Law Authorization:

Omnibus Appropriations Act, 2009 (P.L. 111-8)
FY 2008 Consolidated Appropriations Act (P.L. 110-161)
National Nuclear Security Administration Act, (P.L. 106-65), as amended

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Defense Nuclear Nonproliferation				
Nonproliferation and Verification Research and Development	318,882	315,941	317,557	328,193
Nonproliferation and International Security	170,888	164,929	169,219	173,923
International Nuclear Materials Protection and Cooperation	583,400	570,799	561,790	558,492
Elimination of Weapons Grade Plutonium Production	0	0	0	0
Fissile Materials Disposition	672,991	580,212	673,143	461,605
Global Threat Reduction Initiative	481,115	652,168	717,310	1,072,977
Total, Defense Nuclear Nonproliferation	**2,227,276**	**2,284,049**	**2,439,019**	**2,595,190**

Major Outyear Priorities and Assumptions

Defense Nuclear Nonproliferation will play a key role in meeting President Obama's nonproliferation objectives, to accelerate control of "loose nuclear materials" and to secure and remove all vulnerable nuclear material from the most vulnerable sites by the end of 2012. In particular, GTRI will have worked in 124 countries around the world to implement nuclear and radiological threat reduction in line with the president's nonproliferation initiatives. Prior commitments as outlined in the Bratislava Presidential Joint Statement on Nuclear Security Cooperation will be completed before the end of 2010, including: (1) the return all existing inventories of Russian-origin spent HEU fuel to Russia by the end of 2010, (2) the transport of 3 metric tons of weapons-grade Plutonium and 10 metric tons of HEU contained in the BN-350 spent fuel from Aktau to Baikal by the end of 2010. In the outyears, funding in the International Nuclear Materials Protection and Cooperation program will increase from current levels for MPC&A upgrades proposed subsequent to the Bratislava Agreement and Second Line of Defense program expansion to include about 600 border sites and 100 Megaports by the end of 2015. The Second Line of Defense program will continue to make significant progress in the prevention and detection of illicit transfer of nuclear material through shipping ports and significant reduction of risk of terrorists acquiring radiological materials. Nonproliferation and International Security funding in the outyears reflects the growth of the Next Generation Safeguards Initiative to strengthen global safeguards institutions, in particular the International Atomic Energy Agency (IAEA), and revitalize the U.S. safeguards technology and human capital base.

DOE Nuclear Nonproliferation Activities

($ in Millions)

	FY 2008 Actual	FY 2009 Actual	FY 2010 Request	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate
NNSA							
Defense Nuclear Nonproliferation	1,334.9	1,482.3	2,136.7	2,155.7	2,339.1	2,523.9	2,709.3
Waste Solidification Building [a]	38.6	47.0	0	0	0	0	0
Subtotal, NNSA	1,373.5	1,529.3	2,136.7	2,155.7	2,339.1	2,523.9	2,709.3
Nuclear Energy/Other Defense Activities							
Mixed Oxide Fuel Fabrication Facility [b]	278.8	467.8	0	0	0	0	0
Total, DOE Funding	**1,652.3**	**1,997.1**	**2,136.7**	**2,155.7**	**2,339.1**	**2,523.9**	**2,709.3**

[a] Funding in FY 2008 and FY 2009 was appropriated in the Weapons Activities appropriation account. FY 2010 and outyear funding is requested in the DNN Appropriation.

[b] Funding in FY 2008 was appropriated within the Nuclear Energy appropriation. Funding in FY 2009 was appropriated within the Other Defense Activities appropriation. FY 2010 and outyear funding is requested in the DNN appropriation.

The FY 2008 Consolidated Appropriations Act (P.L. 110-161), funded the MOX project in the Nuclear Energy appropriation and the PDCF/Waste Solidification Building projects in Weapons Activities. These shifts of funding out of Defense Nuclear Nonproliferation did not change or diminish in any way the importance of these interrelated projects to the nation's nuclear nonproliferation efforts. The FY 2010 DNN budget reflects a shift in emphasis from work completed under the Bratislava agreement to additional Second Line of Defense sites, including Megaports, and continued expansion of nuclear and radiological material removal under the Global Threat Reduction Initiative.

Mission

The convergence of heightened terrorist activities and the ease of moving materials, technology and information across borders have made the potential for terrorism involving weapons of mass destruction (WMD) the most serious threat facing the Nation. Preventing WMD from falling into the hands of terrorists is the top national security priority of this Administration. The FY 2010 budget request for DNN reflects the need to protect the United States (U.S.) and its allies from this threat.

The Defense Nuclear Nonproliferation mission is to provide policy and technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons -- in short, to detect, deter, secure, or dispose of dangerous nuclear material.

Benefits

The Defense Nuclear Nonproliferation program supports the NNSA and DOE mission to protect our national security by preventing the spread of nuclear weapons and nuclear materials to terrorist organizations and rogue states. These efforts are implemented in part through the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, formed at the G8 Kananaskis Summit in June 2002, and the Global Initiative to Combat Nuclear Terrorism, launched in Rabat Morocco in October 2006.

Strategic Themes, Goals, and the Secretary's Initiatives

A new Strategic Plan has not yet been established and approved by the Secretary of Energy. The Secretary has established major priorities and initiatives. The following chart aligns the current Strategic Plan with the Secretary's priorities:

Strategic Theme	Strategic Goal	Secretary's Priority	GPRA Unit	Title	Office
Nuclear Security: Ensuring America's Nuclear Security	Weapons of Mass Destruction	National Security	2.2	Defense Nuclear Nonproliferation	NNSA
Nuclear Security: Ensuring America's Nuclear Security	Weapons of Mass Destruction	National Security	2.2.39	Nonproliferation and Verification Research and Development	NNSA
Nuclear Security: Ensuring America's Nuclear Security	Weapons of Mass Destruction	National Security	2.2.40	Elimination of Weapons-Grade Plutonium Production	NNSA
Nuclear Security: Ensuring America's Nuclear Security	Weapons of Mass Destruction	National Security	2.2.41	Nonproliferation and International Security	NNSA
Nuclear Security: Ensuring America's Nuclear Security	Weapons of Mass Destruction	National Security	2.2.42	International Nuclear Materials Projection and Cooperation	NNSA
Nuclear Security: Ensuring America's Nuclear Security	Weapons of Mass Destruction	National Security	2.2.43	Fissile Materials Disposition	NNSA
Nuclear Security: Ensuring America's Nuclear Security	Weapons of Mass Destruction	National Security	2.2.44	Global Threat Reduction Initiative	NNSA

Means and Strategies

The pursuit of nuclear weapons by terrorists and states of concern makes it clear that our nonproliferation programs are urgently required, and must proceed on an accelerated basis. We will fully exploit the world-class expertise of our National Laboratories to increase our design, testing, and fielding capabilities for safeguards, detection, and verification technologies.

The pace and nature of treaties and agreements, extremely poor economic conditions in many host countries, political and economic uncertainties in the former Soviet Union, and the unwillingness of threshold states to engage in negotiations can all have dramatic effects on the pace of program implementation and effectiveness. The Department will implement the following strategies:

Interfaces, Partnerships and Working Relationships: NNSA partners with many U.S. agencies, international organizations, and non-governmental organizations to further our nonproliferation goals.

All major policy issues are coordinated with the National Security Council, and we also work closely with the Departments of State, Defense, Homeland Security, Justice**,** Treasury, and Commerce. We leverage our nuclear nonproliferation research and development base within the National Laboratory complex to achieve program goals. In addition, NNSA coordinates with the Department of State and Nuclear Regulatory Commission on selected aspects of the fissile materials disposition program, and works with the IAEA to further international safeguards. We work with the United States Enrichment Corporation (USEC), the Tennessee Valley Authority (TVA), BWX Technologies, and Nuclear Fuel Services in the disposition of surplus U.S. Highly Enriched Uranium (HEU) and USEC is also involved in the Russian HEU purchase agreement. The U.S. Industry Coalition is NNSA's partner in the Global Initiative for Proliferation Prevention. The U.S. Agency for International Development, the Nuclear Energy Agency, the Intelligence Community, and other agencies are also participants. We anticipate continued frequent collaborations with the Department of Homeland Security; providing technical assistance and training for domestic interdiction and export control cases.

The U.S. continues to work with the Russian Federation on plutonium disposition in Russia pursuant to the Plutonium Management and Disposition Agreement reached in September 2000. Congress had appropriated $200 million in a FY 1999 Supplemental Appropriation to support Russian plutonium disposition activities; however, $207 million of this and other funding for this program was rescinded in FY 2008 due to lack of progress in Russia. DOE plans to request $400 million in future appropriations to support plutonium disposition in Russia once a Protocol amending the 2000 Agreement, related liability provisions, and a monitoring and inspection regime is signed. The balance of the approximately $1.6 - $2 billion remaining cost of Russian plutonium disposition would be borne by Russia and non-U.S. contributions.

Securing Nuclear Weapons, Material and Expertise: For over a decade, the U.S. has been working cooperatively with the Russian Federation to enhance the security of facilities containing fissile material and nuclear weapons. The scope of these efforts has been expanded to protect weapons-usable material in countries outside the former Soviet Union as well. These programs fund critical activities such as installation of intrusion detection and alarm systems, and construction of fences around nuclear sites. Efforts to complete this work and to secure facilities against the possibility of theft or diversion have been accelerated. DOE has also established the Global Initiatives for Proliferation Prevention Program (GIPP), which is the only program in the U.S. Government that works to transition FSU WMD weapons scientists, engineers and related technical experts to commercial, non-weapons-related activities.

Security upgrades were completed for Russian Navy nuclear fuel and weapons storage at the end of FY 2006 and were completed for Rosatom buildings covered by the February 2005 Bratislava Agreement at the end of calendar year 2008. Security upgrades to the nuclear warhead storage sites of the Russian Strategic Rocket Forces were completed in 2007 and upgrades to the Russian Ministry of Defense's 12th Main Directorate nuclear warhead storage sites were completed at the end of calendar year 2008. Although the Bratislava Agreement workscope was completed in 2008, as agreed, a number of important areas/buildings have been added to the scope of joint work; and these additional MPC&A upgrades will be completed by 2012.

Revitalizing International Safeguards: With the increasing number, size, and complexity of nuclear facilities deployed worldwide, the widespread entry into force of IAEA additional protocols, and the emergence of new proliferation threats from both state and sub-state terrorist actors, the current workload of the IAEA far exceeds its resources. At the same time, the current generation of safeguards

technologies is becoming outdated and the safeguards "human capital" base is aging and shrinking. As nuclear energy continues to expand, opportunities for proliferation will multiply and the gap between IAEA needs and resources will grow wider.

NNSA's Next Generation Safeguards Initiative focuses on revitalizing the U.S. safeguards technology and human capital base to ensure that the IAEA has the authorities, capabilities, technologies, expertise, and resources it needs to meet current and future challenges. In particular, NNSA coordinates and implements a dedicated program focused on developing advanced safeguards approaches, technologies, and equipment that will cultivate a new generation of specialists with expertise in a broad range of safeguards-relevant disciplines.

Verifying Nuclear Programs in Countries of Proliferation Concern: The Nuclear Noncompliance Verification (NNV) program develops advanced technology applications to verify declared nuclear activities, detect undeclared nuclear materials and activities, and carry out dismantlement and verification of nuclear programs in countries of proliferation concern. The program also provides technical and operational support for U.S. Government policies and activities related to countries of proliferation concern. In FY 2010, the program will conduct agreed disablement, dismantlement and verification activities of nuclear programs in North Korea and support the Six-Party Talks. The program also will develop and deliver new verification technologies or methods and will support continued U.S. and international efforts related to the dismantlement and verification of proliferant-state nuclear programs.

Countering Illicit Supplier Networks: DOE has a long history of providing the technical input to the interagency in the various interdiction activities conducted by the U.S. Government. However, in light of the escalation in these activities catalyzed by the uncovering of A. Q. Khan's clandestine nuclear supply network, and the continued efforts by North Korea and Iran to pursue WMD technologies, the Nonproliferation and International Security program has developed a comprehensive capability to extract *actionable* information dealing with proliferation networks, technology transfers and involvement of entities and persons of interest in proliferation and terrorism.

In addition, the program provides real-time technical and policy support for efforts by the U.S. Government in a timely manner to facilitate a wide range of counter proliferation and counterterrorism interdiction options. The backbone of this capability is comprised of various customized electronic database applications that exploit information and provide rapid, real-time technical support to the interagency on illicit transfers of proliferation-sensitive technology and commodities; technology assessments in the DOE complex and U.S. industry; updates on proliferation network off-shoots; support to the new IAEA role investigating proliferation networks; and evaluation of the impact of proliferation networks on global safeguards and export controls systems.

Pre-Screening Cargo Containers for Nuclear and Radiological Materials: The world's shipping network, with millions of cargo containers in transit, could conceal nuclear and radiological materials. The Megaports Program provides the tools for law enforcement officials to pre-screen the bulk of the cargo in the world trade system through work with international partners to deploy and equip key ports with the means to detect and deter illicit trafficking in nuclear and other radioactive materials. This effort supports the U.S. Department of Homeland Security's Container Security Initiative. The

FY 2010 budget supports the completion of fifteen additional ports, which will increase to forty three, the number of ports participating in and equipped through the Megaports Initiative.

NNSA Support to Presidential Initiative for Radiation Detection Research and Development: Nonproliferation R&D's Detection Program continues to provide basic and applied research in advanced materials for radiation detection sensors, special nuclear material movement, uranium enrichment detection, and plutonium reprocessing/production detection. This multi-use technology was designed to support the nonproliferation mission, but also supports fundamental research critical for Defense, Homeland Security and the Intelligence Community.

Eliminating Russian Plutonium Production: The Elimination of Weapons Grade Plutonium Production Program will result in the permanent shutdown of three nuclear reactors, which currently produce weapons-grade plutonium. These reactors, which are the last three reactors in Russia that produce plutonium for military purposes, also provide necessary heat and electricity to two "closed cities" in the nuclear security enterprise.

This budget provides the funding needed to shutdown the three reactors through; (1) refurbishment of an existing fossil-fuel (coal) power plant in Seversk by 2008; and (2) construction of a new fossil-fuel plant at Zheleznogorsk by 2011. This will eliminate the production of 1.2MT annually of weapons-grade plutonium. The program is of high effectiveness because plutonium that is never created does not have to be accounted for, does not need to be secured, and will never be available to be used by terrorists.

Disposing of Surplus U.S. and Russian Weapon-Grade Fissile Material: The Fissile Materials Disposition program disposes of inventories of surplus Russian and U.S. weapon-grade plutonium and surplus U.S. weapon-grade HEU. The FY 2010 budget request supports continuing efforts to dispose of surplus U.S. HEU including the Reliable Fuel Supply Program, and supports other Fissile Materials Disposition program activities. Prior year balances will continue to be used to support Russian implementation of a technically and financially credible program for disposition of its surplus weapon-grade plutonium based on the use of existing and planned fast reactors. These activities are of critical importance because they will ensure that surplus fissile materials in the U.S. and Russia are permanently disposed. A complementary fissile material reduction program, the HEU Transparency Program, continues to confirm the permanent elimination of HEU from the Russian weapons stockpile by monitoring the conversion of 30MT of HEU to LEU annually. The program has eliminated over 350MT of HEU from dismantled Russian nuclear weapons of the 500MT planned by the end of the HEU Purchase Agreement in 2013.

Joint Action Plan for Cooperation on Security Upgrades of Russian Facilities: An agreement on Nuclear Security Cooperation was reached between the Presidents of the United States (U.S.) and the Russian Federation during their February 2005 Bratislava Summit. This agreement includes for the first time a comprehensive joint action plan for the cooperation on security upgrades of Russian nuclear facilities at Rosatom and Ministry of Defense sites and cooperation in the areas of nuclear regulatory development, sustainability, secure transportation, Materials Protection Control and Accounting (MPC&A) expertise training and protective force equipment.

Preventing a Possible Terrorist Attack Using Civilian Nuclear or Radiological Materials: The GTRI mission is to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide. GTRI helps the Department achieve Nuclear Security Goal 2.2 by preventing terrorists from

acquiring nuclear and radiological materials that could be used in weapons of mass destruction (WMD) or other acts of terrorism by: (1) converting research reactors from the use of highly enriched uranium (HEU) to low enriched uranium (LEU); (2) removing and disposing of excess nuclear and radiological materials; and (3) protecting high-priority nuclear and radiological materials from theft and sabotage. GTRI directly supports President Obama's goal to accelerate efforts to secure and remove all vulnerable nuclear material from the most vulnerable sites within four (4) years, by the end of 2012.

Global Partnership: Our nonproliferation objectives can not be met without strong cooperation, in fact, partnership with other nations. The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, formed at the G-8 Kananaskis Summit in June 2002 renewed the G-8 nations (the U.S., Canada, France, Germany, Italy, Japan, Russia, and the United Kingdom) commitment to address nonproliferation, disarmament, counter-terrorism, and nuclear safety issues. The G-8 leaders pledged to devote up to $20 billion over ten years to support cooperative efforts, initially in Russia, and have invited other similarly motivated countries to participate in this partnership. The U.S. is committed to provide $10 billion over ten years to be matched by $10 billion from the other members, attesting to the firm belief that nonproliferation concerns are of the highest government priority; and therefore that this work is of paramount importance for the security of the nation and the world. A total of $3,855 million has been costed from FY 2002 through FY 2008. The following table reflects the Department of Energy funds budgeted for FY 2009-2014, by country.

U.S. Nonproliferation and Threat Reduction Assistance to Former Soviet States

(dollars in millions)

Summary by Country	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Russia	427.8	276.7	210.7	182.9	102.1	99.7
Kazakhstan	35.4	20.6	6.3	4.0	4.8	4.8
Kyrgyzstan	0.0	3.9	0.0	0.0	0.0	0.0
Ukraine	11.6	10.0	10.7	8.6	5.0	5.0
Uzbekistan	0.2	0.2	0.2	0.2	0.2	0.2
Azerbaijan/Armenia	2.6	1.2	1.2	1.2	1.0	1.0
Georgia	0.7	0.9	1.0	1.3	1.0	1.0
Tajikistan	0.0	0.0	2.8	0.0	0.0	0.0
Turkmenistan	4.0	0.0	0.0	7.0	2.6	0.3
Total, Russia & FSU	**482.3**	**313.5**	**232.9**	**205.2**	**116.7**	**112.0**

Validation and Verification

To verify and validate program performance, NNSA conducts various internal and external reviews and audits. NNSA's programmatic activities are subject to continuing review by the Congress, the General Accountability Office, the Department's Inspector General, the National Security Council, the Defense Nuclear Facilities Safety Board, the Department's Office of Engineering and Construction Management, and the Department's Office of Independent Oversight and Performance Assurance. Each year numerous external independent reviews are conducted of selected projects. Additionally, NNSA Headquarters senior management and Field managers conduct frequent, in-depth reviews of cost, schedule, and scope to ensure projects are on-track and within budget.

NNSA has established a comprehensive validation and verification process as part of its Planning, Programming, Budgeting and Evaluation (PPBE) system. Long-term performance goals are established/validated during the Planning Phase and linked in a performance cascade to annual targets and detailed technical milestones. During the Programming Phase, budget and resources trade-offs and

decisions are evaluated based on the impact to annual and long-term performance measures. These NNSA decisions are documented and used to develop the budget requests during the Budgeting Phase. Program and financial performance for each measure are monitored and progress verified during the Execution and Evaluation Phase.

NNSA validation and verification activities during the PPBE Execution and Evaluation phase include a set of tiered performance reviews to examine everything from detailed technical progress to program management controls to corporate performance against long-term goals. This set of reviews includes: (1) Budget Formulation Validation; (2) the Independent Assessment process: (3) NNSA Administrator Program Reviews; (4) Program Manager Detailed Technical Reviews; (5) the NNSA Mid-Year Finance and Performance Review; (6) quarterly reporting of progress through the Department's performance tracking system; and (7) the NNSA Administrator's Annual Performance Report.

NNSA is performing annual internal self-assessments of the management strengths and weaknesses of each NNSA program. Among other things, this process helps NNSA ensure that quality, clarity, and completeness of its performance data and results are in accordance with standards set in the Government Performance and Results Act of 1993 and reinforced by the President's Management Agenda

The NNSA Administrator reviews each NNSA program at least annually during the NNSA Administrator Reviews. These reviews involve all members of the NNSA Management Council to ensure progress and that recommendations are fully integrated for corporate improvement. The focus of these reviews is to verify and validate that NNSA programs are on track to meet their long-term goals and annual targets. The program managers conduct a second more detailed review of each program. These Program Manager Detailed Technical Reviews are normally held at least quarterly during the year. The focus of these reviews is to verify and validate that NNSA contractors are achieving detailed technical milestones that result in progress towards annual targets and long-term goals. These two reviews work together to ensure that advance warnings are given to NNSA managers in order for corrective actions to be implemented. NNSA sites are responsible and accountable for accomplishing the verification and validation of their own and their sub-contractors' performance data and results prior to submission to NNSA Headquarters.

The results of all of these reviews are reported quarterly in the Department's performance tracking system and annually in the NNSA Administrator's Annual Performance Report and the DOE Performance and Accountability Report (PAR). Both documents help to measures the progress NNSA programs are making toward achieving annual targets and long-term goals. These documents are at a summary level to help senior managers verify and validate progress towards NNSA and Departmental commitments listed in the budget.

In addition, the General Accountability Office, Inspector General, National Security Council, Foster Panel, Defense Nuclear Facility Safety Board, and Secretary of Energy Advisory Board provide independent reviews of NNSA programs.

Historically Black Colleges and Universities (HBCU) Support

The NNSA has established program to target research opportunities for HBCU institutions to increase their participation in national security-related research and to train and recruit qualified HBCU graduates for employment within the national security enterprise. The majority of the efforts directly support program activities, and programs funded in the Defense Nuclear Nonproliferation appropriation may

fund research with the HBCU totaling up to approximately $3,000,000 in FY 2010, in areas including engineering, radiochemistry, material sciences, and sensor development.

Nonproliferation and Verification Research and Development

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Nonproliferation and Verification R&D			
Operations and Maintenance (O&M)			
Proliferation Detection	216,857	199,699	171,839
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection	130,352	145,633	125,461
Supporting Activities	7,668	0	0
Subtotal, O&M	**354,877**	**345,332**	**297,300**
Construction	24,772	18,460	0
Total, Nonproliferation and Verification R&D	**379,649**	**363,792**	**297,300**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Nonproliferation and Verification R&D				
Operations and Maintenance (O&M)				
Proliferation Detection (PD)	184,952	183,246	184,183	190,352
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection	133,930	132,695	133,374	137,841
Supporting Activities	0	0	0	0
Subtotal, O&M	**318,882**	**315,941**	**317,557**	**328,193**
Construction	0	0	0	0
Total, Nonproliferation and Verification R&D	**318,882**	**315,941**	**317,557**	**328,193**

Description

This program reduces the threat to national security posed by nuclear weapons proliferation/detonation or the illicit trafficking of nuclear materials through the long-term development of new and novel technology.

Using the unique facilities and scientific skills of NNSA and DOE national laboratories and plants, in partnership with industry and academia, the program conducts research and development that supports nonproliferation mission requirements necessary to close technology gaps identified through close interaction with NNSA and other U.S. government agencies and programs. This program meets unique challenges and plays an important role in the federal government by driving basic science discoveries and developing new technologies applicable to nonproliferation, homeland security, and national security needs.

The Nonproliferation and Verification Research and Development program has two subprograms that make unique contributions to GPRA Unit Program Goal 2.2.39.00.

The Proliferation Detection subprogram advances basic and applied technologies for the nonproliferation community. Specifically, the subprogram develops the tools, technologies, techniques, and expertise for the identification, location, and analysis of the facilities, materials, and processes of

undeclared and proliferant nuclear weapons programs and to prevent the diversion of special nuclear materials, including use by terrorists.

The Nuclear Detonation Detection subprogram builds the nation's operational sensors to monitor the entire planet from space to detect and report surface, atmospheric, or space nuclear detonations; produces and delivers advanced technology, including regional geophysical datasets which enable operation of the nation's ground-based seismic, infrasound, hydroacoustic, and radionuclide monitoring networks to detect underground, underwater, and low-level atmospheric nuclear detonations; and develops tools, technologies, and related science aimed at collecting and analyzing forensic information related to nuclear detonations.

The R&D program supported a joint effort between the DOE Office of Science (SC) and the Department of Homeland Security (DHS) to construct approximately 200,000 gross square feet of laboratories, offices, and facilities, known as the Physical Sciences Facility (PSF), on the Horn Rapids Triangle at Pacific Northwest National Laboratory. In addition, supporting the life extension upgrades to Building 325 in the Hanford 300 Area will be included as part of the second phase of the project. This effort will replace and extend existing research capabilities being displaced as a result of the closure and cleanup of the Hanford 300 Area. Contractors for the Department's Office of Environmental Management (EM) must complete remediation objectives in the 300 Area by 2015. NNSA completes its commitment in FY 2009 to support the PSF facility; no additional funds are requested in FY 2010 or the outyears.

Major FY 2008 Achievements

- Improved fundamental understanding of materials science to provide informed investment(s) in next-generation gamma and neutron detection materials;
- Successfully transferred the Airborne Radiological Debris Collection System Pod to Defense Threat Reduction Agency (DTRA);
- World-record measurement of radiation spectra using microcalorimetry to distinguish low-energy gamma emissions between plutonium and uranium for special nuclear materials characterization;
- Demonstrated underground array radiation detection technology in DoD laboratory;
- Delivered nuclear detonation detection payloads for two Global Positioning System (GPS) IIF satellites; and
- Successfully delivered Space and Atmospheric Burst Reporting System (SABRS) qualification unit – next-generation space nuclear detonation detection detector.

Major Outyear Priorities and Assumptions

The FY 2011 – FY 2014 outyear projections for the Nonproliferation and Verification Research and Development (R&D) Program total $1,280,523,000 and support long-term research and development leading to detection systems for strengthening U.S. capabilities to respond to current and projected threats to national and homeland security posed by the proliferation of nuclear weapons and diversion of special nuclear material. Almost a third of this funding is for production of operational nuclear detonation detection sensors to support the nation's operational nuclear detonation detection and reporting infrastructure through joint programs with DoD. Outyear increases to the program reflect a combination of inflation plus increased national emphasis shown in National Security Presidential Directives (NSPD) and Homeland Security Presidential Directives (HSPD) for basic and applied research and development for advanced radiation detection, special nuclear materials detection, and detection of potential state and terrorist nuclear weapons programs.

Annual Performance Results and Targets

(R= Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program 2.2.39.00 (Nonproliferation and Verification R&D)											
Cumulative percentage of progress toward demonstrating the next generation of technologies and methods to detect Uranium-235 production activities. (Progress is measured against the baseline criteria and milestones published in the "FY 2006 R&D Requirements Document") (Long-term Outcome)	R: 3% T: 3%	R: 10% T: 10%	R: 15% T: 15%	R: 20% T:20%	T: 25%	T: 30%	T: 50%	T: 60%	T: 75%	T: 90%	By 2016, demonstrate the next generation of technologies and methods to detect Uranium-235 Production activities.
Cumulative percentage of progress toward demonstrating the next generation of technologies and methods to detect Plutonium production activities. (Progress is measured against the baseline criteria and milestones published in the "FY 2006 R&D Requirements Document") (Long-term Outcome)	R: 3% T: 3%	R: 10% T: 10%	R: 20% T: 20%	R: 25% T: 25%	T: 30%	T: 50%	T: 65%	T: 75%	T: 90%	T: 95%	By 2015, demonstrate the next generation of technologies and methods to detect Plutonium Production activities.
Cumulative percentage of progress toward demonstrating the next generation of technologies and methods to detect Special Nuclear Material movement. (Progress is measured against the baseline criteria and milestones published in the "FY 2006 R&D Requirements Document") (Long-term Outcome)	R: 5% T: 5%	R: 10% T: 10%	R: 20% T: 20%	R: 27% T: 27%	T: 33%	T: 60%	T: 80%	T: 90%	T: 100%	N/A	By 2013, demonstrate the next generation of technologies and methods to detect Special Nuclear Material movement.
Annual index that summarizes the status of all NNSA detonation detection R&D deliveries that improve the nation's ability to detect nuclear detonations (Annual Output)	R: 90% T: 90%	R: 90% T: 90%	R: 90% T: 90%	R: 90% T: 95%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	Annually achieve timely delivery of NNSA nuclear detonation detection products (90% target reflects good on-time delivery. Index considers factors beyond NNSA's control and impact on customer schedules).
Cumulative percentage of active research projects for which an independent R&D merit review of the project's scientific quality and mission relevance has been completed during the second year of effort (and again within each subsequent three year period for	R: 100% T: 70%	R: 100% T: 100%	R: 100% T: 100%	R: 100% T: 100%	T: 100%	T: 100%	T: 100%	T:100%	T: 100%	T: 100%	By 2006, ensure that 100% of the active research projects have completed an independent R&D peer assessment of the project's scientific quality and mission relevance within 2–3 year cycle.

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
those projects found to be of merit) (Efficiency)											
Annual number of articles published in merit reviewed professional journals/ forums representing leadership in advancing science and technology knowledge (Annual Output)	R: 283 T: 200	R: 200 T: 200	R: 220 T: 200	R: 235 T: 200	T: 200	T: 200	T: 200	T: 200	T: 200	T: 200	Annually, achieve goal of 200 articles published in merit reviewed professional journals/forums representing leadership in advancing science and technology knowledge.

Detailed Justification

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Nonproliferation and Verification R&D O&M

- **Proliferation Detection** **216,857** **199, 699** **171,839**

  The Proliferation Detection (PD) program provides technical expertise and leadership toward the development of next-generation nuclear detection technologies and methods to detect foreign nuclear materials and weapons production. The PD program develops the tools, technologies, and techniques used to detect, locate, and analyze the global proliferation of nuclear weapons technology with special emphasis on technology to detect the illicit diversion of special nuclear materials.

  Additionally, the PD program provides developed and validated technical knowledge to U.S. Government acquisition programs and the U.S. industrial base to support national and homeland security missions. Technical advances, new proven methodologies, and improvements to capabilities are transferred to operational programs through technical partnerships including the development of special prototypes to assist major acquisition efforts. Partnerships with the industrial suppliers are often coordinated with user programs to facilitate successful outcomes. The PD program fosters long-term scientific innovation through sustained commitment to mission-focused technical areas that build "best-in-the-world" competence. In FY 2008, funding included $2,000,000 for the Nuclear Security Science and Policy Institute at Texas A&M, $1,000,000 for an offshore detection integrated system and $3,000,000 for the National Center for Bio Defense at George Mason University.

- **Homeland Security-Related Proliferation Detection [Non-Add]** **[50,000]** **[50,000]** **[50,000]**

  The PD program applies the unique skills and capabilities of researchers at the NNSA and DOE national laboratories and plants to support nonproliferation research and development requirements. The PD program also conducts fundamental research in fields such as radiation detection and materials science, which also support the Department of Homeland Security (DHS) and the national security community. The PD program collaborates with academia and federal research programs to develop real-world system solutions based on classified insights into national security issues.

- **Nuclear Detonation Detection** **130,352** **145,633** **125,461**

  The Nuclear Detonation Detection (NDD) program builds the Nation's operational treaty monitoring and Integrated Tactical Warning/Threat Assessment space sensors, conducts research and development to advance analytic forensic capabilities related to nuclear detonations, and produces and updates the regional geophysical datasets and analytical understanding to enable operation of the Nation's ground-based treaty monitoring networks. In FY 2008, included $1,500,000 for New England Research in White River Junction, Vermont, for the Caucasus seismic network.

  The satellite-based segment of the program builds the Global Burst Detector (GBD) and Space and Atmospheric Burst Reporting System (SABRS) payloads for detecting and reporting nuclear detonations. These payloads are launched on Global Positioning System (GPS) and missile

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010

warning replenishment satellites. In addition to building the payloads, the program supports the integration, initialization, and operation of these payloads. The NDD program supports the research, development, and engineering efforts to prepare next generation sensors. For FY 2010, production and delivery of GBD and SABRS payloads will continue at a pace to support timely Air Force launch of host satellites.

The ground-based segment of the NDD research program provides classified, focused, applied, and integrated research products, with appropriate testing, demonstration, and technical support for use in the U.S. National Data Center and U.S. Atomic Energy Detection System. Through a Memorandum of Understanding (MOU) with U.S. nuclear detonation detection agencies, NNSA provides the integrated geophysical models and nuclear event source models that enable global, regional, and specific site threat detection, reporting, and interpretation of nuclear events. These classified integrated research products are developed in part by research from open competition in coordination with the installation of seismic stations by monitoring agencies. The NDD program also conducts a limited amount of applied research and system support in non-seismic ground-based detection technologies to sustain user monitoring agencies.

The NDD forensics research program is new and conducts research, technology development, and related science to improve post-detonation technical nuclear forensic capabilities. This segment addresses both debris and prompt signatures from a nuclear detonation, including the modeling to predict signatures for collection planning, collection technology, measurement or counting, and evaluation. This segment also addresses the spectrum from enabling and basic research to prototype development and performance validation.

- **Supporting Activities** **7,668** **0** **0**

The Supporting Activities line has been discontinued. Crosscutting activities previously supported by this line are fully integrated into PD and NDD program budgets.

Total, Nonproliferation and Verification Research and Development O&M	**354,877**	**345,332**	**297,300**

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Construction			
▪ **06-D-180, Physical Sciences Facility, PNNL (PED)**	**0**	**0**	**0**
▪ **07-SC-05, Physical Sciences Facility, PNNL (Construction)**	**24,772**	**18,460**	**0**

The R&D program supports a joint effort with the DOE Office of Science and the Department of Homeland Security (DHS) to construct approximately 200,000 gross square feet of laboratories, offices, and facilities, known as the Physical Sciences Facility (PSF), on the Horn Rapids Triangle, at Pacific Northwest National Laboratory. Life extension upgrades to Building 325 in the Hanford 300 Area will be included as part of the second phase of the construction project. This effort will replace and/or extend existing research capabilities being displaced as a result of the closure and clean-up in the Hanford 300 Area. The Department's Office of Environmental Management must complete remediation in the 300 Area by 2015; therefore, transition from the 300 Area must be completed by February 2011. The project data sheet can be found within the Office of Science's request for the infrastructure program.

Total, Construction	**24,772**	**18,460**	**0**
Total, Nonproliferation and Verification Research and Development	**379,649**	**363,792**	**297,300**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Nonproliferation and Verification R&D O&M	
▪ **Proliferation Detection (PD)**	
The decrease is a result of DNN programmatic decisions related to the need to complete work in the Former Soviet Union (FSU), funds were shifted to other DNN programs.	–27,860
▪ **Nuclear Detonation – Detection (NDD)**	
The decrease is a result of DNN programmatic decisions related to the need to complete work in the FSU, funds were shifted to other DNN programs.	–20,172
Subtotal Funding Change, Nonproliferation Verification R&D O&M	**–48,032**
▪ **Construction (PNNL)**	
The project was fully funded in 2009, no further funding required.	–18,460
Total Funding Change, Nonproliferation Verification R&D	**–66,492**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	488	503	518
Capital Equipment	36,367	37,458	38,582
Total, Capital Equipment	**36,855**	**37,961**	**39,100**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	534	550	562	574
Capital Equipment	39,739	40,931	41,831	42,731
Total, Capital Equipment	**40,273**	**41,481**	**42,393**	**43,305**

Construction Projects[b]

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2008	FY 2009	FY 2010	Unappro-priated Balance
06-D-180, Physical Sciences Facility, PNNL, (PED), VL	27,486	12,870	0	0	0	0
07-SC-05, Physical Sciences Facility, PNNL, (Construction), VL	180,000–245,000	0	24,772	18,460	0	TBD
Total, Construction			**24,772**	**18,460**	**0**	**TBD**

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

[b] This is a joint project funded by two DOE organizations, the Office of Science (SC) and NNSA, and the Department of Homeland Security. This table reflects NNSA funding only, except for the TEC.

Nonproliferation and International Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Nonproliferation and International Security			
Dismantlement and Transparency	45,709	47,529	92,763
Global Security Engagement and Cooperation	50,912	44,076	50,708
International Regimes and Agreements	44,444	40,793	42,703
Treaties and Agreements	3,879	17,602	21,028
International Emergency Management Cooperation	5,049	0	0
Total, Nonproliferation and International Security	**149,993**	**150,000**	**207,202**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Nonproliferation and International Security				
Dismantlement and Transparency	58,869	56,816	58,294	59,915
Global Security Engagement and Cooperation	56,830	54,848	56,275	57,839
International Regimes and Agreements	48,648	46,952	48,173	49,512
Treaties and Agreements	6,541	6,313	6,477	6,657
International Emergency Management Cooperation	0	0	0	0
Total, Nonproliferation and International Security	**170,888**	**164,929**	**169,219**	**173,923**

Description

The Nonproliferation and International Security (NIS) mission is to prevent weapons of mass destruction (WMD) proliferation by states and non-state actors. In FY 2010 NIS will do this by providing technical and policy support for nonproliferation and associated treaties and agreements, domestic and international legal and regulatory controls, diplomatic and counter-proliferation initiatives, cooperation with foreign partners on export controls, safeguards, and security, and international nonproliferation organizations. Major program elements involve inter alia: (1) maintenance and improvement of international nonproliferation regimes, including the Nuclear Non-Proliferation Treaty, the system of International Atomic Energy Agency (IAEA) safeguards, multilateral supplier regimes, and bilateral nuclear cooperation agreements; (2) cooperation with foreign partners to improve national export controls, safeguards, and physical protection systems and to redirect WMD expertise; and (3) application of technology in support of verification, monitoring, and international nuclear safeguards.

Within the NIS program, four subprograms make unique contributions to Program Goal 2.2.41.00. These four subprograms are described below.

The Dismantlement and Transparency (D&T) subprogram provides policy and technical support for nonproliferation and arms control treaties and agreements that promote transparent WMD reductions; develops effective verification options for dismantlement of nuclear equipment, weapons and components; and develops monitoring equipment, technology and tools to ensure obligations of foreign

governments are being met. D&T will administer activities involving the incorporation of safeguards into facility designs and development of related verification tools and methods.

The Global Security Engagement and Cooperation (GSEC) subprogram supports implementation of United Nations Security Council Resolution (UNSCR) 1540 and the Global Initiative to Combat Nuclear Terrorism, by engaging in global cooperative efforts to strengthen nuclear infrastructure, safeguards and export control systems, and redirect WMD expertise in selected countries of concern to non-weapons related activities. GSEC will work with foreign partners to ensure their nuclear infrastructure and safeguards are consistent with nonproliferation norms.

The International Regimes and Agreements (IRA) subprogram provides policy and technical support to IAEA safeguards, multilateral supplier regimes, nuclear interdiction efforts, nonproliferation treaties and agreements, international physical protection activities designed to limit the spread of WMD and related items and technologies, and export control and interdiction activities. IRA will work with domestic and international partners on a reliable fuel supply concept, export controls for new nuclear technologies, and policies for enhanced physical protection and safeguards.

The Treaties and Agreements (TA) subprogram supports implementation of bilateral or multilateral, Presidential-directed or Congressionally-mandated nonproliferation and international security requirements stemming from high-level nonproliferation initiatives, agreements and treaties. Specifically, TA conducts policy and technical analysis on urgent national security issues, proliferation trends in regions of concern, and options to strengthen international mechanisms for preventing proliferation. TA also will coordinate all activities and funding for the Next Generation Safeguards Initiative (NGSI).

Major FY 2008 Achievements

Strengthen Regimes

- Concluded negotiations of 123 Agreements with India and Russia;
- Concluded Nuclear Suppliers Group (NSG)-India policy accommodation;
- Supported Hyde Act waiver legislation;
- Completed Operation McCall to repackage and remove 550 MT of uranium from Iraq;
- Reviewed approximately 2,900 foreign WMD/missile procurements for sanctionable activity or diplomatic/interdiction response;
- Reviewed 7,241 export licenses/requests for proliferation risk, recommending denial of 197;
- Brought on-line the Proliferation Trade Control Directory;
- Completed DOE actions to bring Additional Protocol into force by December 2008;
- Led five-state 'core group' to update IAEA INFCIRC/225;
- Recruited over 50 students through safeguards internships, and
- Partnered with 6 countries to develop safeguards systems concepts.

Expand Reach of Regimes

- Led interagency in UNSCR 1540 implementation spanning safeguards, export control, physical protection, and border security;
- Completed first-ever threat assessment of WMD expertise proliferation risk, providing comprehensive analytic basis to realign scientist engagement in Russia/Former Soviet Union (FSU);
- Agreed on interagency project review process for scientist engagement;
- Trained 273 officials on physical protection from 62 countries;

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Treaties and Agreements	**3,879**	**17,602**	**21,028**

The Treaties and Agreements Office supports implementation of President-directed or Congressionally mandated nonproliferation and international security requirements stemming from high-level nonproliferation initiatives, agreements and treaties. Specifically, the program conducts policy and technical analysis on urgent national security issues, proliferation trends in regions of concern, and options to strengthen international mechanisms for preventing proliferation. This includes funding research and engagement activities by non-governmental organizations and institutes of higher learning that support NNSA's mission and policy requirements. Examples of this work include analysis of regional nuclear fuel cycle growth and engagement of technical experts in a dialogue on nonproliferation infrastructure requirements for emerging and existing nuclear power programs. The program continues to provide for unexpected, unplanned responses to requirements of an immediate nature based on U.S. national security needs. Examples of unforeseen activities in the past have included: providing technical and policy support to U.S. delegations to the Six-Party Talks denuclearization and energy assistance working groups. Analysis of procurement associated with the emergence of proliferation networks; and dismantlement and removal of nuclear materials from clandestine WMD programs. In FY 2010, the program will coordinate activities and funding for all NIS NGSI activities aimed at strengthening international safeguards and revitalizing the U.S. technical base that supports them, and conduct 10-12 policy studies/analyses undertaken by National Laboratories, non-government organizations, or institutes of higher learning in support of the Department's implementation of high-level nonproliferation initiatives such as UNSCR 1540, the Global Initiative to Combat Nuclear Terrorism, and the Proliferation Security Initiative. In addition, the program will provide policy and technical analyses of and responses to emerging and immediate nonproliferation and counter-proliferation security issues including the global expansion of nuclear energy and evolution of the nuclear fuel cycle. The Treaties and Agreements Office will conduct work in the five main NGSI program areas to: (1) support U.S. safeguards policy development and work with international partners to strengthen the international safeguards system as an essential element of the global nuclear nonproliferation regime; (2) develop advanced safeguards system-level concepts, approaches, and assessment methodologies to enhance the effectiveness, efficiency and credibility of international safeguards; (3) develop and apply tools, technologies, and methods that optimize the effectiveness and efficiency of safeguards implementation; (4) attract and train a new generation of talent to rejuvenate the international safeguards human capital base; and (5) develop national infrastructures in countries that have nuclear power or credible plans for nuclear power.

International Emergency Management and Cooperation	**5,049**	**0**	**0**

Reflects implementation of the realignment of IEMC to Nuclear Counterterrorism Incident Response within Weapons Activities.

Total, Nonproliferation and International Security	**149,993**	**150,000**	**207,202**

- Conducted bilateral physical protection assessments in seven countries;
- Provided WMD awareness training for 1,511 officials in FY 2008 and assisted with 150 DHS and DoJ investigations;
- Conducted Commodity Identification Training in 31 countries;
- Trained over 1,000 foreign nationals in nuclear safeguards applications;
- Engaged with 14 countries, Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) and European Atomic Energy Community (EURATOM) on safeguards implementation and technology evaluation, and infrastructure for peaceful uses;
- Hosted 2 regional infrastructure workshops for countries interested in pursuing nuclear power
- Trained 300 foreign experts in safeguards, and
- Secured partnership between the National Nuclear Security Administration (NNSA) and the Department of Defense (DoD) on Middle East/South Asia border security.

Verify Nuclear Reductions/Programs
- Since 1995, monitored the conversion of a cumulative 345 metric tons (MT) of Russian HEU from weapons (~13,800 weapons) to LEU (30 MT/~1,200 weapons converted in FY 2008) and completed 24 HEU monitoring visits annually to four Russian uranium processing facilities;
- Supported Six Party Talks and performed and monitored agreed disablement activities at nuclear facilities in North Korea;
- Monitored shutdown reactors and ~9 MT of Russian weapons-grade plutonium under Plutonium Production Reactor Agreement (PPRA);
- Developed several new safeguards technologies and analytical methodologies;
- Surveyed safeguards technology development in USG, industry, academia, and
- Seeded technology program with sufficient funds to explore advanced safeguards applications.

Conduct Policy Analysis
- Managed 22 policy analysis projects undertaken by national laboratories, non-governmental organizations (NGOs), and institutes of higher learning;
- Participated in and/or organized Track II engagement activities;
- Completed five-year NGSI Program Plan;
- Convened NGSI International Meeting on September 11-12, 2008, and
- Completed draft Nonproliferation Impact Assessment for Global Nuclear Energy Partnership (GNEP).

Major Outyear Priorities and Assumptions

NIS outyear funding profile totals $678,959,000 and will be allocated to place increasing emphasis on the NGSI, a program designed to strengthen IAEA safeguards and revitalize the U.S. technical base that supports them. The program will make generational improvements in safeguards technology, recruit expertise, conduct political and technical analyses of issues and challenges, assist in implementing safeguards, and collaborate with foreign partners.

NGSI complements related NIS priorities to reduce proliferation risks associated with growing international interest in the use of nuclear power. IAEA safeguards must be credible and effective in deterring the diversion of nuclear materials and reassuring states that peaceful-use commitments are upheld. Another priority is the development and implementation of reliable fuel services as an alternative to the further spread of enrichment and reprocessing capabilities. NIS will work with other Departmental elements and U.S. agencies to promote such concepts. Assuring that states adopt

safeguards and security measures in line with the highest international nonproliferation standards is still another priority.

A third major priority area in FY 2010 involves the disablement, dismantlement, and verification of nuclear programs in North Korea. NIS oversees operational teams on the ground in North Korea conducting denuclearization activities and participates in the Six-Party Talks framework. In FY 2010, NIS will provide technical expertise required to complete the agreed disablement actions at the North Korean Yongbyon nuclear facilities, continue the collection of data to verify the North Korean declaration of its nuclear program elements, support the Six-Party Talks Working Groups, and, if appropriate, undertake planning for scientist engagement opportunities to support proliferation risk reduction. Given uncertainty in timing of the Six-Party Talks progress, FY 2010 request will only partially fund dismantlement of Yongbyon nuclear facilities, and will not fund on the ground scientist engagement activities.

The NIS funding profile also will provide for activities that prevent and counter WMD proliferation, including continued support for U.S. efforts to address proliferation by Iran, North Korea, and proliferation networks, implement nuclear arms reduction and associated agreements, strengthen international nonproliferation agreements and standards, implement statutory export control and safeguards requirements, encourage global adherence to and implementation of international nonproliferation requirements, and support high-priority diplomatic initiatives.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program 2.2.41.00 (Nonproliferation and International Security)											
Cumulative metric tons of Russian weapons-usable HEU that U.S. experts have confirmed as permanently eliminated from the Russian stockpile under the HEU Purchase Agreement (Long-term Outcome)	R: 249 T: 249	R: 285 T: 282	R: 315 T: 312	R: 345 T: 342	T: 372	T: 402	T: 432	T: 462	T: 492	T: 500	By 2014, confirm that 500 metric tons of weapons-usable HEU has been permanently eliminated from the Russian stockpile.
Cumulative percentage of non-USG (private sector and foreign government) project funding contributions obtained relative to cumulative USG GIPP funding contributions (Efficiency)	R: 65% T : 65%	R: 70% T: 70%	R: 75% T: 75%	R: 80% T: 78%	T: 81%	T: 82%	T: 85%	T: 88%	T; 90%	T; 91%	By 2019, obtain non-USG funding contributions equal to 100% of the cumulative USG GIPP funding contributions.
Cumulative number of countries where International Nonproliferation Export Control Program (INECP) is engaged that have export control systems that meet critical requirements (Long-term Outcome)	N/A	R: 5 T: 5	R: 7 T: 7	R: 8 T: 8	T: 9	T: 11	T: 12	T: 14	T: 16	T: 19	The critical requirements are: (1) have control lists consistent with the weapons of mass destruction (WMD) regimes; (2) initiated outreach to producers of WMD-related commodities; (3) developed links between technical experts and license reviewers and front-line enforcement officers; and (4) have begun customization of WMD Commodity Identification Training materials and technical guides.
Annual number of safeguards systems deployed and used in international regimes and other countries that address an identified safeguards deficiency (Annual Output)	N/A	R: 2 T: 2	R: 3 T: 3	R: 3 T: 3	T: 3	T: 4	T: 4	T: 4	T: 5	T: 5	Safeguards systems are defined as a piece of equipment used for the timely detection of the diversion of nuclear material or information from its declared purpose for the manufacture of nuclear weapons or other explosive devices, including instruments for measuring quantities and forms of materials, surveillance techniques, and other methods of accounting.

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Annual number of special monitoring visits completed to the four Russian processing facilities that downblend highly enriched uranium (HEU) to low-enriched uranium to monitor and confirm the permanent elimination of 30 metric tons of Russian HEU from the Russian weapons stockpile under the HEU Purchase Agreement. (Annual Output)	N/A	R: 24 T: 24	R: 24 T: 24	R: 24 T: 24	T: 24	T: 24	T: 24	T: 24	T: 24	T: 6	The special monitoring visits as stipulated under the HEU Purchase Agreement provide the U.S. Government with the means to monitor and confirm that the HEU being downblended at Russian processing facilities is taken from Russian weapons. The current agreement will expire at the end of calendar year 2014.

Detailed Justification

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Dismantlement and Transparency	**45,709**	**47,529**	**92,763**

The Office of Dismantlement and Transparency reduces or eliminates proliferation concerns by promoting transparent arms reductions, including negotiating, implementing and strengthening U.S. nonproliferation and arms control treaties and agreements, and developing the required verification technologies and approaches and associated transparency-monitoring tools. This Office is responsible for the following program elements: U.S.-Russian Federation Plutonium Production Reactor Agreement (PPRA); U.S.-Russian Federation Highly Enriched Uranium (HEU) Purchase Agreement; the Chemical Weapons Convention (CWC); nuclear testing limitations; policy development for the Strategic Arms Reduction Treaty (START) and the Treaty of Moscow; future nuclear initiatives; and activities under Next Generation Safeguards Initiative (NGSI) to develop advanced safeguards equipment and technologies for the U.S. Government and in coordination with the International Atomic Energy Agency (IAEA). This Office will promote the incorporation of safeguards into facility designs and design new related verification tools and methods.

- **Warhead Dismantlement and Fissile Material Transparency** **13,790** **15,883** **18,132**

  The Warhead Dismantlement and Fissile Material Transparency (WDT) Program develops technologies and approaches for transparent reductions and monitoring of nuclear warheads and fissile material, and supports U.S. Government policy development and implementation for potential future transparency initiatives and the following current treaties and agreements: START, the Treaty of Moscow, the Threshold Test Ban Treaty; Limited Test Ban Treaty, the CWC, and the PPRA. The WDT program is responsible for all monitoring and policy aspects of PPRA implementation, and works on behalf of the Secretary of Energy to fulfill DOE's responsibilities as the U.S. Government's Executive Agent for the Agreement. In addition, the WDT program provides DOE/NNSA support to activities of international organizations to develop an International Monitoring System for detecting nuclear explosions worldwide, and serves as the DOE/NNSA focal point for U.S. interagency policy development and international negotiations and activities associated with the potential ratification and entry-into-force of the Comprehensive Nuclear Test Ban Treaty (CTBT). The WDT program also serves as the DOE/NNSA focal point for U.S. Interagency policy development and international negotiations associated with implementation of the START and Moscow Treaties, and the development of a START follow-on agreement with Russia. This work includes the development and assessment of advanced technical concepts for warhead and fissile material transparency, monitoring and dismantlement verification.

- **Nuclear Noncompliance Verification** **17,486** **14,983** **56,865**

  The Nuclear Noncompliance Verification (NNV) Program provides advanced technology applications to verify declared nuclear activities, detect undeclared nuclear materials and activities, and support the verifiable dismantlement of nuclear programs in countries of proliferation concern. Program activities are closely coordinated with the work of the NNSA Nonproliferation and

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Verification R&D program. In addition, the NNV Program oversees DOE support for the U.S. Support Program (USSP) to IAEA Safeguards, which develops equipment and technologies and provides inspector training and technical consultant support to the IAEA Department of Safeguards. USSP assistance aims to increase the overall effectiveness and efficiency of IAEA safeguards and strengthen IAEA capabilities to detect undeclared nuclear activities. Other specially-designed tools and technologies will also be developed to address unique proliferation threats. In FY 2010, the NNV Program will conduct agreed disablement, dismantlement and verification activities of nuclear programs in North Korea and support the Six-Party Talks and related Working Groups. The NNV program also will complete the development of three verification tools, technologies, or analyses, and accelerate planning and readiness to support verifiable dismantlement of nuclear programs in other countries of proliferation concern. In supporting NGSI through a joint roadmap to develop enabling technologies for international safeguards, these efforts will need to involve significant coordination with the IAEA, particularly in the area of new and emerging proliferation threats.

- **HEU Transparency Implementation** **14,433** **16,663** **17,766**

  The HEU Transparency Program annually monitors the conversion of 30 MT of Russian HEU into low enriched uranium (LEU), to provide confidence that the LEU purchased under the 1993 HEU Purchase Agreement is in fact derived from dismantled Russian nuclear weapons. Reciprocal transparency monitoring visits are conducted to ensure the nonproliferation objectives of the Agreement are met. The Program also provides support to Transparency Review Committee negotiating sessions with Russian counterparts to update transparency procedures as new facilities and processes are introduced, and to resolve issues related to program implementation. In FY 2010, the HEU Transparency Program will complete 24 monitoring visits, monitor the conversion of 30 MT of Russian HEU to LEU for a cumulative total of 402 MT downblended and verifiably eliminated, support a Russian monitoring visit to the United States, and continue to archive and analyze Russian transparency data.

Global Security Engagement and Cooperation **50,912** **44,076** **50,708**

The Office of Global Security Engagement and Cooperation (GSEC) supports implementation of the Global Initiative to Combat Nuclear Terrorism, UNSCR 1540, and the international nonproliferation regime by engaging in global cooperative efforts to assist partner states in implementing and enforcing nonproliferation obligations and in detecting and deterring proliferators seeking weapons of mass destruction (WMD). Activities include helping states strengthen nuclear safeguards and infrastructure requirements to prevent the diversion of nuclear materials; strengthening national WMD export control systems at the governmental and industry level; developing technically effective approaches to enhance regional security and prevent proliferation in volatile areas; and helping to transition and engage WMD scientific communities in high-risk nations. This office is responsible for the following program elements; Confidence Building Measures Program; International Nuclear Safeguards and Engagement Program; International Nonproliferation Export Control Program; Cooperative Border Security Program; and Global Initiatives for Proliferation Prevention. GSEC will work with foreign partners to ensure their nuclear infrastructure and safeguards are consistent with nonproliferation norms.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
▪ **Confidence Building Measures**	**1,300**	**1,000**	**1,122**

The Confidence-Building Measures (CBMS) program combats the WMD proliferation threat by developing and implementing technical collaborations and training in regions of proliferation concern. Specific activities include international cooperation on technical nuclear forensics and seismic research in the Middle East. In FY 2010, the program intends to expand international cooperation in nuclear forensics to Uzbekistan, Mongolia and South Africa, and to continue engagement with the high priority regions of Central Asia and the Middle East.

▪ **International Nuclear Safeguards and Engagement Program**	**9,144**	**12,418**	**14,123**

The International Nuclear Safeguards and Engagement Program (INSEP) support U.S. and international nonproliferation objectives by strengthening the international safeguards regime. INSEP will work with foreign partners to develop next generation safeguards technologies that detect illicit diversion or transfer of nuclear material throughout the nuclear fuel cycle and to strengthen indigenous safeguards systems. INSEP also works with countries that have expressed a credible interest in nuclear power to establish the infrastructure necessary to sustain a nuclear power program that is safe, secure, and consistent with nonproliferation obligations.

▪ **International Nonproliferation Export Control**[a]	**8,108**	**12,939**	**12,794**

The International Nonproliferation Export Control Program (INECP) works to strengthen national systems of export control, focusing efforts in countries and regions of proliferation concern. INECP has two primary program components; domestic training and international cooperation. Domestic training is aimed at providing specialized, commodity-specific information to other U.S. Government agencies, including DHS/Customs Border Protection (CBP), DHS/Immigration and Customs Enforcement (ICE), and DOJ. INECP also works with established and emerging supplier states, high traffic trans-shipment countries, and transit countries with geographic proximity to suppliers, tailoring its approach to each country based on three export control system elements: licensing, enterprise compliance, and enforcement/interdiction. In FY 2010, INECP will continue to focus on Commodity Identification Training, which teaches customs agents and others to recognize WMD-sensitive goods, but will also place greater emphasis on industry outreach activities. INECP will capitalize on regional outreach opportunities and leverage INECP-trained experts in regional best practices engagements, capacity building within regional structures and international organizations (EU, MERCOSUR, IAEA, OPCW, UNSCR 1540), and trilateral initiatives; bolster core bilateral engagements in licensing, industry compliance and enforcement functional areas; and support to the U.S. law enforcement community, specifically outbound interdiction technical support and multiagency export enforcement collaboration.

[a] In FY 2010, the International Nonproliferation Export Control activities become stand alone to differentiate its distinct mission from the Cooperative Border Security Program. Funds for INECP only are reflected for FY 2008, 2009 and 2010.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
▪ **Cooperative Border Security Program**[a]	**1,402**	**2,311**	**2,669**

The Cooperative Border Security Program (CBSP) engages bilaterally and multilaterally in the Middle East and North Africa to strengthen national and regional border security systems with regards to nonproliferation and counterterrorism. CBSP focuses on overall capacity-building and emphasizes comprehensive systems analysis and equipment and technology testing and evaluation. A key aspect of the CBSP capacity building approach is the establishment of strategic partnerships, within and outside the U.S. Government, to field a range of subject matter expertise and engagements in target countries and regions. For example, CBSP works closely with the Cooperative Defense Program operated out of the Department of Defense's Central Command to provide assistance in developing border control systems in the Middle East. CBSP's principal international partnership is with the Cooperative Monitoring Center (CMC) in Amman, Jordan. CBSP has enabled CMC-Amman to become a regional focal point through which NNSA and numerous other USG and international organizations are providing training on a variety of nonproliferation, counterterrorism and security topics, including salient resource management issues.

▪ **Global Initiatives for Proliferation Prevention**	**30,958**	**15,408**	**20,000**

The Global Initiatives for Proliferation Prevention (GIPP) helps to prevent the illicit transfer of WMD expertise through cooperative engagement. In FY 2010, GIPP will continue scientist engagement activities in Russia, the former Soviet Union (FSU), and Iraq. In Russia, the program will focus exclusively on high priority institutes in line with an interagency risk assessment and will reduce the overall level of engagement while increasing the level of effort in other FSU countries. Iraq activities will remain steady, having ramped down Libya projects in FY 2009. The program is positioned to deploy scientist engagement activities in Democratic People's Republic of Korea (DPRK), or other emerging priorities, if and when appropriate.

International Regimes and Agreements	**44,444**	**40,793**	**42,703**

The Office of International Regimes and Agreements (IRA) raises WMD proliferation barriers and strengthens international nonproliferation regimes and agreements. IRA negotiates, implements and strengthens multilateral supplier regimes, conventions, treaties, guidelines, and other institutions that limit the spread of nuclear and other WMD and their supporting technologies and systems for delivery. IRA also is responsible for implementing statutory requirements for the regulation of U.S. exports and the application of international safeguards in the U.S., and cooperates with other U.S. agencies to support the interdiction of WMD items and enforcement of export controls. In support of the NGSI and U.S. efforts to manage the global expansion of nuclear power, in FY 2010, IRA will focus on policy and analytical support to IAEA safeguards and strengthening the pool of U.S. experts to support IAEA safeguards; promote concepts for reliable fuel services to discourage the spread of sensitive fuel cycle technologies; support completion of improved international physical protection standards; and provide

[a] In FY 2010, the Cooperative Border Security activities become stand alone to differentiate its distinct mission. Funds for this activity are now reflected under Cooperative Border Security section.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010

technical support for diplomatic efforts relating to the Nuclear Non-Proliferation Treaty, a Fissile Material Cut-Off Treaty, and associated agreements.

- **Interdiction/Enforcement** **3,000** **3,926** **4,136**

  The Interdiction Technical Analysis Group (ITAG) provides critical technical support, real-time "reach-back" capabilities, and policy guidance to USG interdiction groups and activities. These working groups address cases that require diplomatic approaches to foreign governments on suspected transfers of nuclear, missile, or chemical/biological related commodities or technologies. IRA's interdiction and enforcement support activities include participation in USG Interagency Interdiction Working Groups, support for the Proliferation Security Initiative and U.S. export control enforcement programs, and implementation of U.S. nonproliferation sanctions. IRA provides technical support to U.S. Government diplomacy within the Nuclear Suppliers Group (NSG) and the Nuclear Exporters (Zangger) Committee, the Missile Technology Control Regime (MTCR), the Australia Group (AG), and the Wassenaar Arrangement, and provides analyses of WMD proliferation risk and technology needs of countries of proliferation concern (choke-points). In FY 2010, the program will enhance DOE National Laboratory technical support to the USG interdiction groups; increase coverage of WMD technologies in the technical reference guides; enhance the global Proliferation Trade Control Database to provide identification of foreign manufacturers and vendors globally; and provide assessments of WMD-related items, proliferation program choke-points and international trade flows to determine interdiction opportunities. Also, in FY 2010, the program will lead the U.S. effort to conduct a fundamental review of the NSG control list to ensure it adequately reflects the latest technology developments in the nuclear fuel cycle and dual-use technology.

- **Global Regimes**[a] **2,626** **3,221** **7,628**

  The Global Regimes Program develops policy and provides program oversight on nuclear nonproliferation and international security issues, and nuclear treaties and agreements including support for issues pertaining to the NPT; multilateral regimes and groups, the United Nations Conference on Disarmament. Issues include negotiations on a Fissile Material Cut-Off Treaty; the IAEA Technical Cooperation (TC) Program that facilitates access by IAEA Member States to the peaceful use of nuclear energy; bilateral Agreements for Cooperation in the Peaceful Uses of Nuclear Energy (under Atomic Energy Act Section 123); and the Biological Weapons and Toxins Convention (BWC), and development of reliable nuclear fuel service concepts. The Global Regimes Program also assists in the formulation of internationally-agreed mechanisms to ensure that states have reliable access to the nuclear fuel market, providing policy and technical expertise to these agreements. Moreover, the program ensures that the development and implementation of such arrangements meet U.S. national security and foreign policy objectives, and can be implemented at DOE/NNSA National Laboratories and other facilities. In FY 2010, the Program will provide legislatively-mandated technical assistance to negotiations supporting Agreements for Cooperation and their administrative arrangements, represent DOE/NNSA in potential negotiations on a Fissile

[a] In FY 2010, Global Regimes includes the Export Control Multilateral activities to streamline functions.

Material Cut-Off Treaty (FMCT) and all NPT meetings and consultations, represent DOE/NNSA at the BWC Intersession Working Group meetings, and lead the development of assured fuel supply concepts and activities. The Global Regimes program will support the following activities associated with preparation and negotiation of a "verifiable" FMCT: (1) review of DOE/NNSA interests and equities to determine whether any potential verification regime under an FMCT can be applied to DOE/NNSA sites while adequately protecting vital national security equities and (2) provision of technical support to the negotiating team.

- **Nuclear Safeguards Program** **19,257** **12,391** **12,946**

The Nuclear Safeguards Program develops and implements DOE and international safeguards policies and approaches through several efforts in support of U.S. and departmental priorities, principally the NGSI. Safeguards Policy efforts develop safeguards policy positions in the interagency process, and support the development of policy at the IAEA through the Director General's Standing Advisory Group on Safeguards Implementation. Voluntary Offer Agreement (VOA) Safeguards implementation meets existing treaty obligations through the application of safeguards at selected U.S. sites and maintains the DOE portion of the Eligible Facilities List. The Program's Additional Protocol (AP) implementation addresses issues and concerns arising within the DOE complex regarding obligations under the U.S. AP. The Safeguards program will develop new approaches and safeguards concepts to improve the effectiveness and efficiency of IAEA safeguards verification, and works to reinvigorate the human capital aspects of the safeguards regime which will be essential to combat proliferation in view of a rapidly growing and dynamic international fuel cycle. In FY 2010, the Program will focus on revising and implementing recommendations associated with the Hexapartite Safeguards Protocol negotiation process and investigating new safeguards systems for novel enrichment technologies (Silex and the Areva centrifuge plant). The Program also will provide technical analysis and support for international safeguards and nonproliferation policy, including the assessments necessary to support regulatory and governance processes and conduct proliferation risk assessments of new technologies and facilities including those related to the global expansion of nuclear power.

- **Export Control Licensing Operations** **10,728** **11,686** **12,136**

IRA has statutory requirements to support domestic export licensing operations. This includes reviewing and providing advice on U.S. export license applications for dual-use items (equipment, materials, technology and software) and munitions that could have uses in the development of nuclear, chemical, and biological weapons and their delivery systems. The Licensing Operations Program also administers Secretarial Authorizations for the transfer of U.S. nuclear technology, as provided for under the Atomic Energy Act and the implementing regulations in 10 CFR Part 810. In addition, the Program performs technical and nonproliferation reviews of DOE sensitive software code requests and DOE programs/projects involving foreign nationals. For these purposes, the Program maintains the Proliferation Information Network System (PINS), an automated, classified system for the review and evaluation of export requests and technology transfers to foreign nationals, as well as providing for the development and coordination of technical and nonproliferation studies on sensitive technology and related policy. The Program also operates and maintains a state-of-the-art Nuclear Suppliers Group (NSG) Information Sharing System (NISS), a

secure internet-based system that allows NSG members to share real-time information on license denials to prevent proliferation, and provides related technical support to regime members. The Licensing Operation Program draws on unparalleled technical expertise to support control list changes in multilateral export control regimes and ensure consistency with U.S. export control regulations. In FY 2010, the Program will develop and implement a similar system for the Australia Group, the chemical-biological weapons-related multilateral export control regime.

In cooperation with the Department of Homeland Security, the program also provides export enforcement training on WMD-related technologies to USG enforcement agencies; performs technical reviews of suspicious shipments for proliferation risk; shares technical proliferation assessments to identify export control vulnerabilities and critical technology needs of countries of proliferation concern; and provides access to the Proliferation Trade Control Directory (PTCD) for identification of manufacturers and brokers of export-controlled goods to aid in inspection and interdiction of illegal shipments. The Program participates in weekly USG interagency export licensing groups; interacts closely with the interagency on dual-use license application reviews; and maintains, with the Department of Commerce, the "Nuclear Referral List," which identifies nuclear dual-use items requiring special attention. It also supports a wide range of activities to promote export control compliance across the DOE complex and its contractors.

- **Export Control Multilateral** **3,929** **3,880** **0**

  In FY 2010 Export Control Multilateral activities have been moved to Global Regimes to streamline functions.

- **International Nuclear Security** **4,904** **5,689** **5,857**

  The International Nuclear Security Program strengthens global physical security norms and practices by conducting bilateral physical protection assessments, as required under the 1978 Nuclear Nonproliferation Act, to verify that foreign sites holding U.S. nuclear material are adequately protected. The Program supports these objectives by assisting the IAEA in its execution of International Physical Protection Advisory Service (IPPAS) and other missions; conducting physical protection training for foreign officials; and aiding in the design and implementation of new physical protection guidelines in conjunction with the IAEA and other Member States. The Program also works with the IAEA and national physical protection officials to help states implement physical protection requirements, such as those required in the recently amended Convention on the Physical Protection of Nuclear Materials (CPPNM). The program also is the lead for the U.S. Government in developing and negotiating guidelines for the global transfers of HEU. The program coordinates with the Office of Global Threat Reduction to provide assessments to assist with future physical protection upgrades. In FY 2010, the Program will complete negotiations and implement the new international standards for physical protection, published as IAEA INFCIRC/225. In support of the global expansion of nuclear energy, the Program will work with the United States and GNEP partners to ensure that physical protection standards for new fuel and facilities are consistent with internationally agreed-upon physical protection standards and recommendations codified in the CPPNM and INFCIRC/225.

Explanation of Funding Change

	FY 2010 vs. FY 2009 ($000)
▪ **Dismantlement and Transparency**	
Increase to expand technology development supporting nonproliferation activities, including verification activities in North Korea, and in other countries of concern, support for the Next Generation Safeguards Initiative; and to meet monitoring activities under the U.S.-Russian Highly Enriched Uranium (HEU) Purchase Agreement and future arms control agreements.	+45,234
▪ **Global Security Engagement and Cooperation (GSEC)**	
Funding increase reflects expansion of safeguards and infrastructure development work, and trade control outreach, related to the Next Generation Safeguards Initiative and UN Security Council Resolution 1540, particularly cooperative efforts with countries in the Middle East and Asia.	+6,632
▪ **International Regimes and Agreements**	
Funding increase will support an increase in interdiction review cases, and implementation of the International Atomic Energy Agency (IAEA) Additional Protocol within the DOE complex.	+1,910
▪ **Treaties and Agreements**	
Funding increase reflects distribution of funding for the Next Generation Safeguards Initiative activities.	+3,426
Total Funding Change, Nonproliferation and International Security	**+57,202**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	0	0	0
Capital Equipment	93	95	97
Total, Capital Equipment	**93**	**95**	**97**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	0	0	0	0
Capital Equipment	99	101	103	105
Total, Capital Equipment	**99**	**101**	**103**	**105**

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

International Nuclear Materials Protection and Cooperation

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
International Nuclear Materials Protection and Cooperation			
Navy Complex	20,339	22,666	33,880
Strategic Rocket Forces/12th Main Directorate	125,885	34,417	48,646
Rosatom Weapons Complex	66,343	56,070	71,517
Civilian Nuclear Sites	63,416	35,542	43,481
Material Consolidation and Conversion	19,608	21,560	13,611
National Programs and Sustainability	71,270	54,901	68,469
Second Line of Defense	257,621	174,844	272,696
Total, International Nuclear Materials Protection and Cooperation	**624,482**	**400,000**	**552,300**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
International Nuclear Materials Protection and Cooperation				
Navy Complex	42,408	31,764	0	0
Strategic Rocket Forces/12th Main Directorate	44,964	37,831	0	0
Rosatom Weapons Complex	103,497	52,000	0	0
Civilian Nuclear Sites	24,785	18,502	0	0
Material Consolidation and Conversion	14,165	14,306	14,627	14,627
National Programs and Sustainability	62,148	61,967	39,006	39,006
Second Line of Defense	291,433	354,429	508,157	504,859
Total, International Nuclear Materials Protection and Cooperation	**583,400**	**570,799**	**561,790**	**558,492**

Description

The International Nuclear Materials Protection and Cooperation (INMP&C) program prevents nuclear terrorism by working in Russia and other regions of concern to (1) secure and eliminate vulnerable nuclear weapons and weapons-usable material; and (2) install detection equipment at international crossing points and Megaports to prevent and detect the illicit transfer of nuclear material.

Within INMP&C, seven subprograms each make unique contributions to GPRA Unit Program Goal 2.2.42.00 which supports one of the Administration's top priorities to lead a global effort to secure all nuclear weapons materials at vulnerable sites within four years– the most effective way to prevent terrorists from acquiring a nuclear bomb.

In February 2005, the Bratislava Initiative resulted, for the first time, in a comprehensive plan for the cooperation on security upgrades of Russian nuclear facilities at Rosatom and Ministry of Defense sites and cooperation in the areas of nuclear regulatory development, sustainability, secure transportation, Materials Protection Control and Accounting (MPC&A) expertise training, and protective force equipment. Workscope as of February 2005 was completed at the end of 2008. However, a number of

important areas/buildings have been added to the scope of joint work since February 2005. The MPC&A upgrades at most of these additional areas/buildings will be completed in 2010, while some work scope will continue through 2012.

The Navy Complex program element improves security of Russian Navy warhead and weapons usable material by installing improved security systems at Russian Navy nuclear warhead sites, Russian Navy HEU fuel storage facilities (fresh and damaged fuel), and shipyards where nuclear materials are present. There are 50 sites, 39 Russian Navy nuclear warhead sites and 11 Russian Navy fuel/nuclear material storage sites. The program also improves security systems at checkpoints near upgraded sites, the Personnel Reliability Program (PRP) for the Russian Ministry of Defense (MoD), and sustainability activities consisting of training and site-level maintenance support for upgraded MoD sites.

The Strategic Rocket Forces (SRF)/12th Main Directorate program element improves security of Russian warheads maintained by the Russian Ministry of Defense by installing improved security systems at Strategic Rocket Forces and 12th Main Directorate nuclear warhead sites. A total of 25 SRF sites (at 11 bases) and nine 12th Main Directorate sites have received MPC&A upgrades.

The Rosatom Weapons Complex program element improves the security of nuclear weapons and materials at seven Rosatom nuclear weapons, uranium enrichment, and material processing/storage sites, which are located within the closed cities of the Rosatom Weapons complex. The Civilian Nuclear Sites program improves security at 32 civilian nuclear sites (19 Russian and 13 sites outside of Russia).

The Material Consolidation and Conversion (MCC) program element reduces the complexity and the long-term costs of securing weapons-usable nuclear material in Russia. The MCC program is designed to significantly reduce the proliferation risk associated with weapons-usable nuclear materials by consolidating excess, non-weapons highly enriched uranium (HEU) and plutonium into fewer, more secure locations. The MCC program achieves further risk reduction by downblending weapons-usable HEU to non-weapons-usable low enriched uranium (LEU).

The National Programs and Sustainability element assists Russia and other partner countries in developing and maintaining a nation-wide MPC&A infrastructure, thereby ensuring that U.S.-funded security upgrades and an effective infrastructure can be sustained by Russia. Activities include developing and revising regulations, developing inspection capabilities, training, education and regional support, site sustainability planning, nuclear security culture activities, and secure transportation and protective force improvements.

The Second Line of Defense (SLD) program strengthens the capability of foreign governments to deter, detect, and interdict illicit trafficking in nuclear and other radioactive materials across international borders and through the global maritime shipping system.

The SLD Core Program installs radiation detection equipment at borders, airports, and strategic ports in Russia, other former Soviet Union states, Eastern Europe and other key countries. Under the Core Program, detection equipment is deployed to scan commercial cargo, passenger vehicles, and pedestrians regardless of direction or destination. Up to approximately 600 sites in 32 countries have been identified to receive detection equipment installations under the Core Program, including approximately 170 sites in Russia.

The SLD Megaports Initiative provides radiation detection equipment to key international seaports to screen cargo containers for nuclear and other radioactive materials regardless of the container destination. The Megaports Initiative also cooperates closely with the U.S. Department of Homeland Security's Bureau of Customs and Border Protection (CBP) to support the Container Security Initiative (CSI) and to implement the Secure Freight Initiative (SFI) at international ports. The primary goal of the Megaports Initiative is to scan as much container traffic for radiation as possible, (including imports, exports, and transshipments) regardless of destination and with minimal impact to port operations. Under this initiative, NNSA plans to implement this program in up to 100 international seaports by the end of 2015. Implementation at any given port in a country is contingent upon the agreement/invitation of the government in that country. NNSA is currently engaged in negotiations with governments in Europe, Asia the Middle East, Latin America, the Caribbean and Africa for the implementation of the Megaports Initiative. NNSA continues to engage with governments and commercial terminal operators in those countries where it is important to implement the Megaports Initiative. The SLD Program also provides training in the use of the equipment to appropriate law enforcement officials and initial system sustainability support and maintenance fees as the host government assumes full operational responsibility for the equipment.

Major FY 2008 Achievements:

- Completed MPC&A upgrades at a cumulative total of 65 of 73 Russian warhead sites;
- Completed MPC&A upgrades at a cumulative total of 181 of 229 buildings containing weapons-usable material in Russia and NIS/Baltics;
- Downblended a total of 10.7 metric tons (MT) of HEU to LEU;
- Enacted 11 additional MPC&A regulations in Russia;
- Placed a cumulative total of 92 MPC&A regulations in the development phase for Russia and other FSU countries, and
- Installed radiation detection equipment at a cumulative total of 232 SLD sites and 19 Megaports.

Major Outyear Priorities and Assumptions

The outyear projections of the INMP&C program totals $2,274,481,000. The Program supports efforts to secure and eliminate vulnerable nuclear weapons and weapons-usable materials in Russia and other countries of concern and efforts to prevent and detect the illicit transfer of nuclear material. Near level funding during the outyears reflects the completion of MPC&A upgrades to warhead and material sites in Russia and the transition to greater Russian cost sharing on sustainability activities. Funding for the SLD program increases as the program is expanded to include additional land border sites and Megaports in targeted countries of strategic interest and in countries where NNSA is working with its Department of Homeland Security counterparts to implement requirements of the "Implementing Recommendations of the 9/11 Commission Act of 2007" for 100 percent integrated scanning of U.S.-bound container cargo at foreign seaports.

To meet the NNSA strategic long-term goal of Nuclear Nonproliferation the INMP&C program completed MPC&A upgrades in Russia at a total of 73 warhead sites at the end of calendar year 2008 and plans to complete approximately 229 buildings containing weapons usable nuclear material by the end of 2012; blend-down a total of approximately 17 MT of HEU by the end of 2015; and install radiation detection equipment at approximately 600 border around the world and at approximately 100 ports of interest in approximately 40 countries by the end of 2015. These results will directly

support the goal of Nuclear Nonproliferation by providing a first line of defense (securing warheads and weapons usable nuclear materials at their source), and a second line of defense (preventing and detecting the illicit transfer of nuclear materials).

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.42.00 (International Nuclear Materials Protection and Cooperation)											
Cumulative number of buildings containing weapons-usable material with completed MPC&A upgrades (Long-term Output)	N/A	N/A	N/A	R: 181 T: 191	T: 210	T: 218	T: 218	T: 229	N/A	N/A	By December 2012, complete MPC&A upgrades on approximately 229 buildings containing weapons-usable nuclear material including Post Bratislava work-scope.
Cumulative number of buildings with weapons-usable material secured (Long-term Output)	R: 150 T: 150	R: 175 T: 175	R: 193 T: 190	N/A	N/A	N/A	N/A	N/A	N/A	N/A	By September 2007, secured (rapid or comprehensive upgrades complete) 193 buildings containing weapons-usable nuclear material. This measure is replaced as a result of the FY 2007 OMB PART review.
Cumulative number of warhead sites with completed MPC&A upgrades (Long-term Output)	R: 47 T: 47	R: 50[a] T: 53	R: 64 T: 58	R:65 T: 64	T: 73	N/A	N/A	N/A	N/A	N/A	Completed MPC&A upgrades at 73 warhead sites in December 2008.
Cumulative metric tons of Highly-Enriched Uranium converted to Low-Enriched Uranium (Long-term Outcome)	R: 7.1 T: 7.5	R: 8.4 T: 8.6	R: 9.8 T: 9.5	R:10.7 T: 11.0	T: 11.7	T: 12.6	T:13.5	T: 14.4	T: 15.3	T: 16.2	By December 2015, convert 17 MTs of HEU to LEU.
Cumulative number of MPC&A regulations in the development phase for Russian and other FSU countries (Long-term Output)	N/A	N/A	N/A	N/A	T : 165	T : 194	T: 195	T: 203	T: 226	T: 249	By the end of FY 2014, place a total of approximately 249 MPC&A regulations in the development phase for the Russian and other FSU countries.

[a] The number previously presented in the PAR was inaccurately reported as 53.

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Cumulative number of Second Line of Defense (SLD) sites with nuclear detection equipment installed (Cumulative number of Megaports completed) (Long-term Output)	R: 87 (4) T: 98 (5)	R: 104 (6) T: 114 (10)	R: 162 (12) T: 173 (12)	R: 232 (19) T: 224 (23)	T: 312 (28)	T: 369 (43)	T: 421 (51)	T: 497 (63)	T: 587 (78)	T: 677 (93)	By December 2015, install radiation detection equipment at approximately 600 border crossing sites and 100 Mega ports (700 total SLD sites) (assuming no expansion of program sites).
Cumulative number of Megaports with host country cost-sharing, resulting in decreased cost to the US program (Estimated cost sharing value) (Efficiency)	N/A	N/A	N/A	R:3/$14M T:5/$24M	T: 8/$40M	T: 12/$66M	T: 14/$73M	T: 18/$87M	T: 24/$101M	T: 25/$115	By the end of FY 2014, complete host country cost sharing on approximately 25 Megaports for an estimated value of $115M.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Navy Complex	**20,339**	**22,666**	**33,880**

The Navy Complex program element was established to improve security of Russian Navy warhead and weapons usable material by installing improved security systems at Russian Navy nuclear warhead sites, Russian Navy Highly Enriched Uranium (HEU) fuel storage facilities (fresh and damaged fuel), and shipyards where nuclear materials are present. These sites include a total of 50 sites: 39 Russian Navy nuclear warhead sites and 11 Russian Navy fuel and other nuclear material storage sites.

Comprehensive upgrades were completed at all 11 Navy fuel and other nuclear material storage sites in FY 2004. No new work is planned at those sites; however, sustainability and training efforts will continue for 7 of these sites to ensure that the equipment provided is effective in protecting the material. In addition, IMP&C will support additional MPC&A upgrades focused on addressing both outsider and insider threats at several of these sites.

The IMP&C completed MPC&A upgrades at the final 2 Russian Navy nuclear warhead sites in FY 2006 (increasing the total Navy warhead sites secured with either completed rapid and/or comprehensive upgrades) to 39 sites. In FY 2010, IMP&C will provide sustainability support such as training and site level maintenance of installed MPC&A upgrades to 12 of these 39 sites which meet interagency requirements for such support; nuclear detection at closed city entrances; accelerated support for personnel reliability programs; replacement of outdated security equipment; and additional upgrades for training and maintenance centers to ensure sustainability of upgrades.

Strategic Rocket Forces/12th Main Directorate	**125,885**	**34,417**	**48,646**

The Strategic Rocket Forces (SRF)/12th Main Directorate program element improves security of Russian warheads by installing improved MPC&A systems at RF Strategic Rocket Forces and 12th Main Directorate nuclear warhead sites. These sites include 25 SRF sites (at 11 bases) and nine 12th Main Directorate sites have been approved by the U.S. Government for MPC&A upgrades. The process for working with the SRF and the 12th Main Directorate is based upon the refined process developed for working with the Russian Navy, which include upgrades designs driven by vulnerability assessments (VAs), a rapid upgrades and/or a comprehensive upgrades phase, and a sustainability program, which assures the systems will remain effective after the installation of upgrades is complete.

In FY 2010, IMP&C plans to provide sustainability support for 23 SRF and three 12th Main Directorate sites including: development of training curriculum and courses; construction and support of site-level training centers; and infrastructure development, including performance assurance and procedure development. IMP&C will also provide additional MPC&A upgrades to some SRF sites to provide additional protection from the theft and or diversion of warheads from these sites.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Rosatom Weapons Complex	**66,343**	**56,070**	**71,517**

The Rosatom Weapons Complex program element improves the security of nuclear weapons and materials at seven Rosatom nuclear weapons, uranium enrichment, and material processing/storage sites, which are located within the closed cities of the Rosatom Weapons Complex. The Rosatom Weapons Complex element primarily focuses on upgrades at 7 large sites with many nuclear material storage and handling locations. The goal of this joint cooperative program is to provide protection against both internal and external theft scenarios at areas that handle highly attractive material.

In FY 2010, IMP&C will continue to fund selective new upgrades to buildings/areas at these sites that were added to the cooperation after the Bratislava Summit, including nuclear detection on closed city borders; expanded MPC&A upgrades at some buildings to address both outsider and insider threats; Rosatom protective force training center development; improvements to site-wide material measurement and accounting practices; and internal site nuclear transport security. The majority of this work is expected to be located at the All Russian Scientific Research Institute of Experimental Physics (A-16) and the Mayak Production Association.

Significant efforts will be directed towards implementing a comprehensive MPC&A sustainability effort at all sites to include efforts to improve MPC&A management infrastructures, training, procedural development and adherence, system maintenance and repair, performance testing, configuration management, and operational cost analysis. Where necessary, the program will also finance the replacement of systems that were upgraded early in the cooperation and are at the end of their operational lifecycle.

Funding also supports continued MPC&A activities outside of Russia, including security upgrades in Belarus, sustainability activities in Kazakhstan, Ukraine, Belarus and Uzbekistan and engagement with the International Atomic Energy Agency to promote best practices related to nuclear material control and accounting and sustainability. Funding will also be allocated to increase engagement with India on nuclear material security best practices.

Civilian Nuclear Sites	**63,416**	**35,542**	**43,481**

The Civilian Nuclear Sites program element improves security at 32 civilian nuclear sites (19 Russian and 13 sites outside of Russia). The basic MPC&A upgrade objective is to employ a cost-effective, graded approach with an initial focus on installing upgrades for the most highly attractive nuclear material at each site. Rapid MPC&A upgrades are installed to mitigate the immediate risk of theft and diversion while longer term, more comprehensive MPC&A upgrades are designed, installed and placed into operation. Following completion of initial rapid and comprehensive site upgrades, U.S. funding continues at a reduced level to help foster site capabilities to operate and maintain installed security systems, supports replacement of equipment and may support additional security enhancements, e.g., perimeter upgrades, as warranted. This program element will cover such support for those sites with completed MPC&A comprehensive upgrades.

In FY 2010, IMP&C plans to provide sustainability support to 18 civilian nuclear sites with completed MPC&A upgrades including: support for training, procedures, maintenance, equipment repair, critical spare parts, and performance testing and other activities to these sites in order to ensure the

sustainability of those upgrades and support additional MPC&A upgrades focused on addressing both outsider and insider threats within Civilian Nuclear sites.

In addition, in FY 2010, IMP&C plans to continue cooperation with countries outside of Russia and the Former Soviet States to increase MPC&A awareness and to provide assistance to protect weapons usable materials when appropriate. This includes engagement with China on modern nuclear material security methodologies and best practices. Planned activities generally include training, technical exchanges, and consultations on how security at nuclear material locations may be improved. With some partners, it may be appropriate to support security upgrades for sites with weapons usable nuclear materials which are most vulnerable to theft and/or diversion. This MPC&A assistance is expected to significantly reduce the risk of theft and/or diversion of weapons usable materials by those seeking to produce nuclear weapons for use in potential acts of terrorism.

Material Consolidation and Conversion	**19,608**	**21,560**	**13,611**

The Material Consolidation and Conversion (MCC) program element reduces the complexity and the long-term costs of securing weapons-usable nuclear material. The MCC project is designed to significantly reduce the proliferation risk associated with weapons-usable nuclear materials by consolidating excess, non-weapons HEU and plutonium into fewer, more secure locations. This approach can decrease the number of attractive theft targets and the equipment and personnel costs associated with securing such material. MCC also converts weapons-usable special nuclear material (SNM) to a less proliferation attractive form. By the end of 2015, it is planned that the MCC project will convert approximately 17 MT of HEU to LEU.

In FY 2010, IMP&C plans to continue to implement the MPC&A strategy to simplify the nuclear security situation in Russia by converting attractive SNM to a less proliferant attractive form (e.g., HEU to LEU) and to consolidate material to fewer sites and fewer buildings where possible. The program is expecting to convert an additional .9 MT of the total 17 MT of HEU to LEU, (for a cumulative total converted of 12.6 MT).

National Programs and Sustainability	**71,270**	**54,901**	**68,469**

The National Programs and Sustainability element assists Russia and other partner countries in developing and maintaining a nation-wide MPC&A infrastructure, thereby ensuring that U.S.-funded security upgrades and an effective infrastructure can be sustained by Russia. Projects include developing and revising regulations, developing inspection capabilities, training, education and regional support, site sustainability planning, nuclear security culture activities, and secure transportation and protective force improvements. These projects develop the necessary MPC&A infrastructure for sustaining long-term MPC&A operations in Russia and other partner countries as well as the conditions by which U.S. technical and financial support can be transitioned to the Russian Federation.

In FY 2010, IMP&C will accelerate projects to assist Russia and other partner countries in establishing the necessary MPC&A support infrastructure to sustain effective MPC&A operations in the long term. Since a re-baseline was established in 2005, the program is working to develop or revise 198 MPC&A regulations for the Russian Federation and Ukraine to support sustainable MPC&A operations. In

(dollars in thousands)

FY 2008	FY 2009	FY 2010

FY 2010, a cumulative total of 194 MPC&A regulations will be in the development phase, with a total of 249 regulations in the development phase between FY 2009 and FY 2014. A regulatory analysis or the Russian Ministry of Defense was completed in 2007; and work to develop and revise regulations will continue; and 23 advanced Rostekhnadzor inspection exercises/Rosatom monitoring inspections and self-inspections will be conducted in the areas of physical protection and material control and accounting. The program will sustain (repair, maintain and replace if necessary) existing railcars and trucks to provide additional physical security protection for nuclear material transportation security.

IMP&C will assist the Russian Federation in improving the security of weapons-usable nuclear material at high risk of insider theft or diversion. This will be done by helping to support a sustainable and effective measurement-based Material Control and Accountability (MC&A) program. In FY 2010; six MC&A measurement methodologies will be developed for approximately 12 sites and 600 reference material standards will be developed for MC&A equipment calibration and operation. The program will also evaluate and provide updated command and control communications systems at Rosatom sites to improve response times of protective forces to potential threats.

IMP&C will continue to operate and maintain three regional technical support facilities to provide equipment repair, maintenance, calibration assistance, operations assistance, configuration control, warranty service, spare parts inventories, and training for critical MPC&A systems and components; and continue to develop Russian MPC&A training, infrastructure curricula and support provisions of MPC&A courses. In FY 2010: 22 physical protection classes with 400 participants, and 40 material control and accounting classes with 600 participants will be conducted; eight students will graduate from the Masters Graduate Program at the Moscow Engineering Physics Institute, and another 15 students will graduate from the Institute's Engineering Degree Program; and Tomsk Polytechnic University will graduate its second class of 15 students from their Engineering Degree Program in February 2010.

IMP&C will also assist the Russian sites in achieving long-term effective operation of their MPC&A programs by assisting sites to establish dedicated MPC&A organizations, and develop site MPC&A management plans, operating procedures, human resource programs, operational cost analysis and performance test plans. The program will also work to bolster the nuclear security culture in Russia through various security culture enhancement efforts.

In addition, IMP&C will continue implementation of an MPC&A sustainability and transition strategy to achieve the goal of fully transitioning operations and maintenance of MPC&A upgrades to full Russian responsibility by working with the Russian Federation to develop the capabilities they need to maintain the safeguards and security of their weapons usable nuclear material.

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Second Line of Defense	**257,621**	**174,844**	**272,696**
▪ **Core Program**	**119,120**	**71,917**	**78,432**

The Second Line of Defense (SLD) Core Program installs radiation detection equipment at borders, airports, and strategic ports in Russia, other former Soviet Union states, Eastern Europe and other key countries. The SLD Core Program also provides training and technical support for appropriate law enforcement officials and initial system sustainability support as the host government assumes operational responsibility for the equipment. The program selects sites to be addressed, through a site prioritization and selection methodology so as to effectively plan and utilize program resources.

In FY 2010, the SLD Core program plans to install radiation detection equipment at an additional 42 foreign sites in Azerbaijan, Estonia, Georgia, Kazakhstan, Lithuania, Latvia, Romania, Bulgaria, Hungry, Russia, Ukraine, Kyrgyzstan, Poland, Mongolia, Turkey, Turkmenistan and Mexico increasing the total non-Megaport sites with completed installations to 326. Training will be provided in equipment maintenance and alarm response to law enforcement personnel in these countries. The SLD Core program plans to continue to provide mobile detection and stationary detection capability at points internal to borders of countries of strategic interest. The SLD Core program provides sustainability support in the form of maintenance and/or repair of equipment, training, and/or technical collaboration and support for radiation detection systems at up to 250 sites in countries where the SLD Core Program has installed such equipment, including Russia, Azerbaijan, Armenia, Austria, Estonia, Greece, Latvia, Lithuania, Mongolia, Kazakhstan, Kyrgyzstan, Romania, Turkmenistan, Slovakia, Slovenia, Romania, Georgia and Ukraine. Additionally, the program will continue to maintain equipment installed by the U.S. Department of Defense in Uzbekistan. In addition to ongoing activities to implement the SLD Core program in countries of strategic importance, efforts to deploy radiation detection technologies at key land border crossings, airports, and seaports in support of various United Nations Security Council Resolutions will continue.

▪ **Megaports**	**138,501**	**102,927**	**194,264**

The SLD Megaports Initiative is pursuing cooperation with international partners to deploy and equip key ports with radiation detection equipment and to provide training to appropriate law enforcement officials, in order to provide them the technical means to detect, deter and interdict illicit trafficking in nuclear and other radioactive materials. The ports of interest to NNSA have been identified based upon a risk-based approach to guide implementation priorities considering factors, such as container volume to the U.S., routing criteria, regional threat, strategic location, and traffic flow characteristics to guide the implementation priorities.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

This program is closely coordinated and complements the Department of Homeland Security's (DHS) Bureau of Customs and Border Protection's Container Security Initiative (CSI) and with DHS's Secure Freight Initiative (SFI), introduced on December 7, 2006. NNSA efforts under the Megaports Initiative also support implementation of new requirements in the "Implementing Recommendations of the 9/11 Commission Act of 2007," which calls for the integrated scanning of 100% of U.S.-bound container cargo at foreign seaports. The Megaports program is also planning to provide a single radiation portal monitor (RPM) in close proximity to the non-intrusive imaging (NII) system at CSI ports to allow for the integration of RPM alarm data with the NII images.

By adding radiation detection capabilities at seaports, NNSA will be able to screen container cargo for nuclear and radioactive materials that could be used in a weapon of mass destruction or a radiological dispersal device (RDD) (dirty bomb) against the US, the host country and our allies. Under SFI, NNSA will continue to work with DHS to provide the integrated scanning of containers bound for the U.S. with radiation detection equipment (provided by NNSA) and non-intrusive imaging equipment (provided by DHS) and the transmission of integrated data from the equipment to U.S. teams both in-country and in the U.S.

In FY 2010, the program plans to complete installations at 15 additional Megaports (increasing the number of completed ports to 43). This involves providing site surveys, engineering assessments, radiation detection equipment design procurement and installation. Sustainability support including equipment, maintenance, system checkups and diagnostics and supplemental training and technical collaboration will be provided for 28 of the sites which have completed installations. In addition, NNSA will continue to work with DHS and other NNSA components to test new technologies that may be used to scan transshipped containers, including mobile technologies and crane based technologies. NNSA will continue to pursue cooperation with international partners interested in participating in the Megaports initiative.

Total, International Nuclear Materials Protection and Cooperation	**624,482**	**400,000**	**552,300**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
▪ **Navy Complex**	
Increase reflects additional support for the security of Russian Navy warhead sites, including nuclear detection at closed city entrances; accelerated support for personnel reliability programs; and sustainability of installed MPC&A upgrades.	+11,214
▪ **Strategic Rocket Forces/12th Main Directorate**	
Increase reflects additional MPC&A upgrades to selected SRF sites and design and construction of the Abromavo counterterrorism training center.	+14,229
▪ **Rosatom Weapons Complex**	
Increase reflects selected new or additional MPC&A upgrades at Rosatom Weapons Complex sites added after the Bratislava Agreement and the replacement and retrofit of MPC&A equipment at the end of its service life.	+15,447
▪ **Civilian Nuclear Sites**	
Increase reflects additional MPC&A upgrades and addition MPC&A support for countries outside of Russia and the Former Soviet States.	+7,939
▪ **Material Consolidation and Conversion**	
Decrease projects a lower projected availability of excess HEU to be downblended to LEU.	-7,949
▪ **National Programs and Sustainability**	
Increase reflects the additional regulations to be placed in the development phase in FY 2010 necessary to meet the 2013 date for transfer of sustainability responsibility to the Russian Federation and to perform additional regulatory gap analysis related to sustainability.	+13,568
▪ **Second Line of Defense**	
Increase reflects additional sustainability support for sites in the Core program with completed installations of radiation detection equipment and an increase of 6 additional ports to be completed in FY 2010 verses FY 2009 in the Megaports program.	+97,852
Total Funding Change, International Nuclear Materials Protection and Cooperation	**+152,300**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	0	0	0
Capital Equipment	2,275	2,325	2,376
Total, Capital Equipment	**2,275**	**2,325**	**2,376**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	0	0	0	0
Capital Equipment	2,428	2,481	2,536	2,592
Total, Capital Equipment	**2,428**	**2,481**	**2,536**	**2,592**

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on actual FY 2008 obligations.

Elimination of Weapons-Grade Plutonium Production

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Elimination of Weapons-Grade Plutonium Production (EWGPP)			
Seversk Plutonium Production Elimination (SPPEP)	19,400	0	0
Zheleznogorsk Plutonium Production Elimination (ZPPEP)	159,140	139,282	22,507
Crosscutting and Technical Support Activities	1,400	2,017	2,000
Funds from International Contributions	250	0	0
Total, Elimination of Weapons-Grade Plutonium Production (EWGPP)	**180,190**	**141,299**	**24,507**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Elimination of Weapons-Grade Plutonium Production				
Seversk Plutonium Production Elimination	0	0	0	0
Zheleznogorsk Plutonium Production Elimination	0	0	0	0
Crosscutting and Technical Support Activities	0	0	0	0
Total, Elimination of Weapons-Grade Plutonium Production	0	0	0	0

Description

The Elimination of Weapons-Grade Plutonium Production (EWGPP) program enables the Russian Federation to permanently cease production of weapons-grade plutonium by replacing the heat and electricity produced by the plutonium-producing reactors allowing the reactors to be shut down.

The EWGPP program achieves a major U.S. non-proliferation policy objective by permanently halting weapons-grade plutonium production in Russia. Within the EWGPP program, three subprograms make unique contributions to GPRA Unit Program Goal 2.2.40.00.

The Seversk Plutonium Production Elimination Project subprogram enabled the shutdown of two of the last three weapons-grade plutonium production reactors by providing heat and electricity through refurbishment of an existing 1950s fossil-fueled facility. The two reactors at Seversk were shut down more than six months early (April and June 2008). The program received Critical Decision (CD)-4 Approval on September 26, 2008, effectively terminating the project. The remaining activities to expend the full U.S. commitment of $285,000,000 to the Russian Federation will continue through first quarter in FY 2010.

The Zheleznogorsk Plutonium Production Elimination Project subprogram will enable the shutdown of the last weapons-grade plutonium production reactor by constructing a replacement fossil-fueled facility.

The Crosscutting and Technical Support Activities subprogram provides resources for crosscutting efforts, such as the Reactor Shutdown Project, International Participation coordination, and other various program technical support activities.

The Reactor Shutdown Project ensures the Russian Federation (RF) shuts down the three weapons-grade plutonium production reactors as fossil fuel plants are constructed. Reactors ADE-4 and ADE-5 at Seversk were shut down more than six months ahead of schedule, and the RF has approved the shutdown schedule for Reactor ADE-2 at Zheleznogorsk.

Major Outyear Priorities and Assumptions

FY 2010 is the final year of funding for the EWGPP program. The program will be complete in FY 2011 when the last of the three reactors is shut down.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.40.00 (Elimination of Weapons-Grade Plutonium Production)											
Cumulative percentage of progress towards refurbishing a fossil plant in Seversk facilitating the shut down of two weapons-grade plutonium production reactors (Long-term Output)	R: 25.7% T: 32.0%	R: 50% T: 55%	R: 73% T: 72%	R: 87% T: 90%	T: 100%	N/A	N/A	N/A	N/A	N/A	By December 2008, complete refurbishment of fossil plant at Seversk.
Annual Costs Performance Index (CPI) for Seversk construction as measured by the ratio of budgeted costs of work performed to actual costs of work performed. (Efficiency)	R: 1.0 T: 1.0	R: 1.0 T: 1.0	R: 1.0 T: 1.0	R: 1.0 T: 1.0	N/A	N/A	N/A	N/A	N/A	N/A	Annually, complete work at or below budgeted cost (CPI greater than 1.0 indicates under budget).
Cumulative percentage of progress towards constructing a fossil plant in Zheleznogorsk facilitating the shut down of one weapons-grade plutonium production reactor. (Long-term Output)	R: 4.9% T: 4.8%	R: 11.4% T: 9.6%	R: 34.0% T: 33.6%	R: 46% T: 50%	T: 70.0%	T: 98.0%	T: 100%	N/A	N/A	N/A	By December 2010, complete construction of fossil plant at Zheleznogorsk.
Annual Costs Performance Index (CPI) for Zheleznogorsk construction as measured by the ratio of budgeted costs of work performed to actual costs of work performed. (Efficiency) [a]	N/A	N/A	N/A	N/A	T: 1.0	T: 1.0	N/A	N/A	N/A	N/A	Annually, complete work at or below budgeted cost (CPI greater than 1.0 indicates under budget).
Annual percentage of Russian weapons-grade plutonium production capability eliminated from its 2003 baseline of 1.2 MT/yr (0.4 MT per reactor per year) (Long-term Outcome)	N/A	N/A	N/A	N/A	T: 67%	T: 67%	T 100%	N/A	N/A	N/A	Eliminate 100% of Russian weapons-grade plutonium production capability by 2011.

[a] Two reactors shutdown in April/June 2008 and the remaining reactor shutdown will take place no later than December 2010.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Seversk Plutonium Production Elimination	**19,400**	**0**	**0**

CD-4 was approved on September 26, 2008, effectively successfully completing the project. In FY 2009, remaining activities, including final documentation and outstanding invoices, will complete post CD-4 in the closeout phase.

Zheleznogorsk Plutonium Production Elimination	**159,140**	**139,282**	**22,507**

In FY 2009, the U.S. contractor will continue to provide oversight for the project, while monitoring schedule and cost compliance from the Moscow-based program management office and the field office in the Krasnoyarsk region of southern Siberia. The U.S. contractor will continue to track Russian progress against the mutually agreed to quid pro quo reactor shutdown plan. By the end of FY 2009, the project will be 70 percent complete.

In FY 2010, the project will complete and commission four boilers from Startup Areas One and Two, coal plant construction and all supporting infrastructure to supply hot water to Zheleznogorsk. By the end of FY 2010, the project will be 98.4 percent complete.

  International Participation Contributions, Zheleznogorsk Plutonium Production Elimination | **250** | **0** | **0** |

  In FY 2008, the Department received $250,000 from the Republic of Korea for the Zheleznogorsk project. The international contributions of $31.2 million received to date have been integrated into the project, per international agreements for the elimination of plutonium in the Russian Federation, and are part of the approved baseline.

  The Department will continue to submit an Annual Report to the Congressional Defense Committees on the receipt and utilization of international funds received, as required by Section 3151 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003.

Crosscutting and Technical Support Activities	**1,400**	**2,017**	**2,000**

The crosscutting and technical support activities funding provides the program with internal and external project reviews, preparation of external reporting (including reports to Congress), contract administration, intergovernmental contract negotiation support, quality assurance, foreign logistical support, and program financial management support. The crosscutting and technical support activities also provide the necessary supporting technical and engineering expertise for independent analyses of management processes, crosscutting of project management systems, and support to the Moscow Resident Officer for Construction. Other major crosscutting efforts include reactor shutdown planning and supporting close out activities of the Seversk Project and associated post shutdown requirements for reactors ADE-4 and ADE-5, under the quid pro quo agreements with the Russian Federation. A detailed reactor shutdown plan for each site has been developed, which provides linkage between construction milestones for the power plant and shutdown of the plutonium-producing reactors.

Total, Elimination of Weapons-Grade Plutonium Production	**180,190**	**141,299**	**24,507**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Zheleznogorsk Plutonium Production Elimination	
Decrease reflects the ramp down of work as the project is completed.	-116,775
Crosscutting and Technical Support Activities	
Decrease reflects close out activities of the Seversk and Zheleznogorsk projects.	-17
Total Funding Change, Elimination of Weapons-Grade Plutonium Production	**-116,792**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	0	0	0
Capital Equipment	0	0	0
Total, Capital Equipment	**0**	**0**	**0**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	0	0	0	0
Capital Equipment	0	0	0	0
Total, Capital Equipment	**0**	**0**	**0**	**0**

Fissile Materials Disposition

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Fissile Materials Disposition (FMD)			
U.S. Surplus Fissile Materials Disposition			
Operations and Maintenance (O&M)			
U.S. Plutonium Disposition	0	0	90,896
U.S. Uranium Disposition	66,235	39,274	34,691
Supporting Activities	0	1,500	1,075
Subtotal, O&M	**66,235**	**40,774**	**126,662**
Construction	0	0	574,238
Total, U.S. Surplus FMD	**66,235**	**40,774**	**700,900**
Russian Surplus FMD			
Russian Materials Disposition	0	1,000	1,000
Total, Fissile Materials Disposition	**66,235**	**41,774**	**701,900**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Fissile Materials Disposition				
U.S. Surplus Fissile Materials Disposition (O&M)	139,203	181,113	344,686	350,944
Construction	532,788	398,099	327,457	109,661
Russian Surplus Fissile Materials Disposition	1,000	1,000	1,000	1,000
Total, Fissile Materials Disposition	**672,991**	**580,212**	**673,143**	**461,605**

Description

The program goal is to eliminate surplus Russian plutonium and surplus United States (U.S.) plutonium and highly enriched uranium.

Within the Fissile Materials Disposition (FMD) Program, two subprograms each make unique contributions to GPRA Unit Program Goal 2.2.43.00.

Plutonium Disposition – The goal of the U.S. Plutonium Disposition program is disposition of at least 34 metric tons (MT) of U.S. surplus weapon-grade plutonium in accordance with the September 2000 U.S. - Russia Plutonium Management and Disposition Agreement (PMDA). Two key U.S. facilities will be built at the Savannah River Site (SRS) in South Carolina by the FMD program to accomplish this goal: a Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF) to fabricate plutonium oxide into MOX fuel for irradiation in domestic reactors, and a Waste Solidification Building (WSB) to handle waste from the MFFF and pit disassembly operations. The mission-related Pit Disassembly and Conversion Facility (PDCF) was transferred from the FMD program to the NNSA's Office of Defense Programs on March 30, 2008, consistent with the appropriation of FY 2008 funding for the PDCF. The MFFF is under construction and is scheduled to start operations to produce MOX fuel in October 2016. The WSB is under construction and is scheduled to start operations in September 2013 to support MOX cold-start activities

The goal of the FMD Russian Plutonium Disposition program is to work with Russia to dispose of 34 MT of Russian surplus weapon-grade plutonium. DOE and its Russian counterpart agency, Rosatom, agreed on a financially and technically credible program to dispose of Russian surplus weapon-grade plutonium in November 2007. The Russian program now relies on the use of fast reactors for plutonium disposition (the existing BN-600 and the BN-800 currently under construction) operating under certain nonproliferation restrictions. The Russians continue to support research and development of the Gas Turbine-Modular Helium Reactor (GT-MHR) on a parity basis with the U.S., which could also be used for disposition should that technology become operational during the disposition period. The U.S. and Russian governments are currently negotiating amendments to the 2000 PMDA to reflect this revised program. It is expected that a Protocol to the 2000 PMDA containing these amendments will be signed by the beginning of FY 2010 and that Russia could begin disposing of its surplus plutonium in the 2013-2014 timeframe--several years before the United States. Agreement with Russia on the Protocol involves three key issues: $400 million U.S. contribution, use of Russian fast reactors for plutonium disposition and monitoring and inspection programs.

Uranium Disposition – NNSA is also responsible for disposing of U.S. highly enriched uranium (HEU) that has been declared surplus to defense needs primarily by down-blending it into low enriched uranium (LEU). Once down-blended, the material can no longer be used for nuclear weapons. To the extent practical, the program seeks to recover the economic value of the material by using the resulting LEU as nuclear reactor fuel. Five separate disposition activities (H-Canyon Enriched Uranium (EU) Disposition Project, Off-Specification HEU Blend-Down, the 12 MT HEU Blend-Down project, Reliable Fuel Supply, and Research Reactor Fuel) are currently being implemented and additional projects are being planned. HEU disposition projects are expected to result in eventual payments to the Treasury of over one billion dollars for LEU purchases, based on current uranium market prices.

Significant Program Shifts

The FY 2008 Consolidated Appropriations Act (P.L. 110-161) moved funding for the Mixed Oxide Fuel Fabrication Facility (MFFF) from the Defense Nuclear Nonproliferation Fissile Materials Disposition program to DOE's Nuclear Energy program and funding for the Pit Disassembly and Conversion Facility (PDCF)/Waste Solidification Building (WSB) projects to NNSA's Weapons Activities, Directed Stockpile Work program. In addition, the report accompanying the 2008 Consolidated Appropriations Act, 2008 transferred management responsibility for these projects to the Offices of Nuclear Energy and Defense Programs, respectively. The Department's General Counsel has determined that the committee report's "transfer" provision did not have the force of law because the Secretary's authority to remove program responsibility from NNSA entities is limited by the NNSA Act. Therefore, the funding for the MOX project in FY 2010 is being requested in the Fissile Materials Disposition program, as it has been in the past. In addition, the NNSA Administrator transferred the management and execution of the WSB back to Defense Nuclear Nonproliferation from Defense Programs in July 2008, since the WSB must be available to receive waste water and other test fluids generated during cold start-up testing of the MOX facility in the 2013 timeframe.

Major FY 2008 Achievements

In FY 2008, NNSA completed 100 percent of the MOX facility foundation and installed over 40,000 cubic yards of reinforced concrete and over 6,000 tons of rebar. Construction of 6 of the 16 auxiliary MOX buildings was also completed. NNSA completed 100 percent of the design of the Waste Solidification Building. The WSB cost and schedule baseline underwent an external independent review

and the project team prepared the necessary documentation to obtain Critical Decision (CD)-2 (performance baseline) and CD-3 (start of construction) in the fall of 2008.

NNSA completed down-blending of the 100th MT of surplus U.S. HEU in FY 2008. The HEU Disposition program began down-blending 17.4 MT of surplus U.S. HEU for the Reliable Fuel Supply, and enough LEU for a commercial reactor core reload is already available. The Savannah River Site completed the disposition of another 17 MT of surplus U.S. HEU under the TVA Off-Spec agreement.

In the first quarter of FY 2008, the Secretary of Energy and the Director of Rosatom signed a joint statement for a technically and financially credible Russian plutonium disposition plan. In May 2008, the United States and Russia began negotiations on amendments to the September 2000 Plutonium Management and Disposition Agreement (PMDA) to reflect the revised program.

Major Out Year Priorities and Assumptions

The funding profile for the U.S. Uranium Disposition program is declining in the future because the large tranches of surplus HEU have already been disposed of or are in the pipeline, and the future supply of HEU for disposition (from dismantlements and Naval Reactors rejects) will be at a much lower rate. The HEU program depends on the continuing ability to pay for commercial down-blending services by transferring title to a portion of the resulting low-enriched uranium to the contractors (barter arrangement).

If approved by the two governments, the U.S. will pledge $400 million for plutonium disposition in Russia, subject to the availability of appropriated funds. The balance of the approximately $1.6 - $2 billion remaining cost would be borne by Russia and non-U.S. government contributions, if available. Congress had appropriated $200 million in a FY 1999 Supplemental Appropriation to support Russian plutonium disposition; however, this amount was rescinded in 2008. DOE plans to request the $400 million in future appropriations once the Protocol to the amended September 2000 Agreement, related liability provisions, and a monitoring and inspection regime are completed. U.S. funds would be contributed over time according to a schedule still to be negotiated for key milestones such as: removing the plutonium breeding blanket from the BN-600, converting the BN-600 to a hybrid core capable of irradiating MOX fuel, fuel reload analysis/design to support the irradiation of weapon-grade MOX fuel in the BN-800, fabrication of BN-600 and BN-800 MOX fuel containing Russian weapon-grade plutonium, and payment per metric ton of disposed Russian weapons plutonium.

Failure of the U.S. to execute the Protocol with Russia and contribute $400 million would likely cause Russia to delay efforts to dispose of its weapon-grade plutonium and to disregard agreed-upon nonproliferation conditions (e.g., that the plutonium breeding blanket be completely removed from the BN-600 and that the BN-800 burn more plutonium than it produces).

Annual Performance Results and Targets

(R = Results; T= Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.43.00 (Fissile Materials Disposition)											
Cumulative percentage of the design, construction, and cold start-up activities completed for the Mixed Oxide (MOX) Fuel Fabrication Facility (Long-term Output)[a]	R:13% T: 13%	R: 17% T: 17%	R: 24% T: 24%	R: 30% T: 30%	T: 39%	T: 49%	T: 62%	T: 77%	T:89%	T:96%	By 2016, complete design, construction, and cold start-up activities for the MOX Facility.
Cumulative percentage of the design, construction, and cold start-up activities completed for the Waste Solidification Building (WSB) (Long-term Output)[b]	N/A	N/A	N/A	N/A	T:30%	T: 55%	T: 75%	T:90%	T:100%	N/A	By 2013, complete design, construction, and cold start-up activities for the WSB.
Cumulative amount of surplus U.S. highly enriched uranium (HEU) down-blended or shipped for down-blending (Efficiency)	R: 82 MT T: 82 MT	R: 93 MT T: 93 MT	R: 103MT T: 103MT	R: 117 MT T: 112 MT	T: 125 MT	T: 130 MT	T: 133 MT	T: 136 MT	T: 138 MT	T: 140 MT	By 2050, complete disposition of 217 MT of surplus HEU

[a] Prior to FY 2007, annual MOX performance was derived by multiplying the percent complete for a project phase (R&D, design, construction) by an associated weighting factor. Starting in FY 2007, percent completion is measured by the earned value expressed as a percent of the Total Project Cost (TPC).

[b] The WSB targets are based on a TPC of $345M; percent completion is measured by the earned value expressed as a percent of the TPC.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
U.S. Surplus Fissile Materials Disposition (O&M)	**66,235**	**40,774**	**126,662**
▪ **U.S. Plutonium Disposition**	**0**	**0**	**90,896**
• **MOX Irradiation, Feedstock, and Transportation**	**0**	**0**	**26,454**

Funding supports activities that are not part of the line item construction project such as irradiation of lead fuel assemblies. In FY 2010, work will continue to: manage MOX fuel assembly transportation and packaging activities; procure commercial nuclear reactor services to irradiate MOX fuel; perform Post Irradiation Examinations (PIE) of irradiated MOX fuel lead assemblies; and characterize feed materials for MFFF. Depleted uranium blend-stock services for MOX fuel fabrication will be procured.

FY 2009 funding of $16,900,000 was provided within Other Defense Activities (ODA).

• **MOX Other Project Cost Activities (OPC)**	**0**	**0**	**56,466**

MOX Other Project Cost Activities support project activities such as management oversight, design reviews, facility start-up testing and licensing. FY 2010 activities include continuing management oversight and licensing for construction activities as well as planning for start-up and operation of the MFFF. OPC will also fund the design and testing support of the aqueous polishing process contained within the MOX project, environmental permitting, and the monitoring and support for the Nuclear Regulatory Commission (NRC) review of the operating licensing application for the MFFF.

Funding of $47,068,000 was provided in FY 2008 within the Nuclear Energy appropriation.

• **MOX Operating Expenses (OPEX)**	**0**	**0**	**976**

MOX Operating Expenses support activities associated with hot start-up testing and operations of the MFFF. FY 2010 activities include planning and support for hot start-up testing and operations of the MFFF, including maintaining the contract baseline for this work scope.

FY 2009 funding of $2,300,000 was provided within ODA.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

- **Waste Solidification Building (WSB) (OPC)** **0** **0** **7,000**

  WSB OPC funding supports planning for facility operations (development of operating procedures and training program), program development activities (start-up testing, spare parts, emergency preparedness), waste management planning (development of waste compliance plans), interface management, and use of the Smart Plant foundation database.

  In FY 2008 and FY 2009 WSB funding (FY 2008, $5,000,000; FY 2009, $7,000,000) was provided within the Weapons Activities, Directed Stockpile Work program.

▪ **U.S. Uranium Disposition** **66,235** **39,274** **34,691**

This funding supports the disposition of U.S. HEU that has been declared surplus, primarily by down-blending it to low enriched uranium (LEU). Five separate disposition activities are on-going, and additional projects are being planned as HEU becomes available from anticipated weapon dismantlements. FY 2010 activities include:

- Off-Specification HEU Blend-Down Project: Complete HEU metal shipments from the Y-12 Plant to Nuclear Fuel Services (NFS) for down-blending and subsequent use in Tennessee Valley Authority (TVA) nuclear reactors. In addition, H-Canyon EU disposition project will continue down-blending of 5.6 MT of off-spec material at SRS. Derived LEU will be transferred to TVA under the DOE-TVA Interagency Agreement.

- Reliable Fuel Supply Project: Complete down-blending of 17.4 MT of HEU at NFS by the end of 2010. The resulting LEU will create a Reliable Fuel Supply for countries that agree to forego uranium enrichment and reprocessing technologies.

- Research Reactor Fuel Project: Continue down-blending HEU to LEU for use as fuel for foreign research reactors as part of the Reduced Enrichment for Research and Test Reactors program.

- 12 MT HEU Project: Continue down-blending 12 MT of HEU at contractor site (site is to be determined)

- Planning for Additional Projects: Prepare plans, process, characterize and package additional surplus HEU for down-blending and ultimate disposition. The material is located at various sites in the DOE complex, including Y-12, SRS, Los Alamos National Laboratory, Idaho National Laboratory, and Lawrence Livermore National Laboratory.

▪ **Supporting Activities** **0** **1,500** **1,075**

- **Monitoring and Inspection** **0** **1,000** **675**

  Monitoring and Inspection (M&I) efforts support the September 2000 U.S.-Russia PMDA. This agreement requires that the parties agree in writing to an M&I regime that would provide confidence that each party is disposing of 34 MT of surplus weapon-grade plutonium. FY 2010 funding will support negotiations among the U.S., Russia, and the

(dollars in thousands)

FY 2008	FY 2009	FY 2010

International Atomic Energy Agency (IAEA) on M&I issues, technical analysis of the agreed M&I, and implementation of the M&I regime.

- **Plutonium Disposition Program Integration** **0** **500** **400**

  FY 2010 funding to ensure that the MOX and WSB projects are integrated and accomplished in support of the project schedules. This includes the development of an integrated program plan, schedules and programmatic risk analyses to assess and manage risk and uncertainty.

Construction **0** **0** **574,238**

- **99-D-141-02 Waste Solidification Building (WSB)** **0** **0** **70,000**

  The WSB will receive liquid waste streams from the MOX facility and the PDCF. The waste will be chemically treated and solidified for ultimate disposal. The WSB is a reinforced concrete facility that will contain storage tanks, evaporators, and cementation equipment, and will include an adjacent storage area for drums awaiting transfer to SRS packaging facilities. Construction of the WSB began in FY 2009.

  In FY 2010, planned activities include completion of the foundation rebar placement, completion of fabrication/testing/site acceptance of cementation equipment, major equipment procurements (including long lead equipment), installation of "trapped" equipment, installation of roof trusses, and completion of the final roof concrete placement.

  In FY 2008 and FY 2009, funding was provided within the Weapons Activities appropriation, Directed Stockpile Work Program (FY 2008: $33,600,000 and FY 2009: $40,000,000).

- **99-D-143, MOX Fuel Fabrication Facility (MFFF)** **0** **0** **504,238**

  The MOX FFF will provide the capability to fabricate plutonium oxide into MOX fuel for subsequent use in commercial nuclear reactors. The facility will contain the following key areas: shipping and receiving, storage, chemical processing, pellet manufacturing, fuel rod manufacturing, fuel bundle assembly, fuel bundle storage and an analytical laboratory. Supporting facilities will be built including an administration building, material receipt warehouse, technical support building, emergency and diesel standby generator buildings, and a chemical reagent building.

Russian Surplus Fissile Materials Disposition (funds spent in the U.S.) **0** **1,000** **1,000**

Russian plutonium disposition program will be funded primarily through existing uncosted balances through FY 2010, after which additional funds will likely be needed to support Russian disposition efforts. Major activities include support for disposition of Russia's weapon-grade plutonium in the BN-600 reactor, licensing, modifying and upgrading the existing BN-600 MOX fuel fabrication facility at the Research Institute for Atomic Reactors (RIAR), fabricating the stainless steel reflector and boron shield (non-plutonium breeding) assemblies that would replace the BN-600 reactor radial plutonium

(dollars in thousands)

FY 2008	FY 2009	FY 2010

breeding blanket assemblies, and modifying the BN-600 reactor so it can be used to irradiate MOX fuel. Funding may also be used to modify facilities to fabricate surplus weapon-grade plutonium into fast reactor MOX fuel for the BN-800 and to continue bench-scale fabrication and irradiation of the GT-MHR test fuel, and development and design of key power conversion unit components.

FY 2010 funding is for U.S. technical support for work in Russia to disposition Russian surplus weapon-grade plutonium in the BN-600 and BN-800 fast reactors and continuation of research and development of the GT-MHR in Russia.

Total, Fissile Materials Disposition	**66,235**	**41,774**	**701,900**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
U.S. Surplus Fissile Materials Disposition	
▪ **U.S. Plutonium Disposition:** The increase supports continuing construction for MOX and the WSB in other project cost activities.	
(Funding was provided within the Other Defense Activities program in FY 2009: $19,200,000-MOX-MOX Irradiation, Feedstock and Transport (MIFT) and $7,000,000 WSB)	+90,896
▪ **U.S. Uranium Disposition:** The decrease reflects the reduced availability of surplus HEU for disposition.	-4,583
▪ **Supporting Activities:** The decrease reflects the use of prior year uncosted balances for monitoring and inspection activities and contractor technical support efforts.	-425
Total, U.S. Fissile Materials Disposition O&M	**+85,888**
U.S. Fissile Materials Disposition Construction	
▪ **99-D-141-02 Waste Solidification Building (WSB):** The increase supports continuing construction and procurement of long-lead equipment.	
(Funding was provided within the Weapons Activities appropriation in FY 2009: $40,000,000)	+70,000
▪ **99-D-143 Mixed Oxide (MOX) Fuel Fabrication Facility:** The increase supports continuing construction and procurement of long-lead equipment.	
(Funding was provided under the Other Defense Activities appropriation in FY 2009: $467,808,000)	+504,238
Total, U.S. Fissile Materials Disposition Construction	**+574,238**

	FY 2010 vs. FY 2009 ($000)
Russian Surplus Fissile Materials Disposition	
▪ **U.S. Support for Russian Plutonium Disposition (funds spent in the U.S.)**	0
No change.	
Total, Russian Fissile Materials Disposition	**0**
Total Funding Change, Fissile Materials Disposition	**+660,126**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	2,186	2,252	2,320
Capital Equipment	1,002	1,032	1,063
Total, Capital Equipment	**3,188**	**3,284**	**3,383**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	2,390	2,462	2,536	2,612
Capital Equipment	1,095	1,128	1,162	1,197
Total, Capital Equipment	**3,485**	**3,590**	**3,698**	**3,809**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2008	FY 2009	FY 2010	Unappro-priated Balance
99-D-141-02, Waste Solidification Building (WSB) [b]	244,331	26,149	33,600	40,000	70,000	74,582
99-D-143, MOX Fabrication Facility [c]	3,975,828	1,315,060	231,721	467,808	504,238	1,457,001
Total, Construction		**1,341,209**	**265,321**	**507,808**	**574,238**	

Outyear Construction Projects

(dollars in thousands)

TEC only	FY 2011	FY 2012	FY 2013	FY 2014
99-D-141-02, Waste Solidification Building (WSB)	57,000	12,927	4,655	0
99-D-143, MOX Fabrication Facility	475,788	385,172	322,802	109,661
Total, Construction	**532,788**	**398,099**	**327,457**	**109,661**

[a] Funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, and are no longer budgeted for separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on projected FY 2008 obligations.

[b] Funded in the Weapons Activities appropriation, Directed Stockpile Work program in FY 2008 and FY 2009.

[c] Funded in the DOE Nuclear Energy appropriation in FY 2008; funded in Other Defense Activities appropriation in FY 2009.

99-D-143, Mixed Oxide Fuel Fabrication Facility, Savannah River Site, Aiken, South Carolina Project Data Sheet is for Construction

1. Significant Changes

The most recent DOE Order 413.3A approved Critical Decision (CD) is CD-3, Start of Construction, and was approved on April 11, 2007 with a Total Project Cost (TPC) of $4,814,329 and CD-4 of FY 2017. However, as directed by the Revised Continuing Resolution, 2007, Public Law 110-5, construction began on August 1, 2007. The latest approved baseline change was on December 17, 2008 with a TPC of $4,857,129 and CD-4 of FY 2017.

A Federal Project Director at the appropriate level has been assigned to this project.

The sale of MOX fuel, at 2008 market uranium prices, is expected to generate approximately $1.2 billion in revenue to the U.S. Treasury from the 34 metric ton (MT) program.

This Project Data Sheet (PDS) is an update of the FY 2009 PDS. Significant changes include:

- Baseline Change resulting from the Consolidated Appropriation Act, 2008

  The Consolidated Appropriations Act, 2008 contained significant reductions. A total of $217 million was reduced from the FY 2008 budget request (including rescission of prior year unobligated balances), which required the project to be rebaselined consistent with the language provided in the report accompanying the Consolidated Appropriations Act, 2008. In May 2008, a limited External Independent Review (EIR) was performed by the Office of Engineering and Construction (OECM) recommending validation of a $42.8 million increase to the Total Project Cost (TPC), along with a 1-month schedule delay. This minimum increase is contingent upon restoring the FY 2008 reductions beginning in FY 2010 and FY 2011. The revised baseline was approved in December 2008 by the Acquisition Executive.

  As a result of the funding reductions, the procurement plan has been adjusted to make additional funds available so as not to impact the construction schedule. To minimize the impact to the cost and schedule, the major structural subcontract for upper walls, floors, and roof of the main process building has been segregated to allow award of a portion of this scope in FY 2008 with the award for the remaining scope delayed until FY 2009. In addition, portions of procurements for equipment and construction bulk materials were delayed until FY 2009, and procurements for glovebox components, process equipment, and electrical equipment will be postponed from FY 2009 to FY 2010 and from FY 2010 to FY 2011.

  In September 2007, the Secretary of Energy declared 9 MT of weapon-grade plutonium surplus to defense needs and said it is planned to be fabricated into MOX fuel at the MOX facility. The impact of this recent direction is being evaluated by the Department and, pending future decisions will be included in future budget submittals. The Department is also considering other scope of work for the MOX facility including disposition of additional non-pit plutonium.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1 (Design Start)	(Design/PED Complete)	CD-2 (Performance Baseline)	CD-3 (Construction Start)	CD-4 (Start of Hot Operations)	D&D Start	D&D Complete
FY 2000	N/A	2QFY1999	4QFY2001	N/A	1QFY2002	4QFY2005	N/A	N/A
FY 2001	N/A	2QFY1999	3QFY2002	N/A	4QFY2002	1QFY2006	N/A	N/A
FY 2002	N/A	2QFY1999	4QFY2002	N/A	2QFY2003	1QFY2007	N/A	N/A
FY 2003	N/A	2QFY1999	4QFY2003	N/A	2QFY2004	4QFY2007	N/A	N/A
FY 2004	N/A	2QFY1999	1QFY2004	N/A	2QFY2004	4QFY2007	N/A	N/A
FY 2005	N/A	2QFY1999	3QFY2004	N/A	3QFY2005	2QFY2009	N/A	N/A
FY 2006	N/A	2QFY1999	1QFY2005	N/A	3QFY2005	TBD	N/A	N/A
FY 2007	N/A	2QFY1999	4QFY2009	N/A	2QFY2007	4QFY2014	N/A	N/A
FY 2008	1QFY1997	2QFY1999	2QFY2011	2QFY2007	2QFY2007	4QFY2013	N/A	N/A
FY 2009	1QFY1997	03/22/1999	2QFY2013[a]	04/11/2007	08/01/2007	4QFY2016	N/A	N/A
FY 2010	1QFY1997	03/22/1999	2QFY2013	04/11/2007	04/11/2007	1QFY2017	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

(fiscal quarter or date)

	NRC Construction Authorization	CD 2A/3A	Performance Baseline Validation	CD 2B/3B
FY 2004	N/A	N/A	N/A	N/A
FY 2005	03/30/2005	09/30/2005	N/A	N/A
FY 2006	N/A	N/A	07/07/2006	N/A
FY 2007	N/A	N/A	N/A	04/06/2006
FY 2008	N/A	N/A	N/A	N/A
FY 2009	N/A	N/A	N/A	N/A

CD 2A/3A - Approval to start Site Preparation
CD 2B/3B - Approval to begin long lead procurements (“trapped” tanks, steel embeds, reinforcing steel, barrier doors)

[a] Facility and process design will be completed in FY 2010, the equipment design will be completed in FY 2011 and the software design will be completed in FY 2013.

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2000	TBD	TBD	383,186	0	N/A	TBD	N/A
FY 2001	TBD	TBD	398,186	0	N/A	TBD	N/A
FY 2002	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2003	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2004	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2005	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2006	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2007	TBD	TBD	3,277,984	354,108	N/A	354,108	3,632,092
FY 2008	TBD	TBD	3,868,628	830,701	N/A	830,701	4,699,329
FY 2009	TBD	TBD	3,938,628	875,701	N/A	875,701	4,814,329
FY 2010	TBD	TBD	3,975,828	881,301	N/A	881,301	4,857,129

4. Project Description, Justification, and Scope

Description and Scope

The U.S. MOX Fuel Fabrication Facility at the Savannah River Site will combine surplus weapon-grade plutonium oxide with depleted uranium oxide to form MOX fuel assemblies that will be used as fuel for U.S. commercial nuclear reactors. Once irradiated and converted into spent fuel, the resulting plutonium can no longer be readily used for nuclear weapons. The nominal design life of the facility is 40 years however, it will take approximately 13 years to complete the 34 MT mission. After completing its mission, the facility may be deactivated, decontaminated, and decommissioned over three to four years.

The MOX facility has been designed with the capacity needed to receive and process 3.5 MT of plutonium oxide per year. The plutonium oxide will come from the Office of Defense Programs pit disassembly and conversion operations and from other selected inventories of weapon-grade plutonium within the DOE complex. The facility will have the capacity to store sufficient plutonium oxide for two years of operations.

The MOX facility is approximately 441,000 square feet in size and provides all of the material processing and fabrication operations needed to produce MOX fuel. The MOX facility operations include: aqueous polishing (AP) to purify the plutonium oxide; blending and milling; pelletizing; sintering; grinding; loading fuel rods; bundling fuel assemblies; and storing feed material, pellets, and fuel assemblies. The facility also includes a laboratory and space for material sampling and use by a monitoring and inspection team. Adjacent to the MOX process areas, is the secure shipping and receiving area to support material receipt, utilities, and technical support.

The design of the MOX Fuel Fabrication Facility is based on technologies, processes and facilities that have been successfully operating in France for decades, specifically AREVA's MELOX and La Hague facilities. The facility will meet U.S. conventions, codes, standards, and regulatory requirements, and will be licensed by the Nuclear Regulatory Commission (NRC).

The MFFF has the following Key Performance Parameters: (1) Design, construct, and test operational capability of the MFFF to produce light water reactor fuel from weapons grade plutonium (both pit and non-pit sources); and (2) Obtain NRC license for operation of the facility.

FY 2009 and FY 2010 Description of Activities

In FY 2009, facility construction will continue with placement of more first and second floor walls and trapped tanks. The second floor walls in the AP will be completed and the third floor slab placement will begin. Delivery of glovebox shells and associated materials and equipment will begin in FY 2009 to initiate the glovebox assembly process. The construction of the administration building will be completed, and the construction of the secured warehouse will begin. The project will continue with scheduled procurement awards for more glovebox components, the reagent building, sintering furnace, long lead HVAC equipment, and process piping. Also, the design of equipment and software will continue, as well as the facility and process design.

In FY 2010, facility construction will continue with the third floor slab and walls being completed in AP, and the second floor slab being completed in the MOX processing area. Process piping installation will begin, and the Technical Support Building design and construction will begin. Electrical conduit and raceway installation will begin, along with initiation of the HVAC bulk commodity installation and fire protection commodity installation. Facility and process design will be completed in FY 2010.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 1999	28,000	9,600	2,545
FY 2000	12,375	30,775	33,512
FY 2001	25,943	25,943	29,938
FY 2002	65,993	65,993	52,513
FY 2003	92,088	92,088	82,022
FY 2004	81,081	81,081	93,457
FY 2005	251,195	251,195	216,801
FY 2006	119,853	119,853	165,618
FY 2007	65,133	65,133	62,342
FY 2008	56,045	56,045	58,958
FY 2009	72,509	72,509	72,509
FY 2010	36,937	36,937	28,316
FY 2011	8,036	8,036	16,657
FY 2012	882	882	882
FY 2013	78	78	78
Total, Design	916,148	916,148	916,148
Construction			
FY 2004	279,193	0	0
FY 2005	113,892	44,100	0
FY 2006	97,947	217,469	15,210
FY 2007	197,367	197,367	115,065
FY 2008	175,676	290,139	209,174
FY 2008 (rescinded PY unobligated balance)	-115,000	0	0
FY 2009	395,299	395,299	261,790

	(dollars in thousands)		
	Appropriations	Obligations	Costs
FY 2010	467,301	467,301	355,992
FY 2011	467,752	467,752	421,737
FY 2012	384,290	384,290	576,048
FY 2013	322,724	322,724	503,154
FY 2014	109,661	109,661	277,441
FY 2015	125,773	125,773	170,464
FY 2016	37,805	37,805	138,239
FY 2017	0	0	15,366
Total, Construction	3,059,680	3,059,680	3,059,680
TEC			
FY 1999	28,000	9,600	2,545
FY 2000	12,375	30,775	33,512
FY 2001	25,943	25,943	29,938
FY 2002	65,993	65,993	52,513
FY 2003	92,088	92,088	82,022
FY 2004	360,274	81,081	93,457
FY 2005	365,087	295,295	216,801
FY 2006	217,800	337,322	180,828
FY 2007	262,500	262,500	177,407
FY 2008	231,721	346,184	268,132
FY 2008 (rescinded PY unobligated balance)	-115,000	0	0
FY 2009	467,808	467,808	334,299
FY 2010	504,238	504,238	384,308
FY 2011	475,788	475,788	438,394
FY 2012	385,172	385,172	576,930
FY 2013	322,802	322,802	503,232
FY 2014	109,661	109,661	277,441
FY 2015	125,773	125,773	170,464
FY 2016	37,805	37,805	138,239
FY 2017	0	0	15,366
Total, TEC	3,975,828	3,975,828	3,975,828
Other Project Cost (OPC)			
OPC except D&D			
FY 1999	5,000	5,000	4,500
FY 2000	5,000	5,000	4,500
FY 2001	5,000	5,000	5,000
FY 2002	5,000	5,000	5,000
FY 2003	8,000	8,000	5,000
FY 2004	9,292	9,292	11,500
FY 2005	9,357	9,357	3,749
FY 2006	28,200	21,300	7,023
FY 2007	915	7,792	9,278
FY 2008	47,068	47,068	15,746
FY 2009	0	0	18,310
FY 2010	56,466	56,466	23,000
FY 2011	30,000	30,000	90,438
FY 2012	97,035	97,035	95,262
FY 2013	246,669	246,669	182,106
FY 2014	230,697	230,697	178,153

	(dollars in thousands)		
	Appropriations	Obligations	Costs
FY 2015	91,603	91,603	157,778
FY 2016	5,999	6,022	64,958
FY 2017	0	0	0
Total, OPC except D&D	881,301	881,301	881,301
D&D			
FY	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total Project Cost (TPC)			
FY 1999	33,000	14,600	7,045
FY 2000	17,375	35,775	38,012
FY 2001	30,943	30,943	34,938
FY 2002	70,993	70,993	57,513
FY 2003	100,088	100,088	87,022
FY 2004	369,566	90,373	104,957
FY 2005	374,444	304,652	220,550
FY 2006	246,000	358,622	187,851
FY 2007	263,415	270,292	186,685
FY 2008	278,789	393,252	283,878
FY 2008 (rescinded PY unobligated balance)	-115,000	0	0
FY 2009	467,808	467,808	352,609
FY 2010	560,704	560,704	407,308
FY 2011	505,788	505,788	528,832
FY 2012	482,207	482,207	672,192
FY 2013	569,471	569,471	685,338
FY 2014	340,358	340,358	455,594
FY 2015	217,376	217,376	328,242
FY 2016	43,804	43,827	203,197
FY 2017	0	0	15,366
Total, TPC	4,857,129	4,857,129	4,857,129

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	916,148	916,148	916,148
Contingency	0	0	0
Total, PED	916,148	916,148	916,148
Construction			
Site Preparation	39,038	39,929	39,929
Equipment (MOX & AP equip.)	200,415	251,791	251,791
Other Construction	2,153,444	2,067,639	2,067,639
Contingency	666,783	663,121	663,121
Total, Construction	3,059,680	3,022,480	3,022,480
Total, TEC	3,975,828	3,938,628	3,938,628
Contingency, TEC	666,783	663,121	663,121
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	37,723	37,723	37,723
Conceptual Design	0	0	0
Start-Up	662,328	650,468	650,468
Contingency	181,250	187,510	187,510
Total, OPC except D&D	881,301	875,701	875,701
D&D			
D&D	0	0	0
Contingency	0	0	0
Total, D&D	0	0	0
Total, OPC	881,301	875,701	875,701
Contingency, OPC	181,250	187,510	187,510
Total, TPC	4,857,129	4,814,329	4,814,329
Total, Contingency	848,033	850,631	850,631

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1QFY2017
Expected Useful Life (number of years)	13
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Ave. Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	142,900	142,900	1,857,100	1,857,100
Maintenance	41,500	41,500	539,500	539,500
Total, Operations & Maintenance	184,400	184,400	2,396,600	2,396,600

9. Required D&D Information

Area	Square Feet
Area of new construction	441,000
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced:
The new construction is not replacing an existing facility.

10. Acquisition Approach

The procurement strategy for the MOX facility involved awarding a base contract to Duke Cogema Stone & Webster (now Shaw AREVA MOX Services) in March 1999 for design, licensing and irradiation services associated with fuel qualification activities and reactor licensing. Three options were included in the base contract, for (1) construction and management oversight; (2) hot start-up, operations and irradiation services; and (3) deactivation can be awarded separately.

Actual physical construction is being conducted through fixed-price subcontracts to the extent practical, with an incentive and award fee contracts for construction management services and glovebox assembly.

99-D-141-02, Waste Solidification Building (WSB)
Savannah River Site, Aiken, South Carolina
Project Data Sheet is for Construction

1. Significant Changes

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-3, Start of Construction, and was approved on December 10, 2008 with a Total Project Cost (TPC) of $344,455 and CD-4 of FY 2013.

A Federal Project Director (FPD) at the appropriate level has not been assigned to this project, but is awaiting approval of application to be certified at the appropriate level.

This Project Data Sheet is an update of the FY 2009 PDS. Significant changes include:

- The detailed design for the WSB was completed in May 2008. The total cost of the design was $43 million.

- In September 2008, an External Independent Review (EIR) was conducted by the Office of Engineering and Construction Management in accordance with the Department's Critical Decision (CD) process. In addition, an Independent Project Review (IPR) was conducted by the NNSA's Office of Project Management and Systems Support in accordance with the Department's CD process. The previous PDS reflected a preliminary cost range of $245,000,000 - $330,000,000. Following the EIR, the TPC has been independently validated at $345 million. Several factors resulted in an increase to the preliminary TPC including increases in labor rates, material and equipment costs and escalation, additional engineering support during construction and safety basis upgrades. In addition, the Pension Protection Act (PPA) of 2006 required full funding of the M&O pension plan within a five year time frame which was factored into the Taxes and Plan (T&P) rates for labor, which had not previously been captured.

- Approximately $30,000,000 of construction funds will be used in FY 2009 to support long-lead equipment procurements. Long lead equipment includes evaporators, tanks, cementation process equipment and glove boxes. This equipment requires significant lead time to fabricate and must be available for installation early in the construction process (i.e. before steel roof supports are put in place). In addition, site preparation activities such as installation of underground utilities, storm water management, grading and erosion control will be conducted in FY 2009.

- The most significant project risk involves the potential of evolving functional requirements for the facility ventilation system. The Department of Energy (DOE) is currently undertaking a complex-wide review of facility ventilation systems and assessing the need to upgrade the systems beyond current design requirements. Should this assessment result in additional design requirements and subsequent upgrades to the WSB ventilation system, the project could experience a cost increase of approximately $10,000,000 and a schedule delay of about 4 months. This is not included in the validated TPC.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0 (Approve Mission Need)[a]	CD-1 (Approve Alternative Selection and Cost Range)	CD-1 (Design Start)[b]	(Design/PED Complete)	CD-2 (Approve Performance Baseline)	CD-3 (Approve Start of Construction)	CD-4 (Approve Start of Operations)	D&D Start	D&D Complete
FY 1999	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2000	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2001	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2002	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2003	10/31/1997	10/31/1997	02/19/2003	TBD	TBD	TBD	TBD	N/A	N/A
FY 2004	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2005	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2006	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	TBD	N/A	N/A
FY 2007	10/31/1997	10/31/1997	10/01/2006	TBD	TBD	TBD	TBD	N/A	N/A
FY 2008	10/31/1997	10/31/1997	10/01/2006	3QFY2008	4QFY2008	1QFY2009	TBD	N/A	N/A
FY 2009	10/31/1997	10/31/1997	10/01/2006	3QFY2008	4QFY2008	4QFY2008	1QFY2013	N/A	N/A
FY 2010	10/31/1997	10/31/1997	10/01/2006	05/09/2008	12/10/2008	12/10/2008	4QFY2013	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 1999	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2000	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2001	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2002	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2003	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2004	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2005	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2006	25,700	TBD	TBD	TBD	N/A	TBD	25,700

[a] Approval of mission need for waste treatment activities was originally obtained in 1997 as part of the scope of the PDCF project and was reinforced in the Record of Decision (ROD).

[b] Preliminary design activities for the WSB were initiated in February 2003, but suspended in 2004 due to uncertainties in the schedule of the overall plutonium disposition program and the counterpart Russian disposition program. These issues have been resolved, and design activities were resumed in October 2006.

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2007	29,300	160,000	189,300	36,708	N/A	36,708	226,008
FY 2008	31,183	171,013	202,196	42,908	N/A	42,908	245,104
FY 2009	36,102	159,367	195,469	82,718	N/A	82,718	278,187
FY 2010	42,542	201,789	244,331	100,124	N/A	100,124	344,455

4. Project Description, Justification, and Scope

Waste Solidification Building (WSB):

The WSB, once operational, will process radioactive liquid waste streams from the Mixed Oxide Fuel Fabrication Facility (MFFF) and Defense Program's pit disassembly and conversion operations into a solid form for ultimate disposal. The MFFF will provide approximately 85 percent of the waste that the WSB will process. The WSB must be operational to support MOX cold start-up testing activities scheduled to start in the 2013 timeframe. The radioactive liquid waste consists of one high-activity and two low-activity streams. The high-activity stream contains significant amounts of americium removed from plutonium oxide during mixed oxide (MOX) aqueous polishing operations. The low-activity streams contain stripped uranium also removed from MOX aqueous polishing operations and laboratory waste from pit disassembly and conversion. The WSB operating life is expected to be approximately 15 years but could easily be extended to accommodate disposition of additional surplus plutonium. After completing its mission, the WSB would be deactivated, decontaminated, and decommissioned over three to four years.

The scope of this sub-project consists of the following activities: design, construction, procurement, installation, testing, demonstration, and startup testing of structures and equipment. The processing facility will be approximately 33,000 square feet and is designed as a single story structure of hardened concrete. An additional separate structure consisting of a covered concrete pad will be constructed to provide temporary storage of containerized waste following treatment prior to packaging for shipment. The major process equipment includes tanks, evaporators, and solidification equipment.

The WSB has the following Key Performance Parameters: (1) Demonstrate the ability to process the anticipated waste volumes of the High Activity Waste stream and the Low Activity Waste stream; and (2) Demonstrate the ability to produce waste products that are within the established limits of the Waste Acceptance Criteria and/or Documented Safety Analysis of the receiving facilities.

FY 2009 and FY 2010 Description of Activities

In FY 2009, planned activities include site preparation activities (grading, storm water management, excavation, installation of underground utilities, placement of concrete mud mat), equipment procurement, completion of the construction bid process, award of the facility construction contract, and start of construction.

In FY 2010, planned activities include completion of foundation rebar placement, completion of fabrication/testing/site acceptance of cementation equipment, major equipment procurements (including long lead equipment), installation of "trapped" equipment, installation of roof trusses and completion of the final roof concrete placement.

The WSB sub-project is being conducted in accordance with the project management requirements in DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	6,195	6,195	4,610
FY 2004	2,100	2,100	3,114
FY 2005	0	0	0
FY 2006	2,354	2,354	1,003
FY 2007	15,500	15,500	11,745
FY 2008	16,393	16,393	20,072
FY 2009	0	0	1,998
Total, PED	42,542	42,542	42,542
Construction			
FY 2006	0	0	0
FY 2007	0	0	0
FY 2008	17,207	17,207	0
FY 2009	40,000	40,000	40,550
FY 2010	70,000	70,000	82,400
FY 2011	57,000	57,000	57,849
FY 2012	12,927	12,927	16,335
FY 2013	4,655	4,655	4,655
Total, Construction	201,789	201,789	201,789
TEC			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	6,195	6,195	4,610
FY 2004	2,100	2,100	3,114
FY 2005	0	0	0
FY 2006	2,354	2,354	1,003
FY 2007	15,500	15,500	11,745
FY 2008	33,600	33,600	20,072
FY 2009	40,000	40,000	42,548
FY 2010	70,000	70,000	82,400
FY 2011	57,000	57,000	57,849
FY 2012	12,927	12,927	16,335
FY 2013	4,655	4,655	4,655
Total, TEC	244,331	244,331	244,331

(dollars in thousands)

	Appropriations	Obligations	Costs
Other Project Cost (OPC)			
OPC except D&D			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	4,071	4,071	2,650
FY 2004	0	0	1,041
FY 2005	(50)	(50)	208
FY 2006	1,400	1,400	79
FY 2007	5,060	5,060	2,145
FY 2008	5,000	5,000	5,415
FY 2009	7,000	7,000	8,066
FY 2010	7,000	7,000	9,136
FY 2011	21,500	21,500	20,847
FY 2012	28,000	28,000	29,115
FY 2013	21,143	21,143	21,422
Total, OPC except D&D	100,124	100,124	100,124
D&D			
FY	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
OPC			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	4,071	4,071	2,650
FY 2004	0	0	1,041
FY 2005	(50)	(50)	208
FY 2006	1,400	1,400	79
FY 2007	5,060	5,060	2,145
FY 2008	5,000	5,000	5,415
FY 2009	7,000	7,000	8,066
FY 2010	7,000	7,000	9,136
FY 2011	21,500	21,500	20,847
FY 2012	28,000	28,000	29,115
FY 2013	21,143	21,143	21,422
Total OPC	100,124	100,124	100,124

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Project Cost (TPC)			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	10,266	10,266	7,260
FY 2004	2,100	2,100	4,155
FY 2005	(50)	(50)	208
FY 2006	3,754	3,754	1,082
FY 2007	20,560	20,560	13,890
FY 2008	38,600	38,600	25,487
FY 2009	47,000	47,000	50,614
FY 2010	77,000	77,000	91,536
FY 2011	78,500	78,500	78,696
FY 2012	40,927	40,927	45,450
FY 2013	25,798	25,798	26,077
Total, TPC	344,455	344,455	344,455

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	41,825	29,999	N/A
Contingency	717	6,103	N/A
Total, PED	42,542	36,102	N/A
Construction			
Site Preparation	1,300	1,300	N/A
Equipment	42,585	41,670	N/A
Other Construction	118,025	72,964	N/A
Contingency	39,879	43,433	N/A
Total, Construction	201,789	159,367	N/A
Total, TEC	244,331	195,469	N/A
Contingency, TEC	40,596	49,536	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual/Planning	2,650	2,650	N/A
Design/Construction Support	27,277	10,508	N/A
Start-Up	49,500	58,163	N/A
Contingency	20,697	11,397	N/A
Total, OPC except D&D	100,124	82,718	N/A

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	100,124	82,718	N/A
Contingency, OPC	20,697	11,397	N/A
Total, TPC	344,455	278,187	N/A
Total, Contingency	61,293	60,933	N/A

7. Schedule of Project Costs

For schedule of project costs, see Section 5, "Financial Schedule."

8. Related Operations and Maintenance Funding Requirements

99-D-141-02 – Waste Solidification Building

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4QFY2013
Expected Useful Life (number of years)	15
Expected Future Start of D&D of this capital asset (fiscal quarter)	4QFY2028

(Related Funding requirements)

99-D-141-02 – Waste Solidification Building

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	47,911	29,016	718,663	435,238
Maintenance	3,278	1,985	49,170	29,782
Total, Operations & Maintenance	51,189	31,001	767,833	465,020

9. Required D&D Information

Area	Square Feet
Area of new construction	33,000
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced:
The new construction is not replacing an existing facility.

10. Acquisition Approach

99-D-141-02 – Waste Solidification Building

The WSB design service was procured through the Savannah River Site M&O contract. Purchase orders for procurement of long-lead equipment for the WSB will be issued in FY 2009. The Savannah River Site M&O will serve as the construction manager. Fixed-price construction sub-contracts for the WSB will be awarded on the basis of competitive bidding. The acquisition strategy has been finalized.

Global Threat Reduction Initiative (GTRI)

Funding Profile by Subprogram [a] [b]

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Global Threat Reduction Initiative			
Highly Enriched Uranium (HEU) Reactor Conversion	**33,819**	**83,347**	**71,500**
Nuclear and Radiological Material Removal			
Russian Research Reactor Fuel Return	38,896	0	0
U.S. Foreign Research Reactor Spent Nuclear Fuel	9,887	0	0
Emerging Threats and Gap Materials	5,466	0	0
U.S. Radiological Threat Reduction	13,510	0	0
Russian-Origin Nuclear Material Removal	0	130,045	97,000
U.S.-Origin Nuclear Material Removal	0	14,222	10,000
Gap Nuclear Material Removal	0	7,279	51,000
Emerging Threats Nuclear Material Removal	0	8,767	9,500
International Radiological Material Removal	0	18,312	18,500
Domestic Radiological Material Removal	0	15,527	16,000
Subtotal, Nuclear and Radiological Material Removal	**67,759**	**194,152**	**202,000**
Nuclear and Radiological Material Protection			
Kazakhstan Spent Fuel	43,098	0	0
Global Research Reactor Security	3,557	0	0
International Radiological Threat Reduction	44,992	0	0
BN-350 Nuclear Material Protection	0	52,761	9,000
International Material Protection	0	31,950	35,000
Domestic Material Protection	0	32,790	36,000
Subtotal, Nuclear and Radiological Material Protection	**91,647**	**117,501**	**80,000**
Total, Global Threat Reduction Initiative (appropriation)	**193,225**	**395,000**	**353,500**
Funds from International Contributions	**6,223**	**0**	**0**
Total, Global Threat Reduction Initiative Funds Available	**199,448** [c]	**395,000**	**353,500**

[a] Includes the funding from the FY 2007 Supplemental Act (P.L. 110-28) for International Radiological Threat Reduction (IRTR) in FY 2008 in the amount of $20,000,000.

[b] Includes for FY 2008 international contributions from the Government of Canada for $1,975,400; from the Republic of Korea for $250,000, and from the United Kingdom of Great Britain and Northern Ireland for $3,997,968.

[c] FY 2008 funds available of $199,448,000 will be reduced by $1,792,000 to reflect GTRI share of directed reduction in prior-year balances for a revised FY 2008 total of $197,656,000.

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Global Threat Reduction Initiative				
HEU Reactor Conversion	**105,000**	**189,000**	**193,000**	**299,000**
Nuclear and Radiological Material Removal				
Russian-Origin Nuclear Material Removal	168,452	158,000	180,000	250,000
U.S.-Origin Nuclear Material Removal	20,000	30,000	30,000	40,000
Gap Nuclear Material Removal	35,000	75,000	75,000	120,000
Emerging Threats Nuclear Material Removal	15,000	15,000	15,000	15,000
International Radiological Material Removal	20,000	25,000	28,000	33,000
Domestic Radiological Material Removal	20,000	25,000	28,000	33,000
Subtotal, Nuclear and Radiological Material Removal	**278,452**	**328,000**	**356,000**	**491,000**
Nuclear and Radiological Material Protection				
BN-350 Nuclear Material Protection	2,000	2,000	0	0
International Material Protection	44,663	53,168	64,310	119,977
Domestic Material Protection	51,000	80,000	104,000	163,000
Subtotal, Nuclear and Radiological Material Protection	**97,663**	**135,168**	**168,310**	**282,977**
Total, Global Threat Reduction Initiative	**481,115**	**652,168**	**717,310**	**1,072,977**

Description

The Global Threat Reduction Initiative (GTRI) mission is to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide.

GTRI directly supports President Obama's goal to accelerate efforts to secure and remove all vulnerable nuclear material from the most vulnerable sites within four (4) years, by the end of 2012.

GTRI supports the U.S. Department of Energy's Nuclear Security Goal (2.2) by preventing terrorists from acquiring nuclear and radiological materials that could be used in weapons of mass destruction (WMD) or other acts of terrorism by: 1) converting research reactors from the use of highly enriched uranium (HEU) to low enriched uranium (LEU); 2) removing and disposing of excess nuclear and radiological materials; and 3) protecting high-priority nuclear and radiological materials from theft and sabotage. These three key subprograms of GTRI -- Convert, Remove, and Protect -- provide a comprehensive approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The GTRI subprograms that make important and unique contributions to GPRA Unit Program Goal 2.2.44.00 are discussed below.

The **HEU Reactor Conversion** subprogram supports the conversion of domestic and international civilian research reactors and isotope production facilities from HEU to LEU. This includes working with Mo-99 producers to convert their existing operations to use LEU targets and developing new LEU-based Mo-99 production capabilities in the United States. These efforts result in permanent threat reduction by minimizing and, to the extent possible, eliminating use of HEU in civilian applications. The Convert subprogram is key to the GTRI mission because it removes the need for HEU at civilian sites. Once the need is eliminated, any remaining HEU fresh and spent fuel can be permanently disposed of by GTRI's Remove subprogram.

The **Nuclear and Radiological Material Removal** subprogram supports the removal and disposal of excess nuclear and radiological material from civilian sites worldwide. These efforts result in

permanent threat reduction by eliminating nuclear and radiological materials that terrorists could acquire. The Remove subprogram is key to the GTRI mission because each kilogram or curie of this dangerous material that is removed reduces the risk of a terrorist bomb. This subprogram includes:

- Russian-origin nuclear material removal. This activity supports the removal and disposal of Russian-origin nuclear material from research reactors worldwide.

- U.S.-origin nuclear material removal. This activity supports the removal and disposal of U.S.-origin HEU and LEU from TRIGA and MTR research reactors. U.S.-origin fuel will be returned to the United States until 2019 as an incentive for reactor conversion.

- Gap nuclear material removal. This activity supports the removal and disposal of vulnerable, high-risk nuclear materials that are not covered under the Russian-origin and U.S.-origin nuclear removal activities. This includes U.S.-origin HEU other than TRIGA and MTR fuel; HEU of non-U.S. and non-Russian-origin; and weapons-usable separated plutonium.

- Emerging Threats nuclear material removal. This activity develops the capability to rapidly denuclearize a country ensuring that when opportunities present themselves, such as Libya in 2004, the U.S. is able to respond quickly. This includes in-country stabilization, packaging, and removal of nuclear materials through the deployment of self-sufficient, trained rapid response teams.

- International radiological material removal. This activity supports the removal and disposal of excess or abandoned radiological material in other countries. This includes Russian radioisotopic thermoelectric generators (RTGs), U.S.-origin sealed sources in other countries, and other orphaned radiological materials.

- Domestic radiological material removal. This activity supports the removal and disposal of domestic radiological materials by working in cooperation with Federal, State, and local agencies, and private industry to recover and permanently dispose of excess radiological sources in the United States.

The **Nuclear and Radiological Material Protection** subprogram supports the securing of high priority nuclear and radiological material worldwide from theft and sabotage. These efforts result in threat reduction by improving security on the bomb material remaining at civilian sites. The Protect subprogram is key to the GTRI mission because it upgrades security until a permanent threat reduction solution can be implemented. This subprogram includes:

- BN-350 nuclear material protection. This activity provides safe and secure long-term storage of approximately 3,000 kilograms of weapons-grade plutonium and 10,000 kilograms of HEU in spent fuel from the shutdown BN-350 fast breeder reactor in Kazakhstan.

- International material protection. This activity works in cooperation with foreign counterparts and international agencies to install security upgrades on high-priority, vulnerable nuclear and radiological materials located at civilian sites outside the United States.

- Domestic material protection. This activity works in cooperation with Federal, State, and local agencies, and private industry to install security upgrades on high-priority nuclear and radiological materials located at civilian sites in the United States.

Major FY 2008 Achievements

Through the end of FY 2008, GTRI accelerated threat reduction efforts by: 1) converting or verifying the shutdown of a cumulative 62 research reactors from use of HEU fuel to LEU fuel; 2) removing a cumulative 1,948 kilograms of HEU and plutonium, enough material to make more than 75 crude nuclear bombs; 3) removing a cumulative 18,656 radiological sources in the United States containing more than 715,000 curies of material; and 4) protecting a cumulative 514 nuclear and radiological buildings worldwide.

Major Outyear Priorities and Assumptions

GTRI plays a key role in meeting President Obama's nonproliferation initiative to accelerate control of "loose nuclear materials" and secure and remove all vulnerable nuclear material from the most vulnerable sites within four years. GTRI has worked in 124 countries around the world to implement nuclear and radiological threat reduction in line with this initiative. Also, several prior commitments are scheduled to be completed before the end of 2010, in accordance with the Bratislava Presidential Joint Statement on Nuclear Security Cooperation. Those high-priority commitments include: (1) the return of all existing inventories of Russian-origin spent HEU fuel to Russia by the end of 2010, (2) the transport of 3 metric tons of weapons-grade Plutonium and 10 metric tons of HEU contained in the BN-350 spent fuel from Aktau to Baikal by the end of 2010, (3) accelerating U.S.-origin HEU fuel removals, and (4) conversion of HEU research reactors from the use of HEU to LEU fuel. The outyear budget projections (FY 2011 through FY 2014) to accomplish that work for GTRI total $2,923,570,000. By the end of 2014, GTRI will have converted 108 (84%) of the 129 HEU reactors, removed 3,898 kilograms (86%) of the approximately 4,500 kilograms of nuclear material at civilian sites, and protected 2,710 (69%) of the 3,950 buildings with high-priority nuclear and radiological materials.

Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.44.00 (Global Threat Reduction Initiatives)											
Cumulative number of HEU reactors converted or verified as shutdown prior to conversion (Long-term Outcome)[a]	R: 41 T: 44	R: 45 T: 46	R: 55 T: 53	R: 62 T: 62	T: 68	T: 73	T:81	T: 88	T: 98	T: 108	By 2016, convert or verify the shutdown prior to conversion of 129 HEU reactors.
Cumulative number of kilograms of vulnerable nuclear material (HEU and plutonium) removed or disposed (Efficiency Measure)	R: 1,105 T: N/A	R: 1,366 T: N/A	R: 1,791 T: 1,671	R: 1,948 T: 2,133	T: 2,311	T: 2,913	T: 3,296	T: 3,343	T: 3,716	T: 3,898	By 2016, remove or dispose of 4,538 kilograms of vulnerable nuclear material (HEU and plutonium) (enough for 180 crude nuclear bombs). (GTRI will continue to remove U.S.-origin fuel from foreign research reactors until 2019 as an incentive for converting research reactors from HEU to LEU fuel.)
Cumulative number of excess domestic radiological sources removed or disposed (Long-term Outcome)	R: 11,788 T: N/A	R: 13,878 T: N/A	R:15,503 T: 15,455	R: 18,656 T: 17,500	T: 22,000	T: 24,500	T: 27,000	T: 30,000	T: 33,000	T: 36,000	Annually, remove at least 2,500 excess domestic radiological sources
Cumulative number of buildings with high priority nuclear and radiological materials secured (Long-term Outcome)[b]	R: 155 T: N/A	R:352 T : N/A	R: 426 T: N/A	R: 514 T:N/A	T: 694	T: 818	T: 1,008	T: 1,298	T: 1,656	T: 2,334	By 2019, protect an estimated 3,950 buildings with high-priority nuclear and radiological materials.

[a] The program has changed the methodology for accounting for cumulative research reactors starting in FY 2007. The metric now includes converted research reactors and research reactors verified as shutdown prior to conversion. The comparable number for FY 2006 using the new methodology would be 47 reactors converted or shutdown.

[b] GTRI has changed the methodology for accounting for protection of buildings with high-priority nuclear and radiological materials starting in FY 2009, consistent with the OMB-approved Management Improvement Plan. The metric now includes security upgrades completed at research and test reactors and other vulnerable buildings containing radiological materials. Previously, the number included recoveries of radioisotopic thermoelectric generators (RTGs) but did not include the research and test reactors. RTGs are now better reflected as removed and disposed, resulting in permanent threat reduction.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
HEU Reactor Conversion	**33,819**	**83,347**	**71,500**

GTRI's Convert subprogram supports the conversion of domestic and international civilian research reactors and isotope production facilities from HEU to LEU. This includes working with Mo-99 producers to convert their existing operations to use LEU targets and developing new LEU-based Mo-99 production capabilities in the United States. These efforts result in permanent threat reduction by minimizing and, to the extent possible, eliminating use of HEU in civilian applications. The Convert subprogram is key to the GTRI mission because it removes the need for HEU at civilian sites. Once the need is eliminated, any remaining HEU fresh and spent fuel can be permanently disposed of by GTRI's Remove subprogram. These activities together support the goals contained in (1) President Obama's nonproliferation priorities to secure and remove all vulnerable nuclear material from the most vulnerable sites within four years and (2) in the Bratislava Presidential Joint Statement on Nuclear Security Cooperation of February 2005. In accordance with the Bratislava statement, the United States and Russia will convert research reactors around the world from the use of HEU to LEU fuel.

In FY 2010, GTRI will convert or verify as shutdown an additional 5 HEU research reactors, bringing the cumulative total to 73. The conversions identified for FY 2010 are for facilities in the Czech Republic, the Netherlands, Ghana, and 2 in Japan. In addition, GTRI will complete the preliminary design work for the new fuel fabrication capability in 2010, required to fabricate the new high-density LEU fuel needed to convert the 27 HEU research reactors around the world that cannot convert with existing LEU fuel. The conversion of these 27 high performance reactors will result in HEU avoidance of an additional 520 kilograms per year. GTRI will provide technical and financial support to the U.S. private sector to establish domestic production of the critical medical isotope Mo-99 using LEU.

Nuclear and Radiological Material Removal	**67,759**	**194,152**	**202,000**

GTRI's Remove subprogram supports the removal and disposal of excess nuclear and radiological material from civilian sites worldwide. These efforts result in permanent threat reduction by eliminating nuclear and radiological materials that terrorists could acquire. The Remove subprogram is key to the GTRI mission because each kilogram or curie of this dangerous material that is removed reduces the risk of a terrorist bomb.

• **Russian Research Reactor Fuel Return**	**38,896**	**0**	**0**
• **Russian-Origin Nuclear Material Removal**	**0**	**130,045**	**97,000**

This activity supports the removal and disposal of Russian-origin nuclear material from research reactors worldwide. These activities collectively support the goals contained in (1) President Obama's nonproliferation priorities to secure and remove all vulnerable nuclear material from the most vulnerable sites within four years and (2) in the Bratislava Presidential Joint Statement on Nuclear Security Cooperation of February 2005. In accordance with the Bratislava statement, GTRI is required to return all existing inventories of Russian-origin spent HEU fuel currently stored outside of research reactor cores by the end of 2010. Removal of additional quantities of Russian-origin nuclear materials are ongoing and continuing into the outyears as additional HEU reactor

conversions take place and Russian-origin spent HEU spent fuel is discharged for repatriation to Russia.

In FY 2010, GTRI will repatriate and dispose of an additional 503 kilograms of HEU fuel from Poland, Belarus, Germany, and Serbia, resulting in a cumulative total of 1,443 kilograms of HEU removed, enough material for more than 55 nuclear bombs.

- **U.S. Foreign Research Reactor Spent Nuclear Fuel** **9,887** **0** **0**
- **U.S.-Origin Nuclear Material Removal** **0** **14,222** **10,000**

This activity supports the removal and disposal of U.S.-origin HEU and LEU from TRIGA and MTR research reactors. U.S.-origin fuel will be returned to the United States until 2019 as an incentive for reactor conversions. These activities collectively support the goals contained in (1) President Obama's nonproliferation priorities to secure and remove all vulnerable nuclear material from the most vulnerable sites within four years and (2) the Bratislava Presidential Joint Statement on Nuclear Security Cooperation of February 2005. In accordance with the Bratislava statement, GTRI is required to accelerate the return of U.S.-origin fuel.

In FY 2010, GTRI will return to the United States an additional 35 kilograms of HEU from Israel, Turkey, South Africa, Congo, and Japan, resulting in a cumulative total of 1,261 kilograms of HEU removed, enough material for more than 50 nuclear bombs.

- **Emerging Threats and Gap Materials** **5,466** **0** **0**
- **Gap Nuclear Material Removal** **0** **7,279** **51,000**

This activity supports the removal and disposal of vulnerable, high-risk nuclear materials that are not covered by the Russian-origin and U.S.-origin Nuclear Material Removal activities. This includes U.S.-origin HEU other than TRIGA and MTR fuel, and HEU of non-U.S.- and non-Russian-origin, and weapons-usable separated plutonium. These activities collectively support the goals contained in President Obama's nonproliferation priorities to secure and remove all vulnerable nuclear material from the most vulnerable sites within four years.

In FY 2010, GTRI will remove or arrange disposition of an additional 63 kilograms of Gap HEU and plutonium from Chile, Italy, the United Kingdom, Australia, Canada, and Switzerland, resulting in a cumulative total of 209 kilograms of HEU and plutonium removed, enough material for more than 8 nuclear bombs. An additional $40 million is provided for denuclearization activities in the Democratic Peoples Republic of Korea (DPRK), including the continued participation in disablement and proposed dismantlement activities, preparatory activities for nuclear material packaging efforts, and other to-be-determined denuclearization projects.

- **Emerging Threats Nuclear Material Removal** **0** **8,767** **9,500**

This activity develops the capability to rapidly denuclearize a country, ensuring that when opportunities present themselves, such as Libya in 2004, the United States is able to respond quickly. This includes in-country stabilization, packaging, and removal of nuclear materials through the deployment of self-sufficient, trained rapid response teams.

In FY 2010, GTRI will complete equipment procurement, initial training of rapid response teams, and initial field testing. Additional efforts over the long term address staging of support materials, and development, testing, and analysis of deployment procedures. The program seeks to maintain a short-term readiness posture to rapidly deploy assets to assist in recovery of nuclear materials. In addition, the program provides life-cycle replacement of equipment to maintain state-of-the-art technical capability.

- **International Radiological Material Removal** **0** **18,312** **18,500**

This activity supports the removal and disposal of excess or abandoned radiological materials in other countries. This includes Russian radioisotopic thermoelectric generators (RTGs), U.S.-origin sealed sources in other countries, and other orphaned radiological materials.

In FY 2010, GTRI will complete the removal of an additional 25 RTGs, resulting in a cumulative total of 328 RTGs removed by GTRI through direct funding and international contributions (e.g. Canada). Other countries will have recovered about 200 RTGs. An international RTG Action Plan has been developed that addresses the recovery and disposal of all remaining RTGs by 2015.

- **U.S. Radiological Threat Reduction** **13,510** **0** **0**
- **Domestic Radiological Material Removal (Homeland Security** **0** **15,527** **16,000**

This activity supports the removal and disposal of domestic radiological materials by working in cooperation with Federal, State, and local agencies, and private industry to recover and permanently dispose of excess radiological sources in the United States.

In FY 2010, GTRI will remove an additional 2,500 excess and unwanted sealed sources from locations in the United States, resulting in a cumulative total of 24,500 excess sealed sources removed.

Nuclear and Radiological Material Protection **91,647** **117,501** **80,000**

GTRI's Protect subprogram supports the securing of high priority nuclear and radiological material worldwide from theft and sabotage. These efforts result in threat reduction by improving security on the bomb material remaining at civilian sites. The Protect subprogram is key to the GTRI mission because it upgrades security until a permanent threat reduction solution can be implemented.

- **Kazakhstan Spent Fuel** **43,098** **0** **0**
- **BN-350 Nuclear Material Protection** **0** **52,761** **9,000**

This activity provides safe and secure long-term storage of approximately 3,000 kilograms of weapons-grade plutonium and 10,000 kilograms of HEU in spent fuel from the shutdown BN-350 fast breeder reactor in Kazakhstan.

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
In FY 2010, in accordance with signed Government-to-Government Agreements, GTRI will complete the transport of nearly 3,000 kilograms of weapons-grade plutonium and 10,000 kilograms of HEU in spent fuel from Aktau to the Baikal-1 facility for safe and secure storage.			
• **Global Research Reactor Security**	**3,557**	**0**	**0**
• **International Radiological Threat Reduction**	**44,992**	**0**	**0**
• **International Material Protection**	**0**	**31,950**	**35,000**
This activity works in cooperation with foreign counterparts and international agencies to install security upgrades on high-priority, vulnerable nuclear and radiological materials located at civilian sites outside the United States.			
In FY 2010, GTRI will complete security upgrades at an additional 25 research reactor and radiological buildings, resulting in a cumulative total of 639 international buildings secured. Base efforts include working with the International Atomic Energy Agency (IAEA), foreign regulators, and sites to support the sustainability of previously installed security upgrades at 614 buildings in over 80 countries.			
• **Domestic Material Protection (Homeland Security)**	**0**	**32,790**	**36,000**
This activity works in cooperation with Federal, State, and local agencies, and private industry to install security upgrades on high-priority nuclear and radiological materials located at civilian sites in the United States.			
In FY 2010, GTRI will complete security upgrades at an additional 99 research reactors and radiological buildings, resulting in a cumulative total of 179 domestic buildings secured. Base efforts include working with sites to support the sustainability of previously installed security upgrades at 80 buildings throughout the United States.			
Total, Global Threat Reduction Initiative Appropriation	**193,225**	**395,000**	**353,500**
Funds from International Contributions	**6,223**	**0**	**0**
Section 3113 of the John Warner National Defense Authorization Act for FY 2007 authorized the Department of Energy to receive and use financial contributions, including from foreign governments, for programs with the GTRI.			
In FY 2008, GTRI received contributions of $1,975,400 from Canada to recover, replace, and remove up to ten RTGs, $3,997,968 from the United Kingdom of Great Britain and Northern Ireland to address international threat reduction efforts, and $250,000 from the Republic of Korea for radiological threat reduction in Ukraine.			
Total, Global Threat Reduction Initiative Funds Available	**199,448**	**395,000**	**353,500**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
▪ **HEU Reactor Conversion**	
Reflects a decrease due to a reduction of reactor conversions from 6 in FY 2009 to 5 in FY 2010.	-11,847
▪ **Nuclear and Radiological Material Removal**	
Reflects a decrease associated with advance procurements in FY 2009 to support accelerated shipments into FY 2010 from outyears as well as an increase of $40 million for DPRK denuclearization activities.	+7,848
▪ **Nuclear and Radiological Materials Protection**	
Reflects a decrease due to the scheduled completion of the BN-350 Nuclear Material Protection material shipments by the end of FY 2010.	-37,501
Total Funding Change, Global Threat Reduction Initiative	**-41,500**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
General Plant Projects	0	0	0
Capital Equipment	85	87	89
Total, Capital Equipment	**85**	**87**	**89**

Outyear Capital Operating Expenses

	(dollars in thousands)			
	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	0	0	0	0
Capital Equipment	91	93	95	97
Total, Capital Equipment	**91**	**93**	**95**	**97**

[a] Funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, and are no longer budgeted for separately for capital equipment and general plant projects. FY 2009 and FY 2010 funding shown reflects estimates based on projected FY 2008 obligations.

International Nuclear Fuel Bank

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Total, International Nuclear Fuel Bank Program	**49,545**	**0**	**0**

Public Law Authorization:

FY 2008 Consolidated Appropriations Act (P.L. 110-161)

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Total, International Nuclear Fuel Bank Program	**0**	**0**	**0**	**0**

Description

The FY 2008 Consolidated Appropriations Act (P.L. 110-161) provides approximately $50 million for an International Nuclear Fuel Bank initiative. The funding for the International Nuclear Fuel Bank is the United States Government's contribution to an international effort to establish a nuclear fuel supply for peaceful means under the auspices of the International Atomic Energy Agency (IAEA). The International Nuclear Fuel Bank will provide a nuclear fuel stockpile to be available as a fuel supply reserve for nations that have made the sovereign choice to develop their civilian nuclear energy industry based on foreign sources of nuclear fuel; and therefore, have no requirement to develop an indigenous nuclear fuel enrichment capability.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
International Nuclear Fuel Bank Program	**49,545**	**0**	**0**
The International Nuclear Fuel Bank Program was established by the FY 2008 Consolidated Appropriations Act (P.L. 110-161). In accordance with this Act, a report is being prepared by the Defense Nuclear Nonproliferation program on the progress of the United States to support the establishment of a nuclear fuel supply for peaceful means under the auspices of the IAEA.			
Total, International Nuclear Fuel Bank Program	**49,545**	**0**	**0**

Congressionally Directed Projects

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Congressionally Directed Projects	**7,380**	**1,903**	**0**

Description

The FY 2009 Omnibus Appropriations Act (P.L. 111-8) included one congressionally directed project within the Defense Nuclear Nonproliferation program. Starting in FY 2008, funding for congressionally directed projects was appropriated as a separate funding line although specific projects may relate to ongoing work in a specific programmatic area.

Detailed Justification

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Congressionally Directed Projects			
• George Mason University Center for Biodefense and Infectious Disease Research (VA). Funding was provided to take advantage of novel methods to rapidly detect biological and chemical threat agents using physical chemistry, active detection, and unusual forms of computational analysis.	2,952	0	0
• Nuclear Security Science and Policy Institute, Texas A&M (TX). Funding was provided to bring nuclear technology and education together with development of sound public policy for nuclear nonproliferation. Among the capabilities, the researchers are working on new methods to safeguard nuclear reactor fuel, attribution of the source of a nuclear or radiological attack, and development of more sensitive and accurate interrogation devices to detect radioactive materials at ports of entry.	1,968	1,903	0
• Offshore Detection Integrated System (OH)	984	0	0
• New England Research in White River Junction, Vermont, for the Caucasus Seismic Network (VT)	1,476	0	0
Total, Congressionally Directed Projects	**7,380**	**1,903**	**0**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Congressionally Directed Projects	
No funding requested.	-1,903
Total, Congressionally Directed Projects	**-1,903**

Naval Reactors

Naval Reactors

Naval Reactors

Proposed Appropriation Language

For Department of Energy expenses necessary for naval reactors activities to carry out the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition (by purchase, condemnation, construction, or otherwise) of real property, plant, and capital equipment, facilities, and facility expansion, [$828,054,000] *$1,003,133,000,* to remain available until expended.

Explanation of Change

Change from the language proposed in FY 2009 consists of a change to the requested funding amount.

Naval Reactors

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Naval Reactors Development			
Operations and Maintenance (O&M)	732,374	771,600	935,533
Program Direction	32,403	34,454	36,800
Construction	9,909	22,000	30,800
Total, Naval Reactors Development	**774,686**	**828,054**	**1,003,133**

Public Law Authorizations:

P.L. 83-703, "Atomic Energy Act of 1954"
"Executive Order 12344 (42 U.S.C. 7158), "Naval Nuclear Propulsion Program"
P.L. 107-107, "National Defense Authorizations Act of 2002", Title 32, "National Nuclear Security Administration"
John Warner National Defense Authorization Act for FY 2007, (P.L. 109-364)
FY 2008 Consolidated Appropriations Act (P.L. 110-161)
National Nuclear Security Administration Act, (P.L. 106-65), as amended
FY 2009 Consolidated Appropriations Act (P.L. 111-8)

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Naval Reactors Development				
Operations and Maintenance	879,386	888,634	882,878	878,117
Program Direction	37,900	38,800	39,700	40,600
Construction	33,500	22,900	26,400	30,000
Total, Naval Reactors Development	**950,786**	**950,334**	**948,978**	**948,717**

Major FY 2008 Achievements

- Concluded sea trials for the last NIMITZ-class aircraft carrier, the USS GEORGE H.W. BUSH.
- Commissioned the fourth and fifth VIRGINIA-class fast attack submarines, the USS NORTH CAROLINA and the USS NEW HAMPSHIRE.
- Steamed over two million miles in nuclear–powered ships and submarines in a safe, reliable and militarily-effective manner, which brings the total to over 140 million miles of safe steaming.
- Completed 85 percent of the design for the next-generation reactor plant for the GERALD R. FORD aircraft carrier. Awarded the construction contract for the first-of-a-class GERALD R. FORD aircraft carrier; commissioning planned for 2015.

- Completed the design basis for the VIRGINIA-class forward fit alternative core to support the Navy's cost reduction and fast attack submarine build rate goals.

Major Outyear Priorities and Assumptions

The outyear projections for Naval Reactors total $3,798,815,000 (FY 2011-FY 2014). Naval Reactors was provided additional funding to fund core development efforts for the OHIO-class Ballistic Missile Submarine Replacement and Land-Based Prototype Refueling projects, NEPA and conceptual design efforts for the Spent Nuclear Fuel Infrastructure Recapitalization project, and continued low-power testing of the Supercritical Carbon Dioxide Energy Conversion project. Outyear controls reflect this increase in funding in support of these projects.

Further, this level of funding supports Naval Reactors' continued achievement of its core objective of ensuring the safe and reliable operation of the Nation's Nuclear Fleet. This includes providing proper maintenance and safety oversight, as well as addressing emergent operational issues and technology obsolescence, for 71 submarines, ten aircraft carriers, and four research & development and training platforms, constituting 103 reactor plants. This level of funding also supports Naval Reactor's continued achievement of ongoing new plant design projects (i.e., reactor plant for the GERALD R. FORD-class aircraft carrier and alternative lower-cost core for VIRGINIA-class submarines), as well as continued achievement of its legacy responsibilities such as ensuring proper storage of naval spent nuclear fuel, prudent recapitalization of aging facilities, and cleanup of environmental liabilities.

OHIO-Class Ballistic Missile Submarine Replacement

The Navy's strategic deterrent delivery platform, the OHIO-class submarine, is an essential asset for deterring current and future threats against the United States and directly supports the National Security and National Military strategies. The Navy's latest long-range shipbuilding plan recommends platform development to replace OHIO-class ballistic missile submarines to begin in 2010. In a few months, the Navy will complete the defense acquisition process leading to formal establishment of a program of record for the OHIO-class submarine replacement. Given the necessity to commence ship and missile compartment design work in 2010, the Department of Defense has indentified funding to support Navy-cognizant propulsion plant development efforts as part of their FY 2010 budget submittal. Naval Reactors will begin DOE-cognizant propulsion plant design work in FY 2010 as the reactor plant is among the systems needed earliest in the overall ship design. Funding has been identified within the Naval Reactors Operations and Maintenance for FY 2010 in the amount of $59,000,000.

Land-Based Prototype Refueling

The S8G Prototype (located in upstate New York), one of two land-based reactor plant prototypes, is a unique national asset that serves as a testing platform for nuclear technology, and will require refueling in 2018. This scheduled refueling supports the Program's mission of developing and testing new technologies for fleet application by maintaining this critical testing capability. The complexity of the work required for the prototype refueling overhaul, as well as insertion of advanced core technologies, necessitates an increase in resources starting in FY 2010. The refueling consists of three aspects: (1) refueling, (2) overhaul, and (3) extension/modernization, and is expected to be complete by FY 2021. Funding has been identified within Naval Reactors Operations and Maintenance for FY 2010 in the amount of $47,500,000.

Recapitalization of Spent Nuclear Fuel Infrastructure

NR must preserve the long-term capability to process and package naval spent nuclear fuel in preparation for ultimate disposal. Naval spent nuclear fuel processing directly supports the refueling and defueling of ships and enables NR to execute its cradle to grave responsibility for management of naval spent nuclear fuel. The infrastructure for processing spent nuclear fuel has been managed in a technologically-capable, environmentally-responsible, and cost-effective manner. Ongoing infrastructure sustainment efforts will preserve these essential capabilities and ensure NR's high standards for protection of the environment continue to be met; however, major portions of the existing infrastructure are approaching 50 years old. Consequently, the magnitude of required sustainment efforts and incremental infrastructure upgrades pose a risk to operations and workflow. An interruption to NR's ability to refuel and defuel nuclear-powered ships, as required by existing maintenance schedules, would adversely affect the operational availability of the nuclear Fleet. If this interruption were to extend over long periods, the ability to sustain Fleet operations would be impacted, resulting ultimately in a significant decrement to the Navy's responsiveness and agility to fulfill military missions worldwide.

In accordance with 50 United States Code (USC), Section 2746, which requires the Department to request funds for conceptual designs that exceed the $3,000,000 threshold, funding for conceptual design and ongoing NEPA efforts has been identified within Naval Reactors Operations and Maintenance for FY 2010 in the amount of $5,000,000.

Supercritical Carbon Dioxide Energy Conversion

Supercritical carbon dioxide (S-CO_2) energy conversion, as a replacement for the steam cycle, potentially offers the next major step change in plant technology. An S-CO_2 system is envisioned to be significantly smaller, simpler, more automated, and more affordable. Leveraging existing university, industry, and DOE-laboratory work in this technology, conceptual development and small-scale testing is underway to support continued work in 2010. Funding has been identified within Naval Reactors Operations and Maintenance for FY 2010 in the amount of $1,000,000.

Mission

Naval Reactors is responsible for all naval nuclear propulsion work, beginning with reactor technology development, continuing through reactor operation, and ending with reactor plant disposal. The Program ensures the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers (constituting 40 percent of the Navy's combatants), and fulfills the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements.

Funding for a proportional share of NNSA's annual assessment required to pay for Defense Contract Audit Agency activities is included in this appropriation. The amount estimated for Naval Reactors is approximately $700,000 for FY 2009 and $700,000 for FY 2010, to be paid from program funding.

Contractor Defined-Benefit Pension Plans

The FY 2010 President's Request for Naval Reactors includes a total of $57.8M to directly support contractor pension contributions. This funding is provided under Operations and Maintenance and is not carried forward in FY 2011-FY 2014.

The requested funding will be used in part to reimburse the costs of DOE contractor contributions to defined-benefit (DB) pension plans as required by the Employee Retirement Income Security Act (ERISA), as amended by the Pension Protection Act of 2006 (PPA), and consistent with Departmental direction. The PPA amended ERISA to require accelerated funding of DB pension plans so that the plans become 100 percent funded in 2011. Most contractors that manage and operate DOE's laboratories, weapons plants, and execute environmental clean-up projects at various government owned sites and facilities are contractually required assume sponsorship of any existing contractor DB pension plans for incumbent employees who work and retire from these sites and facilities. Increased contributions began to be required for some of these DB pension plans as a result of the downturn in investment values in FY 2009. Whether additional funding will be needed in future years will depend on the funded status of the plans based on plan investment portfolios managed by the contractors as sponsors of the DB pension plans.

Benefits

As the Global War on Terror continues, the National Nuclear Security Administration (NNSA) is working to provide the U.S. Navy with nuclear propulsion plants that are capable of responding to the challenges of the 21st century security environment.

Strategic Theme, Goals and the Secretary's Initiatives

A new Strategic Plan has not yet been established and approved by the Secretary of Energy. The Secretary has established major priorities and initiatives. The following chart aligns the current Strategic Plan with the Secretary's priorities:

Strategic Theme	Strategic Goal	Secretary's Priority	GPRA Unit	Title	Office
Nuclear Security	Nuclear Deterrent	National Security	25	Naval Reactors	NNSA

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2005 Results	FY 2006 Results	FY 2007 Results	FY 2008 Results	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Endpoint Target
Strategic Goal 2.3 (Nuclear Propulsion Plants) GPRA Unit Program Goal 2.3.45.00, Naval Reactors											
Cumulative miles steamed, in millions, of safe, reliable, militarily effective nuclear propulsion plant operation supporting National security requirements (Long-term Outcome)	R: 133 T: 132	R: 136 T: 134	R: 138 T: 138	R: 140 T: 140	T: 142	T: 144	T: 146	T: 148	T: 150	T: 152	By 2015, complete safe steaming of approximately 154 million miles in nuclear-powered ships. (Interim Target)
Cumulative percentage of completion on the Transformational Technology Core (TTC) reactor plant core fuel design (Long-term Outcome)	R: 23% T: 23%	R: 34% T: 34%	R: 100% T: 100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	In 2007, completed the TTC reactor plant core fuel design.
Cumulative percentage of completion on the next-generation aircraft carrier reactor plant design (Long-term Outcome)	R: 70% T: 70%	R : 75% T: 75%	R: 80% T: 80%	R: 85% T: 85%	T: 88%	T: 91%	T: 94%	T: 96%	T: 98%	T: 99%	By 2015, provide the reactor plant for the next-generation aircraft carrier.
Annual percentage of Program operations that have no adverse impact on human health or the quality of the environment (Annual Outcome)	R: 100% T: 100%	R: 100% T: 100%	R: 100% T: 100%	R: 100% T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	Annually, ensure that 100% of Program operations have no adverse impact on human health or the quality of the environment.
Annual utilization factor for operation of test reactor plants (Efficiency)	R: 94% T: 90%	R: 91% T: 90%	R: 95% T: 90%	R: 92% T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	Annually, achieve a utilization factor of at least 90% for operation of test reactor plants.
Annual Naval Reactors complex-wide aggregate Facility Condition Index (FCI), as measured by deferred maintenance per replacement plant value for all program facilities and infrastructure (Annual Output)	N/A	R: 5% T: 5%	R: 5% T: 5%	R: 4% T: 5%	T: 4%	T: 4%	T: 4%	T: 4%	T: 4%	T: 4%	Annually, achieve an FCI of 4% or below.

Means and Strategies
The Naval Reactors Program will use various means and strategies to achieve its program goals, including performing collaborative activities. The Program does not believe there are major external factors that could affect our ability to achieve this goal. However, given the unique nature of the Program's responsibilities, commitments to both DOE and the U.S. Navy must be considered at all times. Therefore, any external factor seriously affecting either organization's policies may have an impact on the Naval Reactors Program.

The Naval Reactors Program uses two Government-owned, contractor-operated laboratories, the Bettis and Knolls Atomic Power Laboratories, which are predominately involved with the design, development and operational oversight of nuclear propulsion plants for naval vessels. Through these laboratories, and through testing conducted at the Advanced Test Reactor (ATR) located at the Idaho National Laboratory (INL), the Department will complete scheduled design, analysis and testing of reactor plant components and systems, and will conduct planned development, testing, examination, and evaluation of nuclear fuel systems, materials, and manufacturing and inspection methods necessary to ensure the continued safety and reliability of reactor plants in Navy warships. The Department will also accomplish planned testing, maintenance and servicing at land-based prototype nuclear propulsion plants, and will execute planned inactivation of shutdown, land-based reactor plants in support of environmental cleanup goals. Finally, the Department will carry out the radiological, environmental and safety monitoring and ongoing cleanup of facilities necessary to protect people, minimize release of hazardous effluents to the environment, and comply with all applicable regulations.

Industry-specific business conditions, outside technological developments and Department of Navy decisions all impact the performance of naval nuclear propulsion work. Naval nuclear propulsion work is an integrated effort involving the DOE and the Navy, who are full partners in the Naval Nuclear Propulsion Program. This relationship is set forth in Executive Order 12344 and Title 42 U.S.C. 7158.

Validation and Verification
NNSA uses extensive internal and external reviews to evaluate progress against established plans. NNSA's programmatic activities are subject to continuing review by the Congress, the General Accounting Office, the Department's Inspector General, the National Security Council, the Defense Nuclear Facilities Safety Board, the Department's Office of Engineering and Construction Management, and the Department's Office of Independent Oversight and Performance Assurance.

Naval Reactors evaluates the effectiveness, relevance, and progress towards achieving its goals, objectives, and targets by conducting various internal and external reviews and audits. Naval Reactors Headquarters provides continuous oversight and direction for all elements of Program work. Due to the nature of nuclear technology, a dedicated Government headquarters professional staff expert in nuclear technology makes all major technical decisions regarding design, procurement, operations, maintenance, training, and logistics. Headquarters engineers set standards and specifications for all Naval Nuclear Propulsion Program work, while on-site Headquarters representatives monitor the work at the laboratories, prototypes, shipyards, and prime contractors.

Naval Reactors has a fully integrated long-range planning, budgeting, and execution system. Through this system, Naval Reactors determines general work direction and associated funding needs; balances competing work priorities against available funds; and establishes, monitors, and enforces performance measures and controls. Work and funding priorities are established in relation to core mission. The Program uses this focused, multi-year planning process to evaluate any deficiencies. The resulting

review process validates 100 percent of the budget twice a year and serves as Naval Reactors' change control process.

Historically Black Colleges and Universities (HBCU) Support

The NNSA has established program to target research opportunities for HBCU institutions to increase their participation in national security-related research and to train and recruit qualified HBCU graduates for employment within the national security enterprise. The majority of the efforts directly support program activities, and programs funded in the Naval Reactors appropriation may fund research with the HBCU totaling up to approximately $1,000,000 in FY 2010.

Facilities Maintenance and Repair

The Department's Facilities Maintenance and Repair activities are tied to its programmatic missions, goals, and objectives. Facilities Maintenance and Repair activities funded by this budget are displayed below.

Indirect-Funded Maintenance and Repair

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Indirect-Funded Maintenance and Repair			
Bettis Atomic Power Laboratory	6,035	6,194	6,066
Naval Reactors Facility	490	475	505
Knolls Atomic Power Laboratory	7,728	8,194	6,698
Kesselring Site Operations	2,784	2,739	4,624
Total, Indirect-Funded Maintenance and Repair	**17,037**	**17,602**	**17,893**

Outyear Indirect-Funded Maintenance and Repair

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Outyear Indirect-Funded Maintenance and Repair				
Bettis Atomic Power Laboratory	6,261	6,349	6,479	6,350
Naval Reactors Facility	456	430	522	497
Knolls Atomic Power Laboratory	6,638	6,792	6,423	6,430
Kesselring Site Operations	5,353	5,336	4,717	3,278
Total, Outyear Indirect-Funded Maintenance and Repair	**18,708**	**18,907**	**18,141**	**16,555**

Direct-Funded Maintenance and Repair

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
Direct-Funded Maintenance and Repair			
Bettis Atomic Power Laboratory	0	0	0
Naval Reactors Facility	9,305	9,030	9,592
Knolls Atomic Power Laboratory	758	684	508
Kesselring Site Operations	3,626	4,114	3,290
Total, Direct-Funded Maintenance and Repair	**13,689**	**13,828**	**13,390**

Outyear Direct-Funded Maintenance and Repair

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Outyear Direct-Funded Maintenance and Repair				
Bettis Atomic Power Laboratory	0	0	0	0
Naval Reactors Facility	8,662	8,178	9,917	9,442
Knolls Atomic Power Laboratory	530	545	539	538
Kesselring Site Operations	3,441	3,504	3,589	3,368
Total, Outyear Direct-Funded Maintenance and Repair	**12,633**	**12,227**	**14,045**	**13,348**

Naval Reactors

Operations and Maintenance (O&M)

Funding Profile by Subprogram

(dollars in thousands)

	FY 2008 Current Appropriation	FY 2009 Original Appropriation	FY 2010 Request
Operations and Maintenance (O&M)			
Plant Technology	107,008	104,000	154,000
Reactor Technology and Analysis	205,955	204,400	282,300
Materials Development and Verification	106,877	106,100	118,100
Evaluation and Servicing	203,757	264,300	280,000
ATR Operations and Test Support	56,361	60,300	61,800
Facility Operations	52,416	32,500	39,333
Total, Operations and Maintenance	**732,374**	**771,600**	**935,533**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Total, Operations and Maintenance	**879,386**	**888,634**	**882,878**	**878,117**

Detailed Justification

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Plant Technology	**107,008**	**104,000**	**154,000**

Plant Technology work focuses on the components and systems of the ship's nuclear power plant. These components and systems transfer, convert, store and measure power to facilitate reductions in maintenance costs over the life of the plant while improving reliability, efficiency, and operational performance. Reactor plant performance, reliability, and safety are maintained via a thorough understanding of component performance and system condition throughout the life of a ship. Also, new components and systems are needed to support new reactor plants and to replace obsolete or degraded equipment and systems. Development and application of new analytical methods, predictive tests, and design tools are required to identify potential concerns before they become actual problems. This enables preemptive actions to ensure the continued safe operation of reactor plants and the minimization of maintenance costs. Plant Technology work is concentrated in the following areas: (1) Steam Generator, (2) Instrumentation and Control Technology, (3) Plant Arrangement/ Development, and (4) Plant Performance and Plant Chemistry.

Steam Generator: This work focuses on ensuring satisfactory reactor plant operation throughout life and improve steam generator, energy conversion, and steam generator chemistry technologies to enhance performance and reduce maintenance costs. FY 2010 work objectives include the following:

- Continue to conduct assessments of plant concepts, development of plant components and investigations of alternate energy conversion technologies for advanced naval propulsion plant applications;
- Continue to develop improved steam generator chemistry and corrosion instrumentation through continued prototype and laboratory testing;
- Complete monitoring and assessment of performance of liquid level probe and in-situ chemistry/corrosion monitoring in S8G and MARF prototypes to obtain data, defining actual conditions in operating steam generators;
- Perform supercritical carbon dioxide integrated systems test, and
- Develop steam generator concepts supporting long-lead material procurements for the OHIO-class follow-on submarine.

Instrumentation and Control (I&C) Technology: This work focuses on developing instrumentation and control equipment to replace obsolete equipment, improve reliability and performance and reduce costs. FY 2010 work objectives include the following:

- Integrate, evaluate, and support testing of advanced power electronic controls in motor drives that support future submarine electric drive;
- Continue integrated system testing of advanced electric plant control systems including new technologies and architectures;

- Complete detailed design, development, and qualification of the A1B reactor plant I&C system;
- Complete design, development, and qualification of the S6W Generic I&C (Type 2) equipment;
- Complete future submarine Rapid Prototype and perform evaluations including reviews, and
- Perform on-board acceptance testing of first ship set of S8G generic I&C equipment.

Plant Arrangement/Development: This work focuses on developing and testing reactor plant components and applicable emergent energy conversion technologies for converting high temperature reactor heat to electricity. These efforts address known limitations and have as a goal improved overall reactor plant systems performance and reliability. FY 2010 work objectives include the following:

- Evaluate, develop and text new features/materials for various Main Coolant Pump components;
- Continue design of the A1B reactor plant and development of the A1B reactor plant operating procedures;
- Continue design activities necessary to support VIRGINIA class cost reduction initiatives;
- Continue to assist plant designers in implementation of novel design methods to identify vulnerabilities in more simplified, more affordable designs;
- Perform OHIO-class replacement reactor compartment arrangement studies;
- Initiate OHIO-class replacement reactor plant component development; and
- Develop power plant operational concepts for use in the land-based prototype.

Reactor Technology and Analysis	**205,955**	**204,400**	**282,300**

Reactor Technology and Analysis supports the work required to ensure the operational safety and reliability of operating reactor plants in U.S. warships, extend the operational life of Navy nuclear propulsion plants, support Navy acoustic requirements, and preserve the Program's level of excellence in radiological and environmental control. Work focuses on developing a better understanding of reactor behavior fundamentals; designing new, reduced cost reactors with improved reliability, and efficiency; improving and streamlining manufacturing and assembly processes to achieve cost savings and reduce waste; developing production techniques that incorporate new materials and processes; and continuing a record of excellence in safety. Reactor Technology and Analysis work is concentrated in the following areas: (1) Advanced Core and Reactor Technology, (2) Advanced Thermal-Hydraulic Technology, (3) Advanced Fuel and Manufacturing Technology, (4) Control Drive Mechanism, (5) Reactor Physics, (6) Safety Analysis and Shielding, and (7) Radiological Controls, Environmental, Safety, and Quality Efforts.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Advanced Core and Reactor Technology: This work focuses on improving the nuclear heat source (core) design and analysis methods and developing improved designs to satisfy service life requirements. FY 2010 work objectives include the following:

- Initiate actions in Hot Quiet Test Facility to perform Advanced Concepts testing;
- Perform nuclear/thermal/mechanical calculations in support of Virginia Forward Fit alternative core final Poison Design and validation;
- Verify the physics parameters of all operating fleet cores and monitor operating data with respect to Reactor Systems Performance Analysis (RSPA) limits;
- Continue work on cost saving initiatives and core design concepts related to future submarine initiatives;
- Continue to develop new design and analysis tools to enable improved core performance and cost savings;
- Develop new technology test cell concept designs to support potential future fleet applications focused on improved performance and reduced cost;
- Develop replacement core arrangement and concept design for land-based prototype;
- Perform land-based prototype test cell and replacement core integration studies; and
- Develop OHIO-class replacement reactor core concepts and arrangements focused on reduced cost with increased performance.

Advanced Thermal-Hydraulic Technology: This work focuses on developing and qualifying improved core and reactor component thermal and hydraulic designs. FY 2010 work objectives include the following:

- Develop thermal-hydraulic technologies and methods to support future advanced pressurized water reactor (PWR) and advanced concept designs;
- Maintain integrated, state-of-the-art software system for plant performance/protection analysis, reactor safety analyses, and real-time applications, and
- Perform additional tests and procedures to further extend advanced Thermal-Hydraulic tools for new naval applications.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Advanced Fuel and Manufacturing Technology: This work focuses on evaluating and testing improved core manufacturing processes and inspection techniques to support reactors. FY 2010 work objectives include the following:

- Develop new fuel and poison manufacturing technologies to enable future plan design concepts;
- Continue to fabricate model elements and core structural components to qualify new reactor materials, designs, and manufacturing and inspection technologies for follow on cores;
- Investigate new methods to improve core-manufacturing processes;
- Investigate new fuel systems for cost savings and improved manufacturability;
- Perform development and manufacturing assessment of new test cell technologies; and
- Initiate advanced core material manufacturing development work to be used on land-based prototype to qualify fleet production scale manufacturing capability.

Control Drive Mechanism (CDM): This work focuses on designing and testing improved reactor equipment including advanced control drive mechanisms which meet all design requirements, are more reliable than past designs, and are more affordable. FY 2010 work objectives include the following:

- Conduct shock testing of different core designs for A1B;
- Perform additional life test on the A1B CDM lead unit;
- Continue design of the long-term test facility for the A1B CDM;
- Continue analysis of the Next Generation Reactor (NGR) CDM;
- Continue evaluating future CDM design enhancements for longer term, more affordable application. Complete and issue report on shock testing of an advanced PWR design;
- Develop new control drive mechanism for OHIO-class replacement design focused on reduced acquisition cost; and
- Develop unique core and test cell instrumentation to be used in land-based prototype which will provide data supporting fleet performance predictions and new design space evaluations.

Reactor Physics: This work focuses on performing physics testing and analysis to confirm expected fuel system and core performance and develop improved analysis methods for predicting core performance that reduce design approximations, uncertainties, and associated conservatism. FY 2010 work objectives include the following:

- Continue Reactor System Protection Analysis (RSPA) support for the NGR Core;
- Develop physics test predictions and related analysis for NGR new construction testing, and
- Develop and qualify nuclear design procedures and computer programs for analyzing both advanced PWR and high temperature reactor cores.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Safety Analysis and Shielding: This work focuses on conducting reactor safety and shielding analysis for nuclear reactor plants to ensure containment of radiation and proper protection of personnel. FY 2010 work objectives include the following:

- Document reactor safety deliverables and support Nuclear Regulatory Commission and Advisory Committee on Reactor Safeguards reviews;
- Support updates and revisions to the A1B drawings for items which impact the shield design;
- Provide shielding review of issues associated with advanced reactor plant designs, and
- Provide consultation on shielding issues for advanced reactor design development.

Radiological Controls, Environmental, Safety, and Quality Efforts: This work focuses on conducting radiological control, environmental, and safety operations necessary to protect laboratory employees, minimize release of hazardous effluents to the environment, and comply with all applicable regulations. FY 2010 work objectives include the following:

- Continue to survey and document radiological conditions; train personnel for all phases of radiological work and environmental work;
- Continue to review radiological work procedures, conduct a radiological health program, and conduct emergency preparedness program;
- Continue to maintain strict accountability and handling methods for nuclear fuel, and
- Continue to ensure compliance with all safety and environmental regulations; train personnel to comply with latest standards and practices.

Materials Development and Verification	**106,877**	**106,100**	**118,100**

To extend the lifetime of reactors, reduce costs, and achieve greater power capabilities, new materials must be developed and qualified for use in the harsh reactor environment. Existing or new materials selected for current or future advanced designs must also be economical to acquire and feasible to manufacture. Manufacturing processes must be developed to ensure the materials can be cost effectively produced to stringent specifications in appropriate quantities. Material test specimens are fabricated and rigorously tested for desired characteristics. Irradiation testing and quality control techniques are crucial to this qualification process. Materials exhibiting the desired characteristics warranting further evaluation are committed to long-term tests and verification in prototype cores and test reactors. Materials Development and Verification work is concentrated in the following areas: (1) Irradiation Testing and Evaluation, (2) Core and Reactor Materials Development, (3) Plant and Component Materials Development, and (4) Materials Evaluation, Testing and Verification.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Irradiation Testing and Evaluation: This work involves fabricating, testing and examining high integrity nuclear fuel, poison, cladding and structural materials for affordable advanced naval reactor cores. The generated data is used to develop materials capable of maintaining their structural and mechanical integrity over long periods of time in an operating reactor environment. FY 2010 work objectives include the following:

- Establish the methods and hardware to irradiate and qualify new materials and manufacturing methods for PWR designs;
- Perform destructive and non-destructive testing and evaluation of irradiated fuel, poison, and cladding in support of development and improvement of core, plant and steam generator materials;
- Perform post-service evaluation of components from the fleet to improve component designs and verify performance;
- Continue examinations of PWR fuel and cladding performance incorporating results into predictive tools, and
- Deliver test assemblies for irradiation testing at the Advanced Test Reactor.

Core and Reactor Materials Development: Involves verifying acceptable performance for current cores through end of life, pursuing potential cost reductions, and improving materials and processes through long-term irradiation tests and evaluations. FY 2010 work objectives include the following:

- Perform corrosion testing to support core design needs, model development and improved understanding of the corrosion process for Zircaloy and Zircaloy-alloys;
- Utilize test data and increased fundamental understanding to improve models and revise current design bases from ore capable and cost efficient PWR designs;
- Continue development, irradiation testing, and examinations of high temperature PWR fuel element constituent materials;
- Continue to establish the processes needed to qualify new materials and manufacturing methods for safer, more capable, and more cost effective PWR designs;
- Continue to develop, test, and examine high performance fuel system constituent materials for advanced applications;
- Incorporate design limits into the Fuel and Poison Design manual developed for future submarines, and
- Apply core material modeling capabilities to guide testing programs, improved understanding of manufacturing processes, and better predict in-core performance.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Plant and Component Materials Development: This work characterizes high strength structural, corrosion resistant, pressure vessel, steam generator, and valve materials to determine the cause for degraded performance and develop improved predictive techniques. FY 2010 work objectives include the following:

- Provide welding support for S9G Steam Generators and A1B reactor heavy equipment fabrication;
- Continue Alloy 600 Stress Corrosion Cracking (SCC) initiation and incubation testing;
- Continue development of the initiation phase and incubation phase of the Advanced Alloy 600 SCC model, and
- Complete testing to qualify Alloy 690.

Materials Evaluation, Testing and Verification: The purpose of this work is to establish and maintain capability to perform materials testing representative of shipboard service applications. FY 2010 work objectives include the following:

- Evaluate and support initiatives, which reduce long term operating costs, maximize operational effectiveness and provide greatest program impact;
- Provide Analytical Chemistry, Radiochemistry, Physical Chemistry, Metallography, Micro analytical and Mechanical Testing services in support of materials development programs;
- Conduct high temperature and high-pressure autoclave testing in support of new materials development for use in the fleet, and
- Implement Focus Ion Beam capabilities for site-specific sample preparation for suite of micro characterization tools and in-situ 3-D materials characterization.

Evaluation and Servicing	**203,757**	**264,300**	**280,000**

Evaluation and Servicing promotes the Naval Reactors Program tradition of safety, reliability, and technical excellence through the operation, maintenance, and testing of land-based test facilities. A key focus of these facilities is to enhance fleet performance through testing and examination of materials, components, and new designs under actual operating conditions. This effort includes the design of fuel servicing and component disposal equipment, evaluating and resolving design issues, plus the planning and execution of defueling, lay-up, and disassembly work. Evaluation and Servicing work is concentrated in the following areas: (1) Routine Operations and Maintenance, (2) Routine Environmental Remediation, (3) Servicing, (4) Expended Core Processing and Examination, (5) Prototype Inactivation.

(dollars in thousands)

FY 2008	FY 2009	FY 2010

Routine Operations and Maintenance: This work involves operating the Naval Reactors prototypes in a safe and reliable manner to support testing and evaluation of new components, systems, applications, and designs. The work also supports preventive maintenance, upgrades and modifications on the prototypes. FY 2010 work objectives include the following:

- Perform depletion and testing of the cores in MARF and S8G prototypes;
- Conduct the tenth S8G high power physics test and issue reports, and conduct MARF maximum power tests at specified intervals;
- Conduct MARF and S8G materials stress tests, and
- Operate the prototypes for testing and maintenance at a utilization factor of equal to or greater than 90 percent.

Routine Environmental Remediation: This process involves decontaminating to minimize the environmental, health, and safety impact of contaminated facilities, with the benefit of making radiological facilities available for non-radiological use. FY 2010 work objectives include the following:

- Conduct remediation of obsolete facilities to reduce potential environmental liabilities;
- Decontaminate and disposition Expended Core Facility environmental legacies based on Program priorities;
- Maintain inactive Naval Reactors Facility prototype plants in a safe and environmentally benign condition;
- Complete decontamination of radiological areas of the Materials Evaluation Laboratory complex;
- Complete removal of contaminated inactive equipment and systems form the L-Building in accordance with the project management plan, and
- Complete deconstruction of the CX Dump Tank and Dump Tank Pit.

Servicing: This work involves servicing prototypes to ensure continued safe and reliable operation. Servicing also provides refueling/defueling systems for both existing and new core designs. FY 2010 work objectives include the following:

- Continue casualty monitoring instrumentation and emergency safeguards system cutting equipment design;
- Deliver closure head penetration covers and equipment for initial installation of the CDM clamp rings and the support tubes;
- Complete execution of MARF and S8G Selected Restricted Availabilities, including the Engineered Safety Features System upgrade;

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010

- Complete design of engineered safeguards system installation tooling and casualty monitoring penetration components installation tooling, and
- Complete major non-fueling overhaul of the S8G prototype.

Expended Core Processing & Examination: This work involves operating the Expended Core Facility (ECF) in Idaho including the Advanced Test Reactor (ATR) in a safe and reliable manner to support examination and disposal of spent naval fuel. FY 2010 work objectives include the following:

- Perform specific core component examinations as requested by test sponsors;
- Perform testing to improve spent fuel canister dry storage operations;
- Initiate final design of Canal Fuel Transfer Station;
- Provide engineering support and funding to maintain five NR Program test loops;
- Develop tooling and examine scheduled irradiated test specimens;
- Complete design of M-290 unloading equipment;
- Initiate efforts on ECF recapitalization project conceptual design, and
- Initiate efforts on the ECF recapitalization Environmental Impact Statement.

Prototype Inactivation: This work involves the disassembly and disposition of the Program's testing prototypes and support facilities. FY 2010 work objectives include the following:

- Commence disassembly of the D1G Primary Shield Tank, and
- Continue D1G reactor compartment disassembly.

Advanced Test Reactor (ATR) Operations and Test Support	**56,361**	**60,300**	**61,800**

Naval Reactors performs irradiation testing at the ATR in support of advanced reactor design development. While ATR is a facility primarily funded by the Office of Nuclear Energy and operated by their contractor, NR funds a portion of the cost of base operations of the ATR, as well as NR specific testing.

Facility Operations	**52,416**	**32,500**	**39,333**

Facility Operations funding supports general plant projects (GPP) and capital equipment procurements.

Total, Operations and Maintenance	**732,374**	**771,600**	**935,533**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Plant Technology	
• Initiate reactor compartment and steam generator concept work on OHIO-class replacement including arrangement studies and component development.	+26,000
• Develop power plant operational concepts for use in the land-based prototype.	+11,000
• Perform supercritical carbon dioxide integrated systems test.	+1,000
• Portion of funding to support increased contractor pension contributions.	+12,000
Reactor Technology and Analysis	
• Develop new technology test cell concept designs for land-based prototype to support potential future fleet applications focused on improved performance and reduced cost.	+20,000
• Develop replacement core arrangement, concept design, and perform manufacturing assessment for land-based prototype.	+16,500
• Develop OHIO-class replacement reactor core concepts and arrangements and new control drive mechanism focused on reduced cost with increased performance.	+33,000
• Portion of funding to support increased contractor pension contributions.	+15,400
• Complete design basis for Virginia Forward Fit (VAFF) fuel design, A1B reactor safety steam-water plena test program and A1B CDM qualification, and shock testing of advanced PWR design.	-7,000
Materials Development and Verification	
• Portion of funding to support increased contractor pension contributions.	+12,000
Evaluation and Servicing	
• Complete execution of MARF and S8G Selected Restricted Availabilities, including the Engineered Safety Features System upgrade.	-3,100
• Complete major non-fueling overhaul of the S8G prototype.	-4,600
• Initiate efforts on ECF recapitalization project conceptual design	+5,000
• Portion of funding to support increased contractor pension contributions	+18,400

	FY 2010 vs. FY 2009 ($000)
ATR Operations and Test Support	
• Inflationary increase to support continued operations and maintenance of the Advanced Test Reactor.	+1,500
Facility Operations	
• Increase in capital equipment procurements.	+6,833
Total Funding Change, Operations and Maintenance	**+163,933**

Naval Reactors

Program Direction

Funding Schedule by Category

(dollars in thousands)
(Whole FTEs)

	FY 2008	FY 2009	FY 2010[b]
Headquarters			
Salary and Benefits	10,567	11,300	13,900
Travel	700	970	1,200
Support Services	0	0	0
Other Related Expenses	2,855	3,034	3,400
Total, Headquarters	**14,122**	**15,304**	**18,500**
Full-Time Equivalents	**63**	**74**	**94**
Pittsburgh Naval Reactors			
Salary and Benefits	8,775	9,025	0
Travel	255	330	0
Support Services	0	0	0
Other Related Expenses	1,327	1,550	0
Total, Pittsburgh Naval Reactors	**10,357**	**10,905**	**0**
Full-Time Equivalents	**70**	**71**	**0**
Schenectady Naval Reactors			
Salary and Benefits	7,010	7,215	0
Travel	204	240	0
Support Services	0	0	0
Other Related Expenses	710	790	0
Total, Schenectady Naval Reactors	**7,924**	**8,245**	**0**
Full-Time Equivalents	**58**	**64**	0
Naval Reactors Laboratory Field Office[a]			
Salary and Benefits	0	0	15,200
Travel	0	0	600
Support Services	0	0	
Other Related Expenses	0	0	2,500
Total, Naval Reactors Laboratory Field Office	**0**	**0**	**18,300**
Full-Time Equivalents	**0**	**0**	121
Total Naval Reactors Program Direction			
Salary and Benefits	26,352	27,540	29,100
Travel	1,159	1,540	1,800
Support Services	0	0	0
Other Related Expenses	4,892	5,374	5,900
Total, Program Direction	**32,403**	**34,454**	**36,800**
Full-Time Equivalents	**191**	**209**	**215**

[a] Beginning in FY 2010, Naval Reactors will consolidate its field offices into one entity. In addition, responsibilities were realigned between HQ and NRLFO resulting in a shift of Full-Time Equivalents (FTEs).

[b] Funding for new projects beginning in FY 2010 also creates a need for increased government oversight resulting in an increase of FTEs in FY 2010.

Outyear Profile by Category

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Headquarters				
Salary and Benefits	14,400	14,700	15,000	15,300
Travel	1,300	1,400	1,400	1,500
Support Services	0	0	0	0
Other Related Expenses	3,300	3,400	3,500	3,600
Total, Headquarters	**19,000**	**19,500**	**19,900**	**20,400**
Full-Time Equivalents	**96**	**96**	**96**	**96**
Naval Reactors Laboratory Field Office				
Salary and Benefits	15,600	16,000	16,300	16,600
Travel	700	700	800	800
Support Services	0	0	0	0
Other Related Expenses	2,600	2,600	2,700	2,800
Total, Naval Reactors Laboratory Field Office	**18,900**	**19,300**	**19,800**	**20,200**
Full-Time Equivalents	**121**	**121**	**121**	**121**
Total Naval Reactors Program Direction				
Salary and Benefits	30,000	30,700	31,300	31,900
Travel	2,000	2,100	2,200	2,300
Support Services	0	0	0	0
Other Related Expenses	5,900	6,000	6,200	6,400
Total, Program Direction	**37,900**	**38,800**	**39,700**	**40,600**
Full-Time Equivalents	**217**	**217**	**217**	**217**

Mission

Due to the critical nature of nuclear reactor work, Naval Reactors is a centrally managed organization. Federal employees oversee and set policies and procedures for developing new reactor plants, operating existing nuclear plants, facilities supporting these plants, contractors, and the Bettis and Knolls Atomic Power Laboratories. In addition, these employees interface with other DOE offices and local, state, and Federal regulatory agencies.

Detailed Justification

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Salaries and Benefits	**26,352**	**27,540**	**29,100**

Federal Staff continue to direct technical work and provide management/oversight of laboratories and facilities to ensure safe and reliable operation of Naval nuclear plants. The change is due to a projected increase in FTEs for oversight of new project funding.

Travel	**1,159**	**1,540**	**1,800**

Travel includes funding for the transportation of Government employees, their per diem allowances while in authorized travel status and other expenses incidental to travel. FY 2010 funding supports travel required for the management and oversight of the Naval Reactors Program, in addition to inflationary growth between FY 2009 and FY 2010.

Support Services	**0**	**0**	**0**

Naval Reactors does not use Support Services contractors.

Other Related Expenses	**4,892**	**5,374**	**5,900**

Includes provision of funds for the Working Capital Fund (WCF), based on guideline estimates provided by the Working Capital Fund Manager. Starting in FY 2009, the WCF includes funding for the Defense Contract Auditing Agency audits. Funding also supports goods and services such as training and Automated Data Processing (ADP) maintenance, and includes labor costs for Bettis contractor services and ADP requirements for Naval Reactors Headquarters internal classified local area network.

Total, Program Direction	**32,403**	**34,454**	**36,800**

Explanation of Funding Changes

	FY 2010 vs. FY 2009 ($000)
Salaries and Benefits	
The change is due to salary adjustments to achieve and maintain the FY 2010 FTE target.	+1,560
Travel	
The change is due to increased travel requirements for the management and oversight of the Naval Reactors Program, increased costs associated with travel (i.e., airfare/ fuel), and adjustments in accordance with allowable inflation.	+260
Other Related Expenses	
The change is due to an increase in ADP requirements, including upgrading PCs, network infrastructure, and software, some of which were deferred due to reduced funding available in FY 2008. This increase also includes the funding provided to support new Working Capital Fund items, including funding for Defense Contract Audit Agency audits.	+526
Total Funding Change, Program Direction	**+2,346**

Other Related Expenses by Category

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Training	223	240	250
Working Capital Fund	615	674	900
Software Procurement/Maintenance Activities/Capital Acquisitions	1,789	2,325	2,500
Other	2,265	2,135	2,250
Total Budget Authority	**4,892**	**5,374**	**5,900**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
General Plant Projects	25,816	14,000	10,083
Capital Equipment	26,600	18,500	29,250
Total, Capital Equipment	**52,416**	**32,500**	**39,333**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
General Plant Projects	11,411	4,600	9,100	9,400
Capital Equipment	35,646	33,305	29,256	29,064
Total, Capital Equipment	**47,057**	**37,905**	**38,356**	**38,464**

Construction Projects

(dollars in thousands)

	Other Project Costs (OPC)	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2008	FY 2009	FY2010	Unappro-priated Balance
10-D-904, NRF Infrastructure Upgrades	3986	18,100	0	0	0	700	18,600
10-D-903, Security Upgrades, KAPL	1800	21,000	0	0	0	1,500	21,500
09-D-902, NRF Production Support Complex	772	18,700	0	0	8,300	6,400	4,000
09-D-190, KAPL Infrastructure Upgrades	1030	28,900	0	0	1,000	1,000	28,900
08-D-901, Shipping and Receiving and Warehouse Complex	463	8,918	0	8,918	0	0	0
08-D-190, ECF M-290 Receiving/Discharge Station	649	22,545	0	545	300	9,500	12,200
07-D-190, Materials Research and Technology Complex [a]	4370	29,810	2564	446	12,400	11,700	2,700
Total, Construction				**9,909**	**22,000**	**30,800**	

[a] Includes PED funding ($3,014,000) from 07-D-190, PED, Materials Research and Technology Complex**.**

Outyear Construction Projects

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
14-D-XXX, Support Services Facility, VL	0	0	0	1,500
14-D-XXX, KAPL Plant Services Building	0	0	0	11,900
13-D-XXX, Materials Characterization Laboratory, KAPL	0	0	1,000	
12-D-XXX, ECF Water Pit #1 Upgrade	0	1,100	800	4,200
11-D-XXX, NRF Overpack Storage Complex	13,400	0	0	0
10-D-904, NRF Infrastructure Upgrades	500	3,200	6,300	2,900
10-D-903, KAPL Security Upgrades	500	11,000	5,000	3,000
09-D-902, NRF Production Support Complex	4,000	0	0	0
09-D-190, KAPL Infrastructure Upgrades	7,000	7,600	6,500	6,500
08-D-190, ECF M-290 Receiving/Discharge Station	5,400	0	6,800	0
07-D-190, Materials Research and Technology Complex, BAPL	2,700	0	0	0
Total, Construction	**33,500**	**22,900**	**26,400**	**30,000**

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

(dollars in thousands)

Major Item of Equipment	Other Project Costs (OPC)	Total Project Cost (TPC)	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2008	FY 2009	FY 2010	Completion Date
Network Upgrade	0	0	4,200	0	0	600	1,200	FY 2012
Scalable Parallel Supercomputer	401	7,401	7,000	0	0	7,000	0	FY 2009
Bettis Network Upgrade	0	0	3,000	0	0	0	1,000	FY 2012
Emergency Safety Fill System	2,000	12,900	10,900	6,100	2,300	2,500	0	FY 2010
High Performance Computing System	889	7,889	7,000	0	7,000	0	0	FY 2008
High Performance Computing System	632	9,632	9,000	0	0	0	9,000	FY 2010
Total, Major Items of Equipment					**9,300**	**10,100**	**11,200**	

Outyear Major Items of Equipment

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014
Bettis Network Upgrade	1,000	1,000	0	0
KAPL Network Upgrade	1,200	1,200	0	0
Scalable Parallel Supercomputer	9,000	0	0	0
High Performance Technical Computing System	0	8,000	0	0
High Performance Technical Computing System	0	0	8,000	0
High Performance Technical Computing System	0	0	0	8,000
Total, Major Items of Equipment	**11,200**	**10,200**	**8,000**	**8,000**

10-D-904, Naval Reactors Facility (NRF) Infrastructure Upgrades, Naval Reactors Facility, Idaho
Project Data Sheet (PDS) is for PED/Construction

1. Significant Changes

The most recent Critical Decision (CD) is CD-0, Approve Mission Need, which is scheduled to be approved on April 7, 2009, with a preliminary cost range of $18,000,000 to $23,000,000 and CD-4 of FY 2017.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is new for PED/Construction.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY2010	3QFY2009	1QFY2010	1QFY2011	TBD	TBD	TBD	TBD	TBD

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D[a]	OPC, D&D	OPC, Total	TPC
FY2010	1,200	TBD	TBD	443	TBD	TBD	TBD

4. Project Description, Justification, and Scope

The NRF Infrastructure improvements will upgrade the Expended Core Facility motor control centers and sections of the fire alarm system. Reliable electrical power is needed to ensure production rates are maintained and critical systems remain in operation. Many of the motor control centers are 40 years old and improvement is essential to provide reliable electrical distribution. The current fire alarm system requires upgrading due to a site-wide system architecture that is vulnerable to single point faults, which can affect or disable fire protection and evacuation signaling.

[a] Includes conceptual planning and design.

The infrastructure improvements will provide new motor control centers with components and communications capabilities for remote monitoring, and upgrade sections of the fire alarm system.

The project is being conducted in accordance with the NR Implementation Bulletin of DOE O 413.3A and the NR Program and Project Management Manual, and appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY2010	700	700	694
FY2011	500	500	506
Total, PED	1,200	1,200	1,200
Other Project Cost (OPC)			
OPC except D&D			
FY2007	133	133	133
FY2008	143	143	143
FY2009	167	167	167
Total, OPC except D&D	443	443	443

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	1,200	N/A	
Contingency	0	N/A	
Total, PED	1,200	N/A	
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	56	N/A	
Conceptual Design	387	N/A	
Contingency	0	N/A	
Total, OPC except D&D	443	N/A	

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Not applicable for PED.

9. Required D&D Information

Not applicable for PED.

10. Acquisition Approach

Not applicable for PED.

10-D-903, KAPL Security Upgrades, Schenectady, NY
Project Data Sheet (PDS) is for PED/Construction

1. Significant Changes

The most recent Critical Decision (CD) is CD-0, Approve Mission Need, which was approved on April 22, 2008, with a preliminary cost range of $19,000,000 to $23,000,000 and a CD-4 of FY 2016.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is new for PED/Construction.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY2010	4/22/2008	2QFY2009	2QFY2013	TBD	TBD	TBD	TBD	TBD

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D[a]	OPC, D&D	OPC, Total	TPC
FY2010	2,000	TBD	TBD	400	TBD	TBD	TBD

4. Project Description, Justification, and Scope

The KAPL Security Upgrades project will replace and upgrade security related infrastructure on the site perimeter at both the Knolls and Kesselring Sites. The advanced age and degradation of the currently installed security systems requires upgrading to meet the basic security principles to deter, detect, access and delay, as directed by the security vulnerability assessment. Both sites will acquire upgrades to the security perimeter, perimeter lighting system, alarm system, and new site entrance buildings.

The project is being conducted in accordance with the NR Implementation Bulletin of DOE O 413.3A and the NR Program and Project Management Manual, and appropriate project management requirements have been met.

[a] Includes conceptual planning and design.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY2010	1,500	1,500	500
FY2011	500	500	1,000
FY2012	0	0	500
Total, PED	2,000	2,000	2,000
Other Project Cost (OPC)			
OPC except D&D			
FY2008	200	200	200
FY2009	200	200	200
Total, OPC except D&D	400	400	400

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	1,820	N/A	N/A
Contingency	180	N/A	N/A
Total, PED	2,000	N/A	N/A
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	N/A	N/A	N/A
Conceptual Design	400	N/A	N/A
Contingency	N/A	N/A	N/A
Total, OPC except D&D	400	N/A	N/A

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Not applicable for PED.

9. Required D&D Information

Not applicable for PED.

10. Acquisition Approach

Not applicable for PED.

09-D-902, Naval Reactors Facility (NRF) Production Support Complex, Naval Reactors Facility, Idaho
Project Data Sheet (PDS) is for Construction

1. Significant Changes

The most recent approved Critical Decision (CD) is CD-3, Approve Start of Construction, which was approved on February 11, 2009, with a Total Project Cost of $19,472,000 and CD-4 of FY 2012.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete[a]	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY2009	8/30/2007	1QFY2008	N/A	1QFY2008	2QFY2009	2QFY2012	N/A	N/A
FY2010	8/30/2007	7/15/2008	N/A	7/15/2008	2/11/2009	2QFY2012	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY2009	N/A	18,700	18,700	288	N/A	288	18,988
FY2010	N/A	18,700	18,700	772	N/A	772	19,472

4. Project Description, Justification, and Scope

Description
The NRF Production Support Complex is a design-build project that will construct an office building containing a cafeteria, an emergency control center (ECC), training classrooms, and a large meeting room that can be easily modified to accommodate additional cafeteria seating or classroom space.

[a] Construction design will be performed by the Design-Build contractor.

Justification
The NRF has experienced substantial employee population growth over the past five years to establish the production capability to process spent nuclear fuel for a spent fuel repository. NRF is the sole facility in the Naval Nuclear Propulsion Program which has the facilities, equipment, and established processes for processing spent naval nuclear fuel for transportation to a spent fuel repository. The processing of spent naval nuclear fuel into containers is required to support ongoing fleet defuelings to meet legal agreements with the state of Idaho. The population growth has exhausted the available office capacity to permanently house professional employees in program standard office environments. Additionally, the population growth has exceeded the existing capacity of support activities including the NRF cafeteria, large training and meeting rooms, and the NRF ECC. Additional space and capability in these areas are required to maintain professional work environments and to support the site's growing mission.

Scope
The NRF Production Support Complex project will construct an office building that will contain approximately 170 office spaces, a cafeteria that can serve approximately 500 persons for lunch and seat approximately 250 persons, approximately 2,400 square feet of space for an ECC, and approximately 37,900 square feet of space for training classrooms, office spaces, and a large meeting room that can be easily modified to accommodate additional cafeteria seating or classroom space.

The project is being conducted in accordance with the NR Implementation Bulletin of DOE O 413.3A and the NR Program and Project Management Manual, and appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
FY2009	1,794	1,794	1,794
Total, Design	1,794	1,794	1,794
Construction			
FY2009	6,506	6,506	1,000
FY2010	6,400	6,400	7,201
FY2011	4,000	4,000	4,996
FY2012			3,709
Total, Construction	16,906	16,906	16,906

	(dollars in thousands)		
	Appropriations	Obligations	Costs
TEC			
FY2009	8,300	8,300	2,794
FY2010	6,400	6,400	7,201
FY2011	4,000	4,000	4,996
FY2012	0	0	3,709
Total, TEC	18,700	18,700	18,700
Other Project Cost (OPC)			
OPC except D&D			
FY2007	51	51	51
FY2008	284	284	284
FY2012	437	437	437
Total, OPC except D&D	772	772	772
D&D	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
OPC			
FY2007	51	51	51
FY2008	284	284	284
FY2012	437	437	437
Total, OPC	772	772	772
Total Project Cost (TPC)			
FY2007	51	51	51
FY2008	284	284	284
FY2009	8,300	8,300	2,794
FY2010	6,400	6,400	7,201
FY2011	4,000	4,000	4,996
FY2012	437	437	4,146
Total, TPC	19,472	19,472	19,472

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	1,794	1,794	1,794
Contingency	N/A	N/A	N/A
Total, Design	1,794	1,794	1,794
Construction			
Site Preparation	349	349	349
Equipment and Furnishings	1,718	1,556	1,556
Other Construction	13,539	10,686	10,686
Contingency	1,300	4,315	4,315
Total, Construction	16,906	16,906	16,906
Total, TEC	18,700	18,700	18,700
Contingency, TEC	1,300	4,315	4,315
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	51	74	74
Conceptual Design	284	150	150
Start-Up	437	64	64
Contingency	0	0	0
Total, OPC except D&D	772	288	288
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	772	288	288
Contingency, OPC	0		0
Total, TPC	19,472	18,988	18,988
Total, Contingency	1,300	4,315	4,315

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	4QFY2012
Expected Useful Life (number of years)	40 years
Expected Future Start of D&D of this capital asset (fiscal quarter)	4QFY2052

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations and Maintenance	374	374	14,960	14,960
Total, Operations & Maintenance	374	374	14,960	14,960

9. Required D&D Information[a]

Area	Square Feet
Area of new construction	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

The Program's prime contractor prepared the performance specification as the basis for the design-build contract. A fixed-price contract for the procurement and construction will be awarded on the basis of competitive bidding. The successful design-build contractor will perform the design and construction of the new facility.

[a] No offsetting D&D will be identified for this project. The NRF site has and will continue to expand to meet mission-critical work in support of spent fuel processing with insufficient excess facilities to support planned construction.

09-D-190, KAPL Infrastructure Upgrades, Schenectady, NY
Project Data Sheet (PDS) is for PED

1. Significant Changes

The most recent Critical Decision (CD) is CD-1, Alternative Selection and Cost Range, that was approved on January 26, 2009, with a preliminary cost range of $25,000,000 – $32,000,000 and a CD-4 of FY 2015.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY2009	1QFY2008	2QFY2009	4QFY2009	TBD	TBD	TBD	TBD	TBD
FY2010	02/19/2008	01/28/2009	3QFY2010	TBD	TBD	TBD	TBD	TBD

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D[a]	OPC, D&D	OPC, Total	TPC
FY2009	2,000	TBD	TBD	1,000	TBD	TBD	TBD
FY2010	2,000	TBD	TBD	1,000	TBD	TBD	TBD

4. Project Description, Justification, and Scope

The KAPL Infrastructure Upgrades project will support two Program sites (Knolls Atomic Laboratory, Kesselring Site Operation) by upgrading the 50-year old infrastructure. The project will include upgrades to electrical distribution, storm water, sanitary, fire protection, steam/condensate, and site water systems. The Knolls and Kesselring Site utilities have not had significant upgrades or replacements since installation. Over the years, additional demands on the original systems have

[a] Includes conceptual planning and design.

intensified through increased testing and training capabilities. This project will support existing facilities as well as provide the infrastructure for planned site improvements and development.

The project is being conducted in accordance with the NR Implementation Bulletin of DOE O 413.3A and the NR Program and Project Management Manual, and appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY2009	1,000	1,000	1,000
FY2010	1,000	1,000	700
FY2011	0	0	300
Total, PED	2,000	2,000	2,000
Other Project Cost (OPC)			
OPC except D&D			
FY2008	1,000	1,000	700
FY2009	0	0	300
Total, OPC except D&D	1,000	1,000	1,000

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	1,800	1,800	0
Contingency	200	200	0
Total, PED	2,000	2,000	0
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	20	20	0
Conceptual Design	900	900	0
Contingency	80	80	0
Total, OPC except D&D	1,000	1,000	0

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Not applicable for PED.

9. Required D&D Information

Not applicable for PED.

10. Acquisition Approach

Not applicable for PED.

08-D-190, Expended Core Facility (ECF) M-290 Receiving/Discharge Station, Naval Reactors Facility, Idaho
Project Data Sheet (PDS) is for PED/Construction

1. Significant Changes

The most recent approved Critical Decision (CD) is CD-1, Approve Alternative Selection and Cost Range, which was approved on August 17, 2007 with a preliminary cost range of $ 21,600,000 to $28,500,000.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY2008	11/30/2006	4QFY2007	2QFY2010	TBD	TBD	TBD	N/A	N/A
FY2009	11/30/2006	8/17/2007	2QFY2010	TBD	TBD	TBD	N/A	N/A
FY2010	11/30/2006	8/17/2007	2QFY2010	3QFY2009	1QFY2010	2QFY2014	N/A	N/A

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D[a]	OPC, D&D	OPC, Total	TPC
FY2008	850	TBD	TBD	298	N/A	TBD	TBD
FY2009	1,045	TBD	TBD	298	N/A	TBD	TBD
FY2010	1,045	21,500	22,545	649	N/A	TBD	23,194

4. Project Description, Justification, and Scope

The M-290 shipping container system will allow direct loading of carrier spent nuclear fuel without temporary storage and disassembly work at the shipyard as currently required for existing smaller M-140 shipping containers. The direct loading method improves shipyard operations, supports aggressive refueling and inactivation (defueling) schedules and mitigates potential security risks

[a] Includes conceptual planning and design.

associated with holding spent nuclear fuel at the shipyard. The full-length carrier spent nuclear fuel to be shipped in the M-290 is approximately twice as long as the fuel modules typically sent to ECF. As such, ECF currently does not have facilities capable of handling the larger, heavier, M-290 shipping container. The project will also provide the capability to ship spent nuclear fuel from ECF to a permanent repository or interim storage facility using the M-290 shipping container. This project will modify (e.g., installation of larger capacity crane) ECF to allow the receipt and handling of M-290 shipping containers. M-290 receiving process improvement reviews are near completion in support of the validated performance baseline for August 2009. In line with FY2010 efforts to procure long-lead material and equipment, this review addresses the potential for incorporating in-plan, related construction efforts as well as improved M-290 receiving processes both of which support long-term Program efficiencies.

Funding in FY 2010 supports long-lead material procurement.

The project is being conducted in accordance with the NR Implementation Bulletin of DOE O 413.3A and the NR Program and Project Management Manual, and appropriate project management requirements have been met.

No construction funds other than for long lead equipment will be used until the project performance baseline has been validated and CD-3 has been approved.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY2008	545	545	425
FY2009	300	300	420
FY2010	200	200	200
Total, PED	1,045	1,045	1,045
Construction			
FY2010	9,300	9,300	4,244
FY2011	5,400	5,400	8,198
FY2012	0	0	2,698
FY2013	6,800	6,800	2,398
FY2014	0	0	3,962
Total Construction	21,500	21,500	21,500

	(dollars in thousands)		
	Appropriations	Obligations	Costs
TEC			
FY2008	545	545	425
FY2009	300	300	420
FY2010	9,500	9,500	4,444
FY2011	5,400	5,400	8,198
FY2012	0	0	2,698
FY2013	6,800	6,800	2,398
FY2014	0	0	3,962
Total, TEC	22,545	22,545	22,545
Other Project Cost (OPC)			
OPC except D&D			
FY2007	403	403	403
FY2008	6	6	6
FY2009	6	6	6
FY2010	6	6	6
FY2011	16	16	16
FY2012	16	16	16
FY2013	16	16	16
FY2014	180	180	180
Total, OPC except D&D	649	649	649
D&D[a]			
Total, D&D	N/A	N/A	N/A
OPC			
FY2007	403	403	403
FY2008	6	6	6
FY2009	6	6	6
FY2010	6	6	6
FY2011	16	16	16
FY2012	16	16	16
FY2013	16	16	16
FY2014	180	180	180
Total, OPC	649	649	649
Total Project Cost (TPC)			
FY2007	403	403	403
FY2008	551	551	431
FY2009	306	306	426
FY2010	9,506	9,506	4,450
FY2011	5,416	5,416	8,214
FY2012	16	16	2,714
FY2013	6,816	6,816	2,414
FY2014	180	180	4,142
Total, TPC	23,194	23,194	23,194

[a] No offsetting D&D will be identified for this project. The NRF site will expand to meet mission-critical work in support of spent fuel processing with insufficient excess facilities to support planned construction.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	808	808	0
Contingency	237	237	0
Total, Design	1,045	1,045	0
Construction			
Site Preparation	0	0	0
Equipment and Furnishings	7,950	0	0
Other Construction	10,924	0	0
Contingency	2,626	0	0
Total, Construction	21,500	0	0
Total, TEC	22,545	0	0
Contingency, TEC	2,863	0	0
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	100	85	0
Conceptual Design	298	213	0
Start-Up	251		0
Contingency		0	0
Total, OPC except D&D	649	298	0
D&D			
D&D	N/A	0	0
Contingency	N/A	0	0
Total, D&D	N/A	0	0
Total, OPC	649	0	0
Contingency, OPC	0	0	0
Total, TPC	23,194	0	0
Total, Contingency	2,863	0	0

7. Schedule of Project Costs

For schedule of project costs, see Section 5, "Financial Schedule."

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q2014
Expected Useful Life (number of years)	40
Expected Future Start of D&D of this capital asset (fiscal quarter)	1Q2054

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total, Operations & Maintenance	N/A	N/A	N/A	N/A

9. Required D&D Information

Area	Square Feet
Area of new construction	N/A
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the "one-for-one" requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced: N/A

10. Acquisition Approach

The Program's A/E subcontractor will perform construction design to support development of a construction solicitation package. This contract will be designated as a fixed-price contract for procurement and construction and will be awarded on the basis of competitive bidding.

07-D-190, Materials Research and Technology Complex, Bettis Atomic Power Laboratory, Pittsburgh, PA
Project Data Sheet (PDS) is for PED/Construction

1. Significant Changes

The most recent approved Critical Decision (CD) is CD-3, Start of Construction, which was approved on September 5, 2008, with a Total Project Cost of $71,070,000 and CD-4 of 4Q FY2011.

A Federal Project Director at the appropriate level has been assigned to this project.

This PDS is an update of the FY 2009 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY2007	2/12/2004	2QFY2005	3QFY2008	TBD	TBD	TBD	TBD	TBD
FY2008	2/12/2004	2QFY2005	3QFY2008	TBD	TBD	TBD	TBD	TBD
FY2009	2/12/2004	4/11/2007	1QFY2009	12/17/2007	1QFY2009	4QFY2011	1QFY2009	4QFY2039
FY2010	2/12/2004	4/11/2007	1/13/2009	12/17/2007	9/5/2008	4QFY2011	5/21/2008	4QFY2039

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D[a]	OPC, D&D[b]	OPC, Total	TPC
FY2007	3,014	TBD	TBD	930	TBD	TBD	TBD
FY2008	3,014	TBD	TBD	930	TBD	TBD	TBD
FY2009	3,010	26,800	29,810	4,370	36,500	40,870	70,680
FY2010	3,010	26,800	29,810	4,760	36,500	41,260	71,070

[a] Prior to CD-2, OPC only included costs for conceptual planning and design.

[b] D&D is performed in accordance with the Program's 30-year D&D plan.

4. Project Description, Justification, and Scope

Description

The MRTC project will include the construction of an approximately 34,500 gross square feet (GSF) main chemistry building and the modification of the existing 10,500 GSF Cleanroom Technology Facility. The main building will house general chemistry, classical wet chemistry, surface science, electron microprobe, spectroscopy, and radiochemistry laboratories, while the existing CTF building will house the analytical electron microscopy, scanning electron microscopy, and metallography laboratories. The buildings will be constructed outside of the existing perimeter fence in the southwest corner of the ball field at the Bettis Atomic Power Laboratory site in West Mifflin, Pennsylvania.

Justification

The analysis and testing laboratory facilities to be constructed as part of the MRTC project are the focal point for providing the necessary technology to support Bettis-Pittsburgh's efforts to develop, test, and qualify material and processes for supporting a variety of Naval Reactors programs, as well as the operating fleet. The existing testing laboratories currently operate within 50-year-old buildings with aging infrastructure and radiological, asbestos, and PCB legacies. The new complex is needed to replace old and inadequate system utilities; to effectively integrate environmental and radiological requirements to maximize productivity; and to consolidate currently dispersed operations to optimize technical alignment of the test laboratories' organization. Construction of the MRTC will also allow the current facilities to be vacated and turned over to the Decontamination and Decommissioning (D&D) contractor for future deconstruction.

Scope

The MRTC project will consist of two buildings for a total of 45,000 gross square feet. Of the total gross square footage approximately 5 percent is designated as office or conference facilities while the remaining 95 percent gross square feet will consist of mechanical rooms and technical laboratory space. The main building (MRTC-2) will house general chemistry, classical wet chemistry, surface science, electron microprobe, spectroscopy, and radiochemistry laboratories, while the existing Cleanroom Technology Facility building will house the analytical electron microscopy, scanning electron microscopy, and metallography laboratories (MRTC-1).

The project is being conducted in accordance with the NR Implementation Bulletin of DOE O 413.3A and the NR Program and Project Management Manual, and appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY2005	1,079	1,079	1,079
FY2006	0	0	0
FY2007	1,485	1,485	810
FY2008	446	446	1,121
Total, PED	3,010	3,010	3,010
Construction			
FY2009	12,400	12,400	6,600
FY2010	11,700	11,700	13,700
FY2011	2,700	2,700	6,500
Total, Construction	26,800	26,800	26,800
TEC			
FY2005	1,079	1,079	1,079
FY2006	0	0	0
FY2007	1,485	1,485	810
FY2008	446	446	1,121
FY2009	12,400	12,400	6,600
FY2010	11,700	11,700	13,700
FY2011	2,700	2,700	6,500
Total, TEC	29,810	29,810	29,810
Other Project Cost (OPC)			
OPC except D&D			
FY2005	567	567	567
FY2006	363	363	363
FY2007	0	0	0
FY2008	40	40	40
FY2009	385	385	385
FY2010	680	680	680
FY2011	725	725	725
FY2012	2,000	2000	2000
Total, OPC except D&D	4,760	4,760	4,760
D&D			
FY2013 – FY2039[a]	36,500	36,500	36,500
Total, D&D	36,500	36,500	36,500

[a] D&D is performed in accordance with the Program's 30-year D&D plan.

	(dollars in thousands)		
	Appropriations	Obligations	Costs
OPC			
FY2005	567	567	567
FY2006	363	363	363
FY2007	0	0	0
FY2008	40	40	40
FY2009	385	385	385
FY2010	680	680	680
FY2011	725	725	725
FY2012	2,000	2,000	2,000
FY2013 – FY2039	36,500	36,500	36,500
Total, OPC	41,260	41,260	41,260
Total Project Cost (TPC)			
FY2005	1,646	1,646	1,646
FY2006	363	363	363
FY2007	1,485	1,485	810
FY2008	486	486	1,161
FY2009	12,785	12,785	6,985
FY2010	12,380	12,380	14,380
FY2011	3,425	3,425	7,225
FY2012	2,000	2,000	2,000
FY2013 – FY2039	36,500	36,500	36,500
Total, TPC	71,070	71,070	71,070

6. Details of Project Cost Estimate

	(dollars in thousands)		
	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	3,010	3,010	3,010
Contingency	0	0	0
Total, PED	3,010	3,010	3,010
Construction			
Site Preparation	97	97	97
Equipment	0	0	0
Other Construction	21,373	21,373	21,373
Contingency	5,330	5,330	5,330
Total, Construction	26,800	26,800	26,800
Total, TEC	29,810	29,810	29,810
Contingency, TEC	5,330	5,330	5,330
Other Project Cost (OPC)			

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
OPC except D&D			
Conceptual Planning	567	567	567
Conceptual Design	363	363	363
Start-Up	440	420	420
Soil Removal	120	0	0
Temporary Utilities	35	20	20
Relocation	3,100	3,000	3,000
Contingency	135	0	0
Total, OPC except D&D	4,760	4,370	4,370
D&D			
D&D	36,500	36,500	36,500
Contingency	0	0	0
Total, D&D	36,500	36,500	36,500
Total, OPC	41,260	40,870	40,870
Contingency, OPC	0	0	0
Total, TPC	71,070	70,680	70,680
Total, Contingency	5,330	5,330	5,330

7. Schedule of Project Costs

For schedule of project costs, see Section 5, “Financial Schedule.”

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q2012
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	1Q2062

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	46	77	8,907	6,668
Maintenance	126	290	24,082	24,895
Total, Operations & Maintenance	172	367	32,989	31,563

9. Required D&D Information[a]

Area	Square Feet
Area of new construction	37,000
Area of existing facility(s) being replaced	31,960
Area of additional D&D space to meet the "one-for-one" requirement	5,040

Name(s) and site location(s) of existing facility(s) to be replaced: Materials Evaluation Laboratory and Chemistry Laboratories, Bettis Atomic Power Laboratory, Pittsburgh, PA.

10. Acquisition Approach

The Program's A/E subcontractor will perform construction design to support development of a construction solicitation package. MRTC (1) which includes modification of the existing Cleanroom facility will be a traditional contract placement. MRTC (2) will be accomplished as a phase-funded contract. Both contracts will be designated as a fixed-price contract for procurement and construction and will be awarded on the basis of competitive bidding.

[a] D&D is performed in accordance with the Program's 30-year D&D plan.

Site Funding Summary

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Chicago Operations Office			
Ames Laboratory	625	0	401
Argonne National Laboratory	29,235	61,446	44,756
Brookhaven National Laboratory	42,670	44,112	46,861
Chicago Operations Office	37,244	45,664	28,358
Lawrence Berkeley National Laboratory	7,231	5,366	4,943
New Brunswick Laboratory	1,190	1,200	5,325
Idaho Operations Office			
Idaho National Laboratory	115,316	189,012	167,991
Idaho Operations Office	1,178	1,237	3,696
Kansas City Site Office			
Kansas City Plant	414,775	413,551	465,255
Kansas City Site Office	5,984	6,275	6,500
Livermore Site Office			
Lawrence Livermore National Laboratory	1,099,637	1,099,299	1,105,104
Livermore Site Office	18,203	19,034	19,643
Los Alamos Site Office			
Los Alamos National Laboratory	1,575,349	1,519,004	1,426,381
Los Alamos Site Office	22,914	19,429	20,202
NETL			
NETL	4,206	161	500
NNSA Service Center			
General Atomics	23,261	21,532	21,000
National Renewable Energy Laboratory	330	330	368
Naval Research Laboratory	22,105	9,961	294
NNSA Service Center (all other sites)	832,106	714,109	685,802
University of Rochester/LLE	59,150	55,031	55,001
Nevada Site Office			
Nevada Site Office	129,328	101,088	98,835
Nevada Test Site	266,209	278,588	204,868
Naval Reactors Laboratory Field Office	0	0	18,300

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
Oak Ridge Operations Office			
Oak Ridge Institute for Science and Engineering	13,108	13,608	18,948
Oak Ridge National Laboratory	197,211	134,448	147,662
Oak Ridge Operations Office	50	50	56
Office of Science and Technical Information	81	606	774
Pacific Northwest National Laboratory	288,834	232,811	263,810
Y-12 National Security Complex	915,464	851,946	862,571
Y-12 Site Office	47,594	46,790	43,996
Lexington	4,010	0	0
Pantex Site Office			
Pantex Plant	513,434	520,106	575,010
Pantex Site Office	12,300	12,501	12,946
Pittsburgh Naval Reactors Office			
Bettis Atomic Power Laboratory	393,945	418,700	502,121
Pittsburgh Naval Reactors Office	10,357	10,905	0
Richland Operations Office			
Richland Operations Office	1,418	1,376	1,450
Sandia Site Office			
Sandia National Laboratories	1,160,502	1,158,490	1,155,544
Sandia Site Office	13,808	14,425	14,585
Savannah River Operations Office			
Savannah River Operations Office	13,667	30,341	590,008
Savannah River Site	239,957	235,997	352,356
Savannah River Site Office	29,121	31,273	9,240
Schenectady Naval Reactors Office			
Knolls Atomic Power Laboratory	288,214	302,800	382,412
Schenectady Naval Reactors Office	7,924	8,245	0
Washington DC Headquarters			
Headquarters	403,930	510,165	591,474
Adjustments	-449,064	-11,418	-10,320
Total, NNSA	**8,814,111**	**9,129,594**	**9,945,027**

BETTIS ATOMIC POWER LABORATORY

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Naval Reactors	393,945	418,700	502,121
Total, NNSA	**393,945**	**418,700**	**502,121**

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	1,923	1,962	1,962
Other	1,452	1,539	1,539
Total Facility	**3,375**	**3,501**	**3,501**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Bettis Atomic Power Laboratory is situated on nearly 202 acres of the former Bettis Airfield in West Mifflin, Pennsylvania, about 7.5 miles southeast of Pittsburgh, Pennsylvania.

This research and development laboratory is operated by Bechtel Bettis, Inc., for the Naval Nuclear Propulsion Program, in a joint effort by the Department of the Navy and the Department of Energy (DOE). The Pittsburgh Naval Reactors Office oversees Bettis operations. Bettis is primarily involved with the design, development, and operational flow of nuclear propulsion plants for naval vessels. The Program ensures the safe operation of reactor plants in nuclear-powered submarines and aircraft carriers (constituting 40 percent of the Navy's combatants), and fulfills the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements. Initial efforts of the Bettis Laboratory led to the development of the power plant for the USS NAUTILUS (SSN 571), the world's first nuclear-powered submarine.

ACTIVITIES:

Naval Reactors
The broad spectrum of Bettis' activities has included work on core and component technology and design, thermal and hydraulic systems, materials, and nuclear physics. Also, Bettis has lead responsibility for the overall training program for Navy personnel in nuclear plant operations, including training at the Naval Nuclear Power Training Command, Charleston, South Carolina; the Moored Training Ships; and Fleet training. Bettis also maintains engineering field offices at numerous shipyards

and core contractor facilities, and operates the Expended Core Facility at the Naval Reactors Facility near Idaho Falls, Idaho.

KANSAS CITY PLANT

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	208,324	222,872	223,874
Engineering Campaign	6,147	6,310	3,467
Advanced Simulation and Computing Campaign	5,823	250	0
Pit Manufacturing and Certification Campaign	125	0	0
Readiness Campaign	26,625	21,524	8,869
Readiness in Technical Base and Facilities	90,590	95,517	175,556
Secure Transportation Asset	27,951	29,932	21,672
Nuclear Counterterrorism Incident Response	4,706	4,941	2,339
Facilities and Infrastructure Recapitalization Program	25,491	10,600	10,000
Site Stewardship	0	0	1,821
Environmental Projects and Operations Program/LTS*	2,000	2,696	0
Defense Nuclear Security	10,748	10,843	11,060
Cyber Security	3,678	5,734	5,087
Subtotal Weapons Activities	**412,208**	**411,219**	**463,745**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification Research & Development	227	25	0
Nonproliferation and International Security	1,355	1,355	1,510
Subtotal Defense Nuclear Nonproliferation	**1,582**	**1,380**	**1,510**
Congressionally Direted Projects	985	952	0
Total, NNSA	**414,775**	**413,551**	**465,255**

* Funding included in Site Stewardship in FY 2010.

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	2,189	1,988	1,796
Other	539	712	748
Total Facility	**2,728**	**2,700**	**2,544**

Congressional Items of Interest: Transformation implementation plans for downsizing and redirection of costs and support of W76 Life Extension Program (LEP).

Major Changes or Shifts: Implementation of Transformation initiatives including increased outsourcing, reduction of indirect overhead, and lease of a new, downsized facility.

Site Description

INTRODUCTION:

The Kansas City Plant (KCP) is situated on approximately 122 acres of the 300-acre Bannister Federal Complex located within city limits, 12 miles south of downtown Kansas City, Missouri.

The KCP is the primary nonnuclear production plant responsible for the development and maintenance of a broad technology base that delivers advanced, integrated, and secure solutions for the Department of Energy/National Nuclear Security Administration (DOE/NNSA).

The site is aligned with transformation activities for the Nuclear Security Enterprise. The site has an approved critical decision to proceed with planning for a new facility under a General Services Administration (GSA) lease. Elements of this transformation include: (1) reducing the floor space required for non-nuclear production activities by nearly two-thirds through outsourcing and reducing capacity, (2) establishing a supply chain management center for reduced procurement costs across the Nuclear Security Enterprise, (3) down-sizing the inventory of stored parts for legacy weapons, and (4) adopting a new oversight model for NNSA sites that increases the use of best industrial practices.

ACTIVITIES:

Directed Stockpile Work (DSW)
The Kansas City Plant (KCP) activities include production engineering, tooling, material procurement, and production labor associated with continuing production and Retrofit Evaluation System Test (REST) surveillance program of non-nuclear components with emphasis on the Life Extension Programs (LEP) for the W76-1. Production continues for the B61 Alt 356. Enduring Stockpile System production activities will include Joint Test Assembly (JTA) support, Firing Set, Environmental Sensing Devices, Mechanical Safe and Arm Detonators, and Lightning Arrestor Connector surveillance rebuilds in addition to laboratory and flight test sampling. Partnering with the Air Force, a major design change to the W87 JTA4 will continue. Major reservoir production continues for the B61, W76, W78, W80, B83, and W88 enduring Stockpile Systems. KCP continues to produce materials/parts through NNSA's Supply Chain Management Center, which is responsible for implementing tools, processes, and accountability to support enterprise-wide NNSA strategic sourcing. Weapon component build-aheads and requalification activities continue to support the Kansas City Responsive Infrastructure Manufacturing and Sourcing (KCRIMS).

Engineering Campaign
The KCP has a primary role in Enhanced Surveillance by evaluating non-nuclear components and materials for age-related characteristics, which are then used to assist in lifetime assessments and age-aware models. The KCP also supports future system deployment including on-board/embedded components, materials, system sensors, as well as on-board telemetry and communication linkage.

Readiness Campaign
Advanced Design and Production Technologies (ADAPT): activities include development of electronic model definition capabilities and development of integrated phase gates for future systems, and improving performance of advanced initiation system. Model-based tools and processes will be developed for engineering, manufacturing, and acceptance of weapon components.

Nonnuclear Readiness: activities include production tester readiness support, development of rapid design commercial off the shelf system, electronic component and assembly miniaturization, and integrated radiofrequency packaging. KCP dedicates much of its support to the development of electrical, electronic, and mechanical capabilities to support Readiness Campaigns nonnuclear requirements.

Readiness in Technical Base and Facilities (RTBF)
The RTBF is the primary NNSA direct infrastructure funding source to enable DSW and Campaigns supporting responsiveness, sustaining Environment, Safety and Health, providing rearrangements for production efficiency, and delivering reliable facility, utility, and equipment uptime in support of Stockpile Stewardship production missions. The RTBF provides continual support of fundamental infrastructure services including facilities management and site planning, maintenance, utilities, capital equipment, general plant projects, expense funded projects; facility startup and project support; Environment, Safety, and Health; and Program Readiness. Specific efforts will be focused on completion of the Supply Chain Management Center and the Kansas City Responsive Infrastructure Manufacturing and Sourcing transformation plan.

Nuclear Counterterrorism Incident Response
Support for the DOE and the NNSA's Office of Emergency Response at KCP involves assistance in providing operations and capabilities to Federal, state and local government agencies for responding to radiological accidents and incidents. This effort includes special purpose equipment for the program including the Stabilization Operations program and will continue in FY 2010.

Secure Transportation Asset
The KCP is the engineering assembly agency and technical systems integrator for Secure Transportation Asset (STA) and their Transportation Safeguards System. The KCP provides engineering support for integrated mobile communications systems for vehicles and convoy operations; manages and supports relay station operations, maintenance and upgrades; operates vehicle production facilities at Kansas City and Albuquerque, conducts quality assurance studies, vehicle and communication upgrades and repairs to the fleet; provides document management and control of the Agent Standard Operating Procedures, maintains the STA secure website, and maintains the Electronic Systems Depot. The KCP provides technical training support, operates Vehicle Maintenance Facilities, and maintains a Mobile Electronics Maintenance Facility to support the training fleet at Fort Chaffee, Arkansas.

Facilities and Infrastructure Recapitalization Program (FIRP)
The Kansas City Site Office has demonstrated aggressive execution of FIRP activities by focusing on reducing the deferred maintenance of mission facilities and infrastructure necessary to the Stockpile Stewardship Program. The KCP's recommendation to construct a new, modern production facility, known as the Kansas City Responsive Infrastructure Manufacturing and Sourcing or KCRIMS has allowed redirection of FIRP resources to other critical priorities. The NNSA's Roof Asset Management Program (RAMP) will continue to be managed by the Kansas City Site Office. The RAMP, a best business practice employed throughout the National Security Enterprise, contracts for an integration manager to oversee an economical roof repair program at six of the eight nuclear weapons sites. In 2008, the RAMP was the winning entry for the Government Services Administration's 12th Annual Achievement Award for Real Property Innovation.

Environmental Projects and Operations (EPO) - Long-Term Stewardship (LTS)
The LTS program at the Kansas City Plant consists of activities necessary to maintain compliance with the restoration of 43 release sites. The LTS activities include but are not limited to, administration of

implemented cleanup actions at NNSA sites, operations and maintenance of treatment and monitoring systems required under KCP's RCRA Post Closure Permit issued by the Missouri Department of Natural Resources, regulatory reporting, and program management. In FY 2010, all Environmental Projects and Operations LTS activities will be moved under the Site Stewardship program.

Site Stewardship
This is a new Government Performance and Results Act (GPRA) unit in FY 2010 that integrates EPO and new program responsibilities for Nuclear Materials Integration into one funding entity that will operate under a consistent policy. In FY 2010, Site Stewardship activities will be directed toward maintaining site infrastructure, ensuring environmental regulatory compliance, reducing/consolidating Special Nuclear Material (SNM) inventories, and Stewardship Planning for facility deactivation and demolition and energy saving projects.

Defense Nuclear Security
The KCP Defense Nuclear Security program provides all aspects of physical security protection for the plant consistent with applicable DOE Orders and requirements documented in its approved facility Master Security Plan. In FY 2010, KCP will focus on improving the efficiency of the security program, including modernization of the security infrastructure and implementation of technology upgrades to reduce the need for protective force posts and patrols. KCRIMS is considered central to this goal.

Cyber Security
The Cyber Security program will focus on implementing the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation processes for proper documentation of risks and justification of associated operations for systems at all sites; and education and awareness that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Nonproliferation and International Security
KCP provides International Regimes and Agreements with reviews of export controlled equipment, materials and software, and analytical tools and technical references for use in developing recommendations on U.S. export license applications, including weapons of mass destruction (WMD) training to the Department of Homeland Security and other enforcement agencies. For the Office of Global Security Engagement and Cooperation (GSEC), KCP provides instructors, curriculum development and other support to export control outreach. KCP also engages former WMD scientists and engineers in civilian activity, redirecting their expertise to peaceful purposes and integrating them into the larger international scientific and business communities.

KNOLLS ATOMIC POWER LABORATORY

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Naval Reactors	288,214	302,800	382,412
Total, NNSA	**288,214**	**302,800**	**382,412**

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	1,649	1,643	1,643
Other	916	944	944
Total Facility	**2,565**	**2,587**	**2,587**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Knolls Site in Niskayuna is situated on approximately 180 acres of land, while the Kesselring Site in West Milton, New York is situated on approximately 3,905 acres. KAPL field personnel also work at shipyards in New Hampshire, Connecticut, Virginia, Hawaii, and Washington, as well as at the Naval Reactors Facility Site in Idaho.

The Knolls Atomic Power Laboratory (KAPL) is a research and development laboratory operated by KAPL, Inc. (a Lockheed Martin Company) for the Naval Reactor Nuclear Propulsion Program, a joint effort by the Department of the Navy and the Department of Energy. The Schenectady Naval Reactors Office oversees KAPL operations. KAPL's primary function is to support the U.S. Naval Nuclear Propulsion Program through the development of advanced reactor plant designs, while providing design agency support to the operating fleet and training nuclear propulsion plant operators. The Program ensures the safe operation of reactor plants in nuclear-powered submarines and aircraft carriers (which constitute 40 percent of the Navy's combatants), and fulfills the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements.

ACTIVITIES:

Naval Reactors
KAPL's efforts focus on designing the world's most technologically advanced nuclear reactor plants for U.S. Navy submarines. Fundamental research is conducted to develop improved materials, chemistry control systems, and components for naval nuclear propulsion technology. KAPL uses its theoretical

knowledge, sophisticated testing capabilities, and computational power to design new reactor and propulsion systems and components that will be used on existing and future Navy surface ships and submarines. In addition, KAPL operates two prototype plants located at the Kesselring Site in West Milton, N.Y. The MARF and S8G prototypes are used primarily for naval nuclear propulsion training. These plants are also used to test reactors, reactor plant systems, and reactor steam and electric plant components. Also located at Kesselring, the S3G and D1G prototypes are undergoing inactivation. Upon completion of their missions in the 1990s, the S3G and D1G plants were shut down and inactivation was started as part of Naval Reactors' continuing commitment to ensure proper dismantlement and environmental remediation of formerly used facilities.

LAWRENCE LIVERMORE NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	99,042	120,358	95,340
Science Campaign	80,506	92,615	92,475
Engineering Campaign	25,477	20,805	23,814
Inertial Confinement Fusion Ignition and High Yield Campaign	305,642	280,699	294,999
Advanced Simulation and Computing Campaign	202,245	212,507	183,743
Pit Manufacturing and Certification Campaign	17,981	0	0
Readiness Campaign	4,341	8,416	3,444
Readiness in Technical Base and Facilities	98,586	85,758	86,970
Nuclear Counterterrorism Incident Response	23,275	40,381	40,236
Facilities and Infrastructure Recapitalization Program	18,828	15,915	17,455
Environmental Projects and Operations Program/LTS *	12,272	21,446	0
Site Stewardship	0	0	35,112
Defense Nuclear Security	95,475	96,531	95,477
Cyber Security	19,910	17,029	18,356
Subtotal Weapons Activities	**1,003,580**	**1,012,460**	**987,421**
Congressionally Directed Projects	3,940	3,806	0
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	43,476	30,770	41,569
Nonproliferation and International Security	24,116	24,117	30,883
International Nuclear Materials Protection and Cooperation	16,326	13,679	30,633
Global Threat Reduction Initiative	8,199	14,467	14,598
Subtotal Defense Nuclear Nonproliferation	**92,117**	**83,033**	**117,683**
Total, NNSA	**1,099,637**	**1,099,299**	**1,105,104**

* Funding included in Site Stewardship in FY 2010.

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	4,335	4,240	4,240
Other	1,537	1,475	1,475
Total Facility	**5,872**	**5,715**	**5,715**

Congressional Items of Interest: Construction completion of the National Ignition Facility.

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Lawrence Livermore National Laboratory (LLNL) is located on a one-square-mile site in Livermore, California, with a larger (10-square mile) remote explosives testing site (Site 300) situated 18 miles east of the main Livermore site.

The LLNL has a primary role in the Department of Energy/National Nuclear Security Administration (DOE/NNSA) mission special capabilities, required for stockpile stewardship and nonproliferation activities as well as homeland security, to meet enduring national needs in conventional defense, energy, environment, biosciences, and basic science, as well as enhancing the competencies needed for the national security mission. The site is aligned with the Nuclear Security Enterprise transformation activities. For LLNL, this includes eliminating quantities of special nuclear materials from the Laboratory, planning for disposition of Site 300, and establishing shared user facilities to more efficiently maintain experimental capabilities such as the National Ignition Facility (NIF).

ACTIVITIES:

Directed Stockpile Work (DSW)
The Lawrence Livermore National Laboratory (LLNL) is responsible for four enduring weapons systems: the W62, W80, B83, and W87; and the Life Extension Programs (LEP), as well as weapon system assessments, and certification and stockpile support. The LEP and enduring systems directly support weapons systems, while the Stockpile Services contains activities that support multiple weapons systems, including, plutonium, High Energy Density/Above Ground Experiment (HED/AGEX) experiments, Nuclear Safety Research & Development (R&D), surveillance management and subject matter experts, container design, assessment and certification, and weapons response support to the plants.

LLNL is tasked with supporting continuing efforts to examine how the B61 Phase 6.2/6.2A study can address issues of safety, security and long-term reliability of the nation's nuclear deterrent. The study will provide options to address aging, reliability, surety improvements, and the consolidation of numerous modifications.

Science Campaign
The Science Campaign develops the tools and methodology to assess and certify the safety, reliability, and performance of the stockpile systems. These tools and methodology also support ongoing activities in LEPs, Significant Finding Investigations (SFI), and Laboratory-to-Laboratory Peer Reviews. The Science subprogram activities are:

- Advanced Certification: Created in FY 2008 by Congressional mandate, Advanced Certification will continue to review, evaluate and implement key recommendations from the JASON review of RRW regarding approaches to establishing an accredited warhead certification plan, without nuclear testing, in an era where changes to nuclear components will occur due to aging or design concerns;

- Primary Assessment Technologies: As the Quantification of Margins and Uncertainty (QMU) tools and methodology are validated, they will be used in assessment work required to support DSW activities. Primary assessment also designs the experimental program that supports primary assessment and certification, and validates the Advanced Simulation and Computing (ASC) codes

and the physics-based models that support QMU development and application. Using the QMU methodology, the labs will continue to identify and quantify technical areas with the largest uncertainties and impact to stockpile performance, and focus future efforts to reduce these uncertainties and quantify margins. Two major LLNL-specific products of these efforts are program plans for the LLNL Hydrotest Program and Plutonium Experiments program. These plans are coordinated with Los Alamos National Laboratory (LANL) in the National Hydrotest Plan and the National Primary Assessment Plan. Another major LLNL activity is the development of the project for application to equation of state characterization at very high pressures. This project will conduct a series of isentropic compression experiments (ICEs) that are driven by a High Explosive Pulsed Power (HEPP) system. LLNL will also continue efforts on the National Ignition Facility (NIF) experiments;

- Dynamic Materials Properties: The LLNL work in this subprogram extends key experimental capabilities, data analysis, and materials models (used by both the Primary Assessment Technologies and Secondary Assessment Technologies subprograms). The focus is the experimental activities required to support the development of accurate, predictive, physics-based models of materials properties and behavior under relevant conditions. The development of such models and subsequent code insertion is supported through the closely coordinated ASC Physics and Engineering Models subprogram. This activity supports experiments and data analysis at U1a and the Joint Actinide Shock Physics Experimental Research (JASPER) Facility, and uses a wide range of other experimental tools to create conditions of static and dynamic high pressure and temperature and enables investigations of the dynamic response of materials under ultra-high-pressure conditions of shock loading;

- Advanced Radiography and Transformational Technologies: The scope of this subprogram activity is to improve the capability to experimentally infer the integral performance of the mock primaries. This supports evaluation of the margins and uncertainties for the continuing certification of reliability and safety of the stockpile. Radiographic hydrotest data are critical to weapon programs, including the current LEPs, and the development of modern baselines for all weapon systems; and

- Secondary Assessment Technologies: The Secondary Assessment Technologies subprogram develops the tools and capabilities needed to understand the factors that control secondary yield and then applies these tools to reduce uncertainties in secondary performance. These activities support assessments of the safety, reliability, and performance of stockpile weapons, including ongoing activities in LEPs and Significant Finding Investigations (SFIs). As these tools and methodology are validated, they, along with simulation and computing capabilities, will be delivered to the DSW Program for assessments required to support directed stockpile activities at LLNL. In FY 2010, LLNL will continue to develop high energy density physics platforms of ICF facilities in order to focus on increasing our understanding of secondary performance and developing a more complete understanding of stockpile weapons. Using QMU methodology, LLNL will continue to identify and quantify technical areas with the largest uncertainties and impact to stockpile performance, and focus future efforts on reducing uncertainties and quantifying margins.

Engineering Campaign

The Engineering Campaign activity provides the Nuclear Security Enterprise with modern tools and capabilities in engineering sciences and technologies to ensure the safety, security, reliability, and performance of the current and future U.S. nuclear weapons stockpile, and a sustained basis for stockpile certification. The LLNL portion of the Engineering Campaign supports the following subprograms:

Enhanced Surety, Weapon System Engineering Assessment Technology, Nuclear Survivability and Effects, and Enhanced Surveillance.

Readiness Campaign
The LLNL Advanced Design and Production Technologies activity is the originator of several systems currently in the nuclear stockpile, and LLNL must ensure and enable the reliable manufacturing and maintenance of its weapon designs by Nuclear Security Enterprise production agencies. As such, LLNL has established unique capabilities in the development and deployment of materials, technologies, techniques, and processes related to weapons production and re-certification that are critical elements of Advanced Design and Production Technologies (ADAPT). LLNL centers of excellence in design, materials processing, high explosives development, and information technologies enable ADAPT efforts that are of direct benefit to DSW, LEPs and Enhanced Surveillance.

Additionally, the LLNL provides support to High Explosives and Weapons Operations (HEWO) for high explosives diagnostics, development and qualification.

Advanced Simulation and Computing (ASC) Campaign
In 2010, LLNL ASC activities will focus on three major areas: maintaining a world-class, national supercomputing user facility that enables reliable and responsive computer simulations throughout the laboratory complex; development and application of simulation tools for annual assessment, LEPs, SFIs and the mission priorities of the Stockpile Stewardship Program (SSP) including the continuing improvement of predictivity; and application to national nuclear security mission needs including the NEST, warhead dismantlement, nuclear attribution, effects and emerging threats. Also, LLNL will continue its leadership in the deployment of Tri-laboratory Productivity On-Demand (TriPoD) capabilities on all newly procured capacity clusters enabling a seamless ASC user environment for capacity computing. The ASC Campaign at LLNL will pursue forward looking investments in Sequoia, a computing platform that will perform the large number of demanding simulations needed for quantification of simulation uncertainties. This includes bringing to production the initial delivery system, Dawn, which will allow the tri-laboratory to scale weapons applications using the Sequoia system, to be delivered in 2011. Also in 2010, LLNL will continue to develop, implement, and apply a suite of physics-based models and high-fidelity databases to enable predictive simulation of the initial conditions for primary performance. LLNL will also develop, implement, and validate a suite of physics-based models, high-fidelity databases, and integrated codes in support of FY 2010 Energy Balance deliverables.

Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign
With the completion of NIF construction and successful demonstration of over 1MJ of laser energy in an ignition pulse, the ICF activity at LLNL is focused on the commissioning of the National Ignition Facility (NIF) and its use for ignition and other high energy density physics experiments in support of the SSP. The LLNL is responsible for the commissioning and operation of the NIF and for oversight of the National Ignition Campaign (NIC), the integrated national effort to demonstrate ignition at NIF. LLNL also coordinates Enterprise-wide construction and installation of diagnostics and other experimental equipment required to make NIF a fully functioning user facility for the broader user community.

The experimental efforts to support weapons science, broader scientific goals and ignition will begin in the 3rd quarter of 2009, with the goal of executing the first NIF ignition experiments by the end of FY 2010. The NIF ignition experiments will provide a means to investigate thermonuclear burn related issues central to assessment of the legacy and evolving nuclear stockpile. Ignition and other

experiments in areas such as radiation flow, complex hydrodynamics, and material properties support ongoing stockpile assessment via the quantification of margins and uncertainties methodology. Approximately 15 percent of NIF experiments will be made available to the basic science community and other users external to the NNSA. The LLNL effort also executes high energy density physics experiments in support of the SSP at the University of Rochester Laboratory for Laser Energetics (OMEGA), High Atomic Number Element-Z Accelerator / "Z" Refurbishment Facility (Z/ZR), and other facilities, and develops many of the advanced targets required to support these experiments.

Readiness in Technical Base and Facilities (RTBF)
The Stockpile Stewardship Program at LLNL relies heavily on a wide variety of experimental, computational, fabrication, and special materials-handling facilities, and related support facilities and infrastructure to accomplish the objectives and milestones described in the Campaign and DSW program and implementation plans. Of these "Stockpile Stewardship Mission-Essential Facilities," the subset of direct, programmatic facilities and technical base (i.e. "capabilities"), that are in part or fully direct-funded through the RTBF program includes the Nuclear Materials Technology Program (NMTP) facilities (Superblock), the light gas guns (B341), the High Explosive Applications Facility (HEAF), the open air firing sites and Contained Firing Facility (CFF) at Site 300, and the Engineering test facilities at Site 300.

Nuclear Counterterrorism Incident Response
The DOE and the NNSA's Office of Emergency Response, LLNL assists in operating, exercising, and maintaining DOE's capability to provide assistance to Federal, state and local government agencies for responding to radiological accidents and incidents. LLNL deploys trained, qualified technical and professional personnel and specialized equipment and provides research and development, training, exercises, operations, maintenance and required coordination with other Federal agencies and foreign governments to effectively address current and projected threats. LLNL is an active participant in the NNSA Nuclear Emergency Support Team (NEST), which can respond to any type of emergency involving radioactive or nuclear materials in the U.S. or abroad. Moreover, LLNL supports the National Technical Nuclear Forensics (NTNF) and Stabilization Operations programs, which will continue through the planning period. In addition, LLNL provides research and support to the Office of Emergency Operations with unique expertise in supporting the Office of Nuclear Counterterrorism as well as operation of the National Atmospheric Release Advisory Center, (NARAC). This facility provides tools and services for atmospheric plume predictions to the federal government, that map the probable spread of hazardous material accidentally or intentionally released into the atmosphere.

Facilities and Infrastructure Recapitalization Program (FIRP)
In FY 2010, funding allocated for FIRP provides for the recapitalization of aging facilities and infrastructure at the LLNL to assure that the quality of the infrastructure keeps pace with the Laboratory's scientific mission requirements. FIRP funds have reduced LLNL's deferred maintenance to a level consistent with industry standards.

In FY 2010, the recapitalization component of FIRP will continue to fund high-priority projects that restore and rehabilitate mission critical facilities and infrastructure, through the reduction of deferred maintenance, which will support transformation of the Nuclear Security Enterprise. Deferred maintenance (DM) reduction projects minimize the risks of unscheduled facility outages and improve the safety of personnel and equipment. Projects targeted for FY 2010 will continue to rehabilitate or replace aged and deteriorated equipment, elevators, roofs and the roads infrastructure. Specific examples include replacement and upgrades of Heating, Ventilation and Air Conditioning (HVAC) systems, low voltage electrical components, electrical panels and distribution wiring in buildings B121,

B131, B261, B298, B482 and B490. Buildings B121, B261 and B490 will be rehabilitated for adaptive reuse through the replacement of lighting, paint, carpet and tiles, in addition to the HVAC and electrical upgrades. High-voltage electrical distribution cables and components will be replaced and reconfigured to support changing demands in the East and Central portion of the lab. Buildings B253 and B262 will also undergo DM reduction activities. In addition to the execution of Recapitalization projects, the FY 2010 request includes planning for the FY 2011 Recapitalization projects including electrical replacements in B131 and B298, general replacement/upgrades such as motor control centers, transformers, sectionalizing switches, panel boards, heat pumps, fans and generators, and the identification and installation of an alternate irrigation source. The Laboratory aggressively participates in the Enterprise's Roof Asset Management Program (RAMP).

Environmental Projects and Operations (EPO) – Long-Term Stewardship (LTS)
The LTS activities at LLNL are post-remediation activities to assure regulatory compliance and continued protection of public health and the environment. The LTS activities began at LLNL-Main Site in FY 2007 and in FY 2009 at LLNL-Site 300 after the completion of legacy environmental cleanup activities. In FY 2009, LTS activities include, but are not limited to program management, operation and maintenance of contaminated ground water treatment systems; inspection and maintenance of landfill caps (Site 300 only); soil vapor and groundwater monitoring, well field operations and maintenance and modeling; and access controls. In FY 2010, all LTS activities will be moved under the Site Stewardship program.

Site Stewardship
This is a new Government Performance and Results Act (GPRA) unit in FY 2010 that integrates EPO and new program responsibilities for Nuclear Materials Integration into one funding entity that will operate under a consistent policy. In FY 2010, Site Stewardship activities will be directed toward maintaining site infrastructure, ensuring environmental regulatory compliance, reducing and consolidating Special Nuclear Material (SNM) inventories, and Stewardship Planning for facility deactivation and demolition and energy saving projects. Environmental Projects and Operations, and Nuclear Materials Integration (SNM de-inventory) subprograms activities are funded in FY 2010.

Defense Nuclear Security
The LLNL Defense Nuclear Security program provides protection measures consistent with the requirements documented in its Site Safeguards and Security Plan (SSSP). In FY 2010, the focus will be on preparation of movement of category I/II SNM from the SuperBlock to other NNSA/DOE sites. To meet the 2012 de-inventory goal set by NA-10, LLNL will also continue to focus on improving the efficiency of the security program, including modernization of the security infrastructure and implementation of technology upgrades.

Cyber Security
The Cyber security program will focus on the implementation of the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation processes for proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Nonproliferation and Verification Research and Development
The Nonproliferation and Verification Research and Development program will strongly focus to improve geographic models to locate and identify regional seismic events to support nuclear detonation

detection assessments. This program will deliver field-calibrated models of the seismic response for additional, specified regions of interest, and demonstrate prototype tools for the automation of incorporating newly acquired data into these models. The program will develop and test gamma and neutron detection materials for future commercial systems to search for and locate special nuclear material; and investigate methodologies to establish a scientific basis for attribution to determine the origin of fissile materials. The program is the inter-laboratory coordinator on testing optical remote sensing techniques for WMD proliferation detection/characterization; and is a recognized national leader in developing hyperspectral analysis methods for standoff detection of gases and other materials over denied areas. The Nonproliferation and Verification R&D program provides research to develop hand-held sensors for detection of uranium oxide materials, laser vibrometry, and state-of-the art research in the use of anti-neutrino detector systems for nuclear reactor monitoring applications, and advanced modeling of uranium enrichment processes. The program also develops a research electrical optical sensor system that can cover a large area with dynamic operational tasking and real-time on-board processing.

International Nuclear Materials Protection and Cooperation (INMP&C)
The INMP&C program provides operational experience in civilian and defense nuclear material protection, control, and accounting (MPC&A) in combination with institutional expertise in nuclear energy, international and domestic safeguards, and the assessment of the proliferation impacts on U.S. national security of foreign nuclear energy programs. LLNL provides security and engineering expertise in support of international MPC&A activities at several Russian Navy, Civilian, and Rosatom Weapons Complex sites. In FY 2010, MPC&A supports sustainability and infrastructure projects for Ministry of Defense, Rosatom, Gosatomnadzor (GAN), Federal Inspectonate for Nuclear and Radiation Safety, Ministry of Transportation, and Russian Shipbuilding Agency with efforts in regulatory development and implementation, and a national accounting system.

Nonproliferation and International Security (NIS)
The NIS program provides support for conducting technical exchanges and technology development under the Warhead and Fissile Material Transparency Program, Highly Enriched Uranium (HEU) Purchase Agreement policy, HEU Transparency Program implementation and development, Plutonium Production Reactor Agreement implementation, and the development of nuclear transparency measures. Also, NIS supports the denuclearization and verification efforts in the Democratic People's Republic of Korea (DPRK) and other proliferate states, and supports IAEA environmental sampling and research and development activities. In addition, NIS assists technical analysis and technology development, and assists regional security efforts in policymaking and negotiations regarding various nonproliferation and arms control regimes. The NIS program provides reviews of export controlled equipment, materials and software, and foreign customers, and analytical tools and technical references for use in developing recommendations on U.S. export licensing applications, interdictions, international safeguards, physical protection, technology assessments, policy support and nonproliferation assessments, multilateral outreach through support efforts for policymaking and negotiations regarding various nonproliferation control regimes, and international cooperation, primarily in the Former Soviet Union but increasingly in transit states as well. The NIS program supports development of safeguards, tools and methodologies such as IAEA environmental sampling and spent fuel monitoring techniques, as well as training to foreign nationals as needed. The program also provides technical support on nuclear safeguards, safety, and security to developing countries interested in nuclear power under the nuclear infrastructure development efforts. The program provides instructors, curriculum development and other support for export control outreach as well as analytical services in support of border security capacity building outreach efforts and technical assistance support for nuclear forensics engagement program. The NIS program further participates in projects that engage former WMD scientists and engineers in civilian

activity, redirecting their expertise to peaceful purposes and integrating them into the larger international scientific business communities.

Global Threat Reduction Initiative (GTRI)
The GTRI provides significant technical, scientific, and management expertise to two of the three key subprograms of GTRI – Remove and Protect—supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

LOS ALAMOS NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	199,502	350,949	320,395
Science Campaign	78,180	92,946	110,691
Engineering Campaign	24,082	25,044	24,569
Inertial Confinement Fusion Ignition and High Yield Campaign	13,679	12,218	15,000
Advanced Simulation and Computing Campaign	226,763	164,913	156,891
Pit Manufacturing and Certification Campaign	190,888	0	0
Readiness Campaign	7,119	7,926	2,200
Readiness in Technical Base and Facilities	425,151	472,824	398,788
Nuclear Counterterrorism Incident Response	19,986	36,985	38,835
Facilities and Infrastructure Recapitalization Program	27,603	26,613	28,122
Site Stewardship	0	0	1,500
Defense Nuclear Security	156,416	149,823	108,000
Cyber Security	19,910	17,477	18,427
Subtotal Weapons Activities	**1,389,279**	**1,357,718**	**1,223,418**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	97,848	87,172	97,858
Nonproliferation and International Security	25,184	25,185	40,073
International Nuclear Materials Protection and Cooperation	49,216	31,559	47,800
Fissile Materials Disposition	0	0	0
Global Threat Reduction Initiative	13,822	17,370	17,232
Subtotal Defense Nuclear Nonproliferation	**186,070**	**161,286**	**202,963**
Total, NNSA	**1,575,349**	**1,519,004**	**1,426,381**

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	5,840	5,697	4,397
Other	2,299	2,243	2,243
Total Facility	**8,139**	**7,940**	**6,640**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Los Alamos National Laboratory (LANL) is located on approximately 25,000 acres, adjacent to the town of Los Alamos, New Mexico.

The LANL is a multi-program laboratory, supporting research and a limited production mission predominantly in national security. The laboratory also supports environmental restoration, waste management, general science programs, homeland security, and work for others.

The Record of Decision for a Site-Wide Environmental Impact Statement for the continued operation of LANL was published September 20, 1999.

The site is aligned with Nuclear Security Enterprise transformation activities. Actions include: (1) reducing facility square footage required for weapons activities, (2) establishing shared user facilities to more cost-effectively manage expensive experimental computational and production capabilities (3) ensuring laboratory plutonium space efficiently supports interim pit manufacturing and Enterprise-wide special nuclear materials consolidation, and (4) demonstrating organizational leadership required to achieve a more integrated, interdependent Nuclear Security Enterprise.

ACTIVITIES:

Directed Stockpile Work (DSW)
The Los Alamos National Laboratory (LANL) is responsible for four enduring weapons systems: the B61, W76, W78, and W88; and supports the Life Extension Program (LEP), weapon system assessments, and certification and stockpile support. In addition, LANL activities include the design, qualification, production support for hardware manufacturing, surveillance and assessment of safety, reliability, and performance of the bombs and warheads and the Production Agency for manufacturing mission assigned components for all weapon systems. A portion of the LANL activities support the W76-1 Life Extension Programs (LEP). LANL is also tasked with supporting the B61 Phase 6.2/6.2A study, technical maturation for future LEP, and experimental capabilities (hydrotests).

Science Campaign
In its historic role as a nuclear weapons design laboratory, Los Alamos continues to have a robust science effort supporting science-based stockpile stewardship. A large portion of that effort is reflected in the work supported by the Science Campaign. The Science Campaign subprogram activities are:

- Advanced Certification: Within the Science Campaign, the Advanced Certification subprogram will continue efforts begun in FY 2008 to review, evaluate, and implement key recommendations from the JASON review of RRW regarding approaches to establishing an accredited warhead certification plan, without nuclear testing, in an era where changes to nuclear components will occur due to aging or design concerns;
- Primary Assessment Technologies: Primary Assessment Technologies activities support the science (including theory, experiment, simulation, and analysis) necessary to develop and improve a validated capability for predicting and certifying primary performance, safety, and Quantification of Margins and Uncertainties (QMU) without additional nuclear tests. Approximately half of the effort for this subprogram is directed towards boost physics;

- Dynamic Materials Properties: Develops physics-based, experimentally validated data and models of all stockpile materials, at a level of accuracy required by the Primary and Secondary Assessment Technologies and Engineering Campaign. The Dynamic Materials Properties is focused on the behavior of high explosives, plutonium, uranium, and other metals. In 2010, efforts in support of Dynamic Plutonium Experiments transition into this subprogram. Work with DoD under the DoD-DOE joint munitions program is conducted principally under Dynamic Materials Properties;
- Advanced Radiography and Transformational Technologies: Supports development of technologies for three-dimensional imagery of imploding mock primaries, with sufficient time and space resolution to help resolve uncertainties in primary performance. With the completion of the Dual Axis Radiographic Hydrodynamic Test (DARHT) 2nd axis refurbishment, the focus has turned to optimization of radiographic tools and development of new technologies; and
- Secondary Assessment Technologies: Secondary Assessment Technologies develops the tools and capabilities required to understand the factors that control secondary yield, and to use these tools to reduce uncertainties in secondary performance. These activities support assessments of the safety, reliability, and performance of the LANL stockpile weapons, including ongoing activities in LEPs, and Significant Findings Investigation (SFIs). Along with advanced simulation and computing capabilities, as these tools and methodology are validated, they will be delivered to the DSW program for usage in assessment work required to support directed stockpile activities at LANL. In FY 2010, LANL will develop high energy density physics platforms of Inertial Confinement Fusion (ICF) facilities to focus on increased understanding of stockpile weapons. Using Quantification in Margins and Uncertainties (QMU) methodology, LANL will identify and quantify technical areas with largest uncertainties and impact to stockpile performance and focus efforts to reduce uncertainties and quantify margins.

Engineering Campaign
As the design agency for a majority of the total stockpile, Los Alamos is focused on the development of engineering-based development in support of the nuclear weapons stockpile. LANL has long recognized that, in addition to ensuring the nuclear stockpile is safe, secure, and reliable, there is a requirement to provide the most modern surety (i.e., safety, security, and use control) possible for nuclear warheads/bombs. The LANL portion of the Engineering Campaign consists of the following subprogram activities: Enhanced Surety, Weapon System Engineering Assessment Technology, Nuclear Survivability and Effects, and Enhanced Surveillance.

Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign
The ICF Campaign provides quantitative experimental data and the physical underpinning needed for validation of advanced modeling required in nuclear weapons certification. It participates in the pursuit of laboratory ignition through utilizing unique Los Alamos scientific and technological capabilities and is a key contributor to bringing diagnostics on line for NIF.

Los Alamos' major emphasis is to support the National Ignition Campaign developing designs and advanced diagnostics for the National Ignition Facility (NIF) and utilizing Z and other High-Energy-Density facilities across the weapons enterprise.

Advanced Simulation and Computing (ASC) Campaign
In FY 2010, the national ASC Campaign at LANL will focus on three major areas:

- Integrated Codes – including maintaining legacy codes, research and development of replacement components;

- Computational Systems and Software Environment (CSSE) to protect the investment in science-based simulation capabilities;

- facility operations and user support-to move toward a more standard user environment; and provide system management of the ASC Campaign computers and networks.

The ASC Campaign at LANL will also continue maintenance of Roadrunner, operate computing scalable units in support of weapons certification and assessment, and develop and deploy scalable data manipulation. In addition, LANL will continue ASC activities at the Metropolis Center including maintaining a wide-area infrastructure.

Readiness Campaign

At LANL, three Readiness subprogram activities are performed: Advanced Design and Production Technologies, Stockpile Readiness, and High Explosives and Weapons Operations.

LANL's ADAPT activities reflect both design and production technology development – both major activities at LANL. The scope of work includes all LANL production activities plus supporting capabilities, such as advanced initiation system. Activities are principally organized according to the product(s) they are intended to support (e.g., Detonators, Tritium, Pits / Mock Pits, and experimental hardware).

LANL's stockpile production activity includes improving component testing for Los Alamos and other facilities.

LANL's HEWO activities consist of developing a Predictive Optimization/Control of High Explosive Fabrication to improve manufacturability of main charge explosives and focuses on the pressing and machining aspects of main charge manufacturing.

Readiness in Technical Base and Facilities (RTBF)

The RTBF program supports a broad base of activities and facilities that enable the laboratory to meet its mission obligations to the NNSA and the nation. The LANL RTBF mission is to ensure that the site is implementing the technologies and methods necessary to make construction, operation, and maintenance of Defense Program (DP) facilities safe, secure, compliant, and cost effective. The objective is to ensure that DP facilities and infrastructure are available to conduct the scientific, computational, engineering, and manufacturing activities of the Stockpile Stewardship Program. The LANL RTBF program effort will maintain facilities and technologies in an appropriate condition, such that they are not limiting factors in the accomplishment of the DP mission. The LANL Operations of Facilities activity includes the DP share of the cost to operate and maintain DP-owned programmatic facilities in mission capable mode, a state of readiness in which each facility is prepared to execute programmatic tasks identified in the subprograms. At LANL, DP direct-funded facilities include facilities supporting weapons engineering, tritium, weapons physics (DARHT, etc.), neutron accelerator sciences Los Alamos Neutron Science Center (LANSCE), waste management, nuclear materials research and manufacturing (Technical Area (TA-55) and Chemistry and Metallurgical Research (CMR)) beryllium technology, and machining and fabrication shops. Mission capable work scope includes conventional facility management, infrastructure support, operation and maintenance of real property and special equipment, and compliance with security, environmental, safety and health

requirements. Appropriate support for the long term viability of LANL's plutonium facilities (TA-55 and CMR) and waste processing activities requires incremental funding from users, both DP and non-DP. LANL will continue to implement and administer cost recovery models in these areas in FY 2010, and begin development of a full cost recovery model to support upcoming RLUOB operations.

This activity also includes infrastructure support: Specific project activities to support consolidation and footprint reduction and out-year risk and/or cost redirection strategies, Line Item Other Project Costs (OPCs), general plant projects construction, seismic studies, authorization basis, beryllium rule, and program management. The RTBF activity at LANL also includes landlord costs associated with the conveyance and transfer of land at LANL to the County of Los Alamos and San Ildefonso Pueblo.

Program activities in support of nuclear materials recycle and recovery operations are also contained within RTBF. The LANL support within this program activity is central to the material consolidation activities across the Enterprise.

RTBF Construction
There are a number of line item projects in RTBF per the Integrated Construction Program Plan (ICPP). One key element of long-range planning is Integrated Nuclear Planning (INP). The INP project is a high-level effort to plan the future nuclear facilities within TA-55. The INP presently includes the integration of the Chemistry and Metallurgy Research Replacement (CMRR) project; infrastructure upgrades at TA-55, proposed safeguards and security upgrades; and two new waste management facilities for treatment of radiological liquid waste and processing of transuranic solid waste. These new and refurbished facilities provide a long-term, flexible infrastructure to support current and future plutonium missions.

Facilities and Infrastructure Recapitalization Program (FIRP)
Recapitalization projects provide improvements to mission facilities and infrastructure that support transformation of the enterprise. These improvements are accomplished by reducing legacy deferred maintenance resulting in improved worker safety and improved facility reliability. Mission facilities and infrastructure improvements directly support Defense Programs (DP) activities and priorities within both Directed Stockpile Work and Stockpile Stewardship Campaigns.

In FY 2010, system reliability through electrical system upgrades; Heating, Ventilation and Air Conditioning (HVAC) upgrades; and general construction deficiencies repair projects highlight the facilities management approach to revitalizing the site. The FY 2010 request includes GPP projects that support transformation of the enterprise by either replacing obsolete facilities or renovating existing facilities to meet current and future mission requirements. LANL continues to participate in the Enterprise's Roof Asset Management Program (RAMP) and is achieving improved cost efficiencies and improved life extension of NNSA's roofing assets.

Site Stewardship
This is a new Government Performance and Results Act (GPRA) unit in FY 2010 that integrates Environmental Projects and Operations and new program responsibilities for Nuclear Materials Integration into one funding entity that will operate under a consistent policy. In FY 2010, Site Stewardship activities will be directed toward maintaining site infrastructure, ensuring environmental regulatory compliance, and reducing/consolidating Special Nuclear Material (SNM) inventories, and Stewardship Planning for facility deactivation and demolition and energy saving projects. The Nuclear Materials Integration subprogram is funded in FY 2010.

Nuclear Counterterrorism Incident Response
For the DOE and the NNSA's Office of Emergency Response, LANL assists in operating, exercising, and maintaining DOE's capability to provide assistance to federal, state and local government agencies for responding to radiological accidents and incidents. LANL deploys trained, qualified technical and professional personnel and specialized equipment and provides research and development, training, exercises, operations, maintenance and required coordination with other federal agencies and foreign governments to effectively address current and projected threats. LANL is an active participant in the NNSA Nuclear Emergency Support Team (NEST), which can respond to any type of emergency involving radioactive or nuclear materials in the U.S. or abroad.

Support for the National Technical Nuclear Forensics (NTNF) and Stabilization Operations program will continue through the planning period. In addition, LANL provides research and support to the Office of Emergency Operations with unique expertise in supporting the Office of Nuclear Counterterrorism.

Defense Nuclear Security
The LANL Defense Nuclear Security program provides laboratory protection measures consistent with requirements documented in its Site Safeguards and Security Plan (SSSP). During FY 2010, the laboratory will continue completion of the Nuclear Materials Safeguards and Security Upgrade Project (NMSSUP) Phase II to upgrade access control systems begun in FY 2005. LANL will also continue to focus on improving the efficiency of the security program, including modernization of the security infrastructure and implementation of technology upgrades.

Cyber Security
The Cyber security program will focus on the implementation of the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation processes for proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Nonproliferation and Verification Research and Development
The Nonproliferation and Verification R&D program provides the U.S. Government with improved analytic tools and sensors to discriminate earthquakes and industrial activities from nuclear detonations. In FY 2010, the program will continue to deliver the next generation of satellite based electromagnetic pulse sensors and radiation sensors for nuclear detonation detection systems. The program will develop expert unattended methods and handheld radiation detection systems to support monitoring operations for compliance to future nonproliferation policies. The program will continue developing innovative algorithms and specialized processors to process voluminous quantities of remote sensing data into the specific information required by decision makers. The program provides leadership in the definition of low-frequency signals to support nonproliferation mission areas and collection of nuclear materials signatures in nuclear fuel cycle facilities. The program continues to conduct the Cibola Flight Experiment (CFE). The Cibola payload system has a science mission to study lightning, ionospheric disturbances, and other sources of radio frequency (RF) atmospheric noise. Additionally, the CFE provides a test-bed to study on-orbit reconfigurable hardware and software. The CFE will help develop scientists' understanding of ionospheric weather morphology, along with developing a predictive capability in determining the effects on communications and other space operations. The program has successfully developed a low light imaging photon count sensor.

Global Threat Reduction Initiative (GTRI)
The GTRI provides significant technical, scientific, and management expertise to the three key subprograms of GTRI–Convert, Remove, and Protect—supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The Highly Enriched Uranium (HEU) Reactor Conversion subprogram supports the conversion of domestic and international civilian research reactors and isotope production facilities from HEU to Low Enriched Uranium. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

International Nuclear Materials Protection and Cooperation (INMP&C)
The Materials Protection Cooperation and Accounting (MPC&A) program provides a wealth of expertise through material accounting methodologies, specialized material verification techniques, project and construction management for storage facilities, and language specialization. This program has designed and developed computerized accounting systems that are currently operating at several Russian enterprises. The NNSA is working with LANL in the use of material controls, particularly with the active-nonviolent insider threats when completing MPC&A upgrades at all Russian enterprises. Furthermore, program lab experts provide technical solutions to Second Line of Defense Core and Megaports programs including scientific analysis and testing of radiation detection systems. In addition, the program provides support to other FSU countries.

Nonproliferation and International Security (NIS)
The NIS program provides support for conducting technical exchanges and technology development under the Warhead and Fissile Material Transparency Program and development of nuclear transparency measures. The NIS supports operation of the Blend Down Monitoring System in the HEU Transparency Program. The NIS supports denuclearization and verification efforts in North Korea as well as the IAEA's safeguards technology development activities. The NIS program supports export control work with operation of the Proliferation Information Network System (PINS), reviews of export controlled equipment, materials and software, and analytical tools and technical references to use in developing recommendations on U.S. export license applications, policy support in the development of nuclear transparency measures, fuel cycle analysis and international safeguards technology assessments, and policy support and nonproliferation assessments in the areas of international regimes and regional security. The NIS program provides instructors curriculum development and other support for export control outreach and supports international safeguards efforts, especially development of safeguards technologies and methodologies for advanced fuel cycle facilities such as those in Japan, the Republic of Korea, Brazil and France. In addition, the NIS program helps create business opportunities for displaced weapons workers and engages former WMD scientists and engineers in civilian activity, redirecting their expertise to peaceful purposes and integrating them into the larger international scientific and business communities.

NEVADA TEST SITE

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	48,912	36,103	336
Science Campaign	29,702	27,233	23,700
Inertial Confinement Fusion and High Yield Campaign	3,000	0	0
Pit Manufacturing and Certification Campaign	300	0	0
Readiness in Technical Base and Facilities	96,984	141,747	106,604
Secure Transportation Asset	180	195	6,279
Nuclear Counterterrorism Incident Response	40,459	44,007	45,208
Facilities and Infrastructure Recapitalization Program	13,461	13,675	12,247
Site Stewardship	0	0	0
Subtotal Weapons Activities	**232,998**	**262,960**	**194,374**
Congressionally Directed Projects	**17,730**	**475**	**0**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	12,367	8,495	4,015
Nonproliferation and International Security	1,520	1,520	1,694
Fissile Materials Disposition	300	600	200
Global Threat Reduction Initiative	1,294	4,538	4,585
Subtotal Defense Nuclear Nonproliferation	**15,481**	**15,153**	**10,494**
Congressionally Directed Projects	17,730	475	0
Total, NNSA	**266,209**	**278,588**	**204,868**

NOTE: Funding for Defense Nuclear Security and Cyber Security is provided through the Nevada Site Office.

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	2,071	1,978	1,281
Other	921	894	538
Total Facility	**2,992**	**2,872**	**1,819**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Nevada Test Site (NTS) is located 65 miles northwest of Las Vegas and is approximately 1,375 square miles. The NTS is surrounded by the Department of Defense Nevada Test and Training

Ranges and unpopulated land controlled by the U.S. Bureau of Land Management. In addition to the NTS, the National Nuclear Security Administration (NNSA) Nevada Site Office assets include facilities in North Las Vegas; Nellis Air Force Base (AFB), NV; Andrews AFB, MD; Livermore, CA; Los Alamos, NM; and Santa Barbara, CA.

The NTS is aligned with Complex Transformation activities for the Nuclear Security Enterprise. For NTS, this includes supporting the consolidation of Category I/II quantities of special nuclear materials at other sites and long-term consolidation of hydrodynamic testing and other high-hazard experiments. The current Environmental Impact Statement and the associated Record of Decision allow for the execution of a variety of complex and unique projects and experiments, while ensuring the protection of the workers, the public, and the environment. The existing assets of the NTS represent a unique and indispensable extension of the National Weapons Laboratories experimental capabilities, and are essential to the NNSA Office of Defense Programs and the nation's ability to return to underground nuclear testing, should the President direct it.

The current and future missions at the NTS are consistent with the Stockpile Stewardship and Management Programmatic Environmental Impact Statement, December 1996; the NTS Site-Wide Environmental Impact Statement (SWEIS), December 1996; and the Supplemental Analysis to the NTS EIS, July 2002.

ACTIVITIES:

Directed Stockpile Work (DSW)

The Nevada Test Site (NTS) scope falls within the DSW Stockpile Services activities, which support multiple weapons systems, studies, and other Research and Development (R&D) activities to support future stockpile requirements. The NTS primarily supports DSW by developing and executing Equation of State (EOS) experiments and other highly diagnosed dynamic experiments. The work scope includes support for dynamic plutonium experiments and high explosive pulse power experiments, test bed construction development and design, and procurement and operation of diagnostics systems. Also included are diagnostic development activities required to support future experiments, including research and development, control systems, data acquisition, and data analysis.

NTS will continue to support the Lawrence Livermore National Laboratory (LLNL) in defining and executing a series of High Explosive Pulse Power (HEPP) experiments; Los Alamos National Laboratory (LANL) in fielding the large bore powder gun experiments at U1a and the "Barolo" series of dynamic plutonium experiments. For the Sandia National Laboratories (SNL), the NTS will provide technical input, analysis and interpretation of time-resolved experiments fielded at NTS as part of the National Hydrotest Plan.

Science Campaign

The NTS participates in the following Science Campaign activities:

- Primary Assessment Technologies: Primary Assessment Technologies conducts scientific experiments, which support the experimental study and improvement of material models with emphasis on plutonium. NTS will continue to assist LLNL in defining and executing a series of High Explosive Pulse Power (HEPP) experiments as part of the Phoenix project. NTS provides support in the area of testbed engineering and construction, diagnostics fielding, controls, and data

reduction for the DPEs. In 2010, NTS will continue to support both LLNL and LANL reanalysis of underground test (UGT) data using modern statistical analysis.

- Dynamic Materials Properties: NTS supports the laboratory subprograms by developing diagnostics and fielding experiments. In FY 2010, NTS will support dynamic materials experiments data collection at the Special Technologies Laboratory (STL) Boombox. Special Nuclear Material (SNM) experiment series and diagnostic advancements at the Joint Actinide Shock Physics Experimental Research (JASPER) Facility are planned and executed with LLNL. NTS will also support dynamic experiments and diagnostic development leveraging gas guns at LANL and large bore powder gun capabilities at U1a. NTS will also provide support to SNL in experiments (e.g., ICE - EOS experiments on weapon materials), pulsed power source development, and diagnostic advancements (e.g., VISAR, Pyrometry, and X-ray diffraction).

- Advanced Radiography and Transformational Technologies: NTS supports the LANL Dual Axis Radiographic Hydrodynamics Test (DARHT), the proton radiography experiments at the Los Alamos Neutron Science Center (LANSCE), and Brookhaven National Laboratory. In FY 2010, NTS will continue to provide accelerator diagnostics for DARHT II activities, focusing on LANL experiments. The Proton Radiography (pRad) group will support experiments at LANSCE Line C by providing diagnostics equipment, machined hardware, and personnel for troubleshooting and support during the experiments, conducting image analyses, and providing reports to LANL.

- Secondary Assessment Technology: NTS provides diagnostic development, calibration, fielding, and experiment data collection related to radiation flow studies performed by LLNL and SNL, including advances in optical, x-ray, and neutron detector development. In addition, NTS provides National Institute of Standards and Technology-traceable calibration facilities for radiation-flow diagnostics needed for High Energy Density (HED) physics experiments, the laser at the University of Rochester Laboratory for Laser Energetics (OMEGA) and LLNL lasers in support of LLNL. NTS will also continue to support SNL in core diagnostic support and advanced diagnostics development and characterization on experiments, including x-ray, optical, neutron, other diagnostic-related capabilities, and sources and processes for improving their absolute calibration.

Readiness in Technical Base and Facilities (RTBF)

The NTS RTBF program provides the Stockpile Stewardship Program with the essential physical and operational infrastructure required to conduct the engineering, scientific, and technical activities of the Stockpile Stewardship Program. The objective of the NTS RTBF program is to ensure the correct program-related facilities and activities are maintained in a mission capable state to allow experimental operations to occur in a safe, secure, reliable, and cost effective manner. At the NTS, facilities and activities that are direct-funded are contained in two subprogram elements: Operations of Facilities and Program Readiness. The Operation of Facilities element includes the operation and maintenance of the following NNSA-owned programmatic facilities: Device Assembly Facility (DAF), U1a Complex, JASPER, Control Point Complex, High Explosive Facility, and the North Las Vegas Complex. The Atlas Pulse Power Facility will continue to be maintained in a cold-standby condition. Activities supported under Program Readiness include logistical support to the National Laboratories; support to Other Federal Agencies; Environmental Compliance and Restoration with respect to Defense legacy issues, which includes the Borehole Management Program; and Equipment Revitalization. In FY 2010, Program Readiness also supports the Test Readiness scope of work transferred from the Science Campaign.

Nuclear Counterterrorism Incident Response
The DOE and the NNSA Office of Emergency Response, NTS assists in operating, exercising, and maintaining DOE's capability to provide assistance to Federal, state and local government agencies for responding to radiological accidents and incidents as well as support assistance for any DOE or National emergency. NTS deploys trained, qualified technical and professional personnel and specialized equipment and provides research and development, training, exercises, operations, maintenance and required coordination with other Federal agencies and foreign governments to effectively address current and projected threats. Support for the National Technical Nuclear Forensics (NTNF) program will continue through the planning period.

Facilities and Infrastructure Recapitalization Program (FIRP)
FIRP activities planned for FY 2010 emphasize mission facility and infrastructure projects to meet state and federal requirements. Specific to this year's program are electrical improvements that support OSHA standards. In addition, more reliable power will be distributed to site facilities and introduction of new electrical boiler replacements will improve air quality. The upgrade and refurbishment of water system tanks and distribution systems will provide reliable water supply to mission dependent facilities. The refurbishment of site facilities will restore compliance with life safety codes. The Nevada Site Office continues to participate in the complex-wide Roof Asset Management Program (RAMP) and is achieving improved cost efficiencies and life extension of NNSA's roofing assets.

Site Stewardship
This is a new Government Performance and Results Act (GPRA) unit in FY 2010 that integrates previously identified GPRA units or new program responsibilities into one funding entity that will operate under a consistent policy. In FY 2010, Site Stewardship activities will be directed toward maintaining site infrastructure, ensuring environmental regulatory compliance, and reducing/ consolidating Special Nuclear Material (SNM) inventories, and Stewardship Planning for facility deactivation and demolition and energy saving projects.

Defense Nuclear Security
The NTS Defense Nuclear Security program is funded through the Nevada Site Office and provides site security consistent with requirements documented in its Site Safeguards and Security Plan. In FY 2010 NTS will continue to focus on improving the efficiency of the security program, including modernization of the security infrastructure and implementation of technology upgrades.

Cyber Security
The NTS Cyber Security program is funded through the Nevada Site Office. The Cyber security program will focus on the implementation of the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation for proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Secure Transportation Asset
The NSTEC provides management, quality assurance, personnel training, and preventative and corrective maintenance services in support of the Maryland Relay Station. The facility is part of the Transportation Command and Control System, a vital communications system dedicated to the tracking and safeguarding of special nuclear material shipments.

Nonproliferation and Verification Research and Development
The NPTEC provides capabilities to facilitate test and evaluation of nonproliferation detection technologies under realistic scenarios.

Global Threat Reduction Initiative (GTRI)
The GTRI provides significant technical, scientific, and management expertise to one of the three key subprograms of GTRI–Remove— supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide.

PANTEX PLANT

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	155,229	173,556	181,575
Engineering Campaign	4,260	2,810	3,436
Readiness Campaign	8,257	4,916	4,158
Readiness in Technical Base and Facilities	169,489	174,645	180,355
Secure Transportation Asset	5,489	5,815	5,622
Nuclear Counterterrorism Incident Response	890	935	982
Facilities and Infrastructure Recapitalization Program	14,741	17,827	19,503
Environmental Projects and Operations Program/LTS*	0	7,473	0
Site Stewardship	0	0	36,364
Defense Nuclear Security	150,679	125,397	135,595
Cyber Security	4,096	6,428	7,081
Subtotal Weapons Activities	**513,130**	**519,802**	**574,671**
Defense Nuclear Nonproliferation			
Nonproliferation and International Security	304	304	339
Subtotal Defense Nuclear Nonproliferation	**304**	**304**	**339**
Total, NNSA	**513,434**	**520,106**	**575,010**

* Funding included in Site Stewardship in FY 2010.

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	3,323	3,203	3,150
Other	40	34	33
Total Facility	**3,363**	**3,237**	**3,183**

Congressional Items of Interest: Continuing to support dismantlement goals and W76 Full-Production Rates.

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Pantex Plant (Pantex) is situated on 16,000 acres in the Texas Panhandle, approximately 17 miles northeast of Amarillo. Pantex has five primary operational missions: (1) Weapons Assembly, (2) Weapons Disassembly, (3) Weapons Evaluation, (4) High Explosive Research and Development,

and (5) Interim Plutonium Pit Storage. The site is also aligned with Complex Transformation activities. For Pantex, this includes actions to improve throughput capacity, accelerate dismantlements, and support consolidation of special nuclear materials.

ACTIVITIES:

Directed Stockpile Work (DSW)

The Pantex Plant activities include the assembly/disassembly for all nuclear weapons. Pantex supports the Life Extension Program (LEP) disassembly for conversion, production, and Retrofit Evaluation System Test (REST) surveillance schedules, Seamless Safety for the 21st Century (SS-21) projects; stockpile weapon system surveillance (assembly/disassembly), sustained retired systems dismantlement, and required production support.

In FY 2008, Congress transferred the funding for the Pit Disassembly and Conversion Facility (PDCF) construction project from the Office of Defense Nuclear Nonproliferation to DSW Weapons Dismantlements and Disposition within the NNSA Office of Defense Programs. The Pantex Plant stores surplus pits pending shipment to the Los Alamos National Laboratory in support of the PDCF technology demonstration. The Pantex Plant also packages and stores surplus pits for future shipment to the Savannah River Site for conversion in the PDCF prior to fabrication into mixed-oxide fuel.

Engineering Campaign

Pantex supports the Enhanced Surveillance subprogram by performing aging studies on explosives and non-nuclear materials and components and providing the results to the Design Agencies. Pantex also works with the Design Agencies to develop and deploy new diagnostics tools for implementation into DSW. Pantex will develop and maintain resolution upgrade for Pit Computed Tomography.

Readiness Campaign

Pantex supports the following Readiness Campaign subprogram:

- High Explosives and Weapons Operations: assures that the complex is ready to support mission and workload requirements associated with production of high explosive components, the requalification of components for reuse to support Stockpile Management requirements, and the assembly and disassembly of war reserve nuclear weapons. Specifically, the work addresses the gaps that exist in operations in support of the Base Workload, B61and W76 LEPs, and 36-month test readiness. Work will continue on advanced inventory and material management, advanced HE gauging techniques, as well as other activities in support of the continuing LEPs and Base Workload.

Readiness in Technical Base and Facilities (RTBF)

The RTBF Program provides the physical infrastructure and operational capabilities required to conduct the DSW and Campaign activities. This includes ensuring that facilities are operational, safe, secure, and compliant, and that a defined level of readiness is sustained to perform the current and future Pantex mission. In addition to the RTBF program elements, the companion programs and construction work cooperatively with the RTBF elements and the Facilities and Infrastructure Recapitalization Program.

Secure Transportation Asset (STA)

Pantex provides facilities and support for the Federal Agent Force Central Command for the STA program. The plant operates a Vehicle Maintenance Facility and a Mobile Electronics Maintenance Facility to support convoy operations to include specialized and secure maintenance and repair of the

entire vehicle fleet and communications equipment. The plant also maintains facilities for Agent training and mission operations.

Facilities and Infrastructure Recapitalization Program (FIRP)
Pantex will prioritize projects for execution that align with the NNSA initiative to consolidate footprint, demolish obsolete buildings, and modernize infrastructure systems and facilities. The Pantex FIRP Program will continue to bolster Site efforts on energy systems performance and execute deferred maintenance reduction projects in mission critical and mission dependent facilities. This strategy will improve facility system reliability, minimize the risk of unscheduled facility outages and improve safety. Over the past three years, this strategy has contributed to the increased throughput on NNSA mission objectives for Stockpile Stewardship, Life Extension Program and Retired Weapons Systems. Completion of the FIRP Utility Line Item projects to upgrade the electrical distribution system and the gas main and distribution system are also anticipated in FY 2009. Projects targeted in FY 2010 include the renovation of mechanical systems, replacement of an HVAC system, refurbishment of electrical/ uninterrupted power supply systems, and pipe and tank replacements. In addition, the FY 2010 request includes planning for FY 2011 recapitalization projects.

Environmental Projects and Operations (EPO) – Long-Term Stewardship (LTS)
The environmental restoration project was completed by the Office of Environmental Management at the end of FY 2008 and in FY 2009, LTS became the responsibility of the NNSA. The NNSA LTS activities include long-term surveillance and maintenance, monitoring, and reporting and will continue to assure protection of public health and the environment. In FY 2010, all LTS activities will be moved under the Site Stewardship program.

Site Stewardship
This is a new Government Performance and Results Act (GPRA) unit in FY 2010 that integrates Environmental Projects and Operations and new program responsibilities for Nuclear Material Integration into one funding entity that will operate under a consistent policy. In FY 2010, Site Stewardship activities will be directed toward maintaining site infrastructure, ensuring environmental regulatory compliance, and reducing/consolidating Special Nuclear Material (SNM) inventories, and Stewardship Planning for facility deactivation and demolition and energy saving projects. Stewardship Planning is funded in FY 2010. In addition, the FY 2010 request includes the Pantex Renewable Energy Project (PREP), which will play a key role in satisfying Executive Order 13423 objectives, reduce green house gas emissions at local power plants, enhance energy security, create jobs, and lay the foundation for the future.

Defense Nuclear Security
The Pantex Defense Nuclear Security program provides protection measures consistent with requirements documented in the Site Safeguards and Security Plan (SSSP). During FY 2010, the site will sustain the 2003 Design Basis Threat upgrades. The program will also focus strongly on life cycle replacement of aging intrusion detection and assessment systems and other protection systems with emphasis on utilization of new technologies.

Cyber Security
The Cyber security program will focus on the implementation of the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation processes for proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness

that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Nonproliferation and International Security (NIS)
The NIS program provides support for conducting technical exchanges and technology development under the Warhead and Fissile Material Transparency Program and development of nuclear transparency measures. The NIS program conducts a Pit-Out Review during disassembly to classify weapon parts and components for U.S. national security and export controls for nonproliferation concerns, and maintains a computer data base jointly funded with Defense Programs.

SANDIA NATIONAL LABORATORIES

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	341,220	378,271	400,216
Science Campaign	31,538	40,141	40,112
Engineering Campaign	97,353	87,102	87,176
Inertial Confinement Fusion Ignition and High Yield Campaign	30,332	54,026	35,000
Advanced Simulation and Computing Campaign	123,067	111,597	117,727
Pit Manufacturing and Certification Campaign	2,176	0	0
Readiness Campaign	13,684	13,460	8,037
Readiness in Technical Base and Facilities	178,223	161,175	124,206
Secure Transportation Asset	18,465	17,797	15,636
Nuclear Counterterrorism Incident Response	14,539	26,166	28,629
Site Stewardship	0	0	7,527
Facilities and Infrastructure Recapitalization Program	16,951	18,548	16,275
Environmental Projects and Operations Program/LTS*	3,000	6,981	0
Defense Nuclear Security	67,883	68,244	61,244
Cyber Security	17,910	17,231	17,858
Subtotal Weapons Activities	**956,341**	**1,000,739**	**959,643**
Congressionally Directed Projects	1,478	1,427	0
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	78,939	80,598	72,539
Nonproliferation and International Security	16,692	16,693	18,607
International Nuclear Materials Protection and Cooperation	97,338	43,235	88,219
Global Threat Reduction Initiative	9,714	15,798	16,536
Subtotal Defense Nuclear Nonproliferation	**202,683**	**156,324**	**195,901**
Total, NNSA	**1,160,502**	**1,158,490**	**1,155,544**

* Funding included in Site Stewardship in FY 2010.

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	4,383	4,093	3,913
Other	3,925	4,054	3,163
Total Facility	**8,308**	**8,147**	**7,076**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

Sandia National Laboratories/New Mexico (SNL/NM) is located on the 75,520-acre Kirtland Air Force Base military reservation in Albuquerque, New Mexico. It occupies nearly 9,000 acres of the Kirtland reservation and has additional facilities in Livermore, California (400 acres); Kauai, Hawaii (120 acres); and Tonopah, Nevada (600 square miles). The SNL is aligned with the Nuclear Security Enterprise transformation activities. Evaluations are underway by way of the National Environmental Policy Act (NEPA) process for the Enterprise Transformation Supplemental Programmatic Environmental Impact Statement that could affect Sandia relative to operations at Tonopah Test Range (TTR), Environmental testing, and a few other areas discussed in the NEPA documents.

The SNL's Science, Technology, and Engineering program conducts a large variety of research and development programs that support five key areas: (1) Nuclear Weapons, (2) Nonproliferation and Assessments, (3) Military Technologies and Applications, (4) Energy and Infrastructure Assurance, and (5) Homeland Security.

ACTIVITIES:

Directed Stockpile Work (DSW)
The Sandia National Laboratory (SNL) activities ensure the reliability, safety, and security of the current and future nuclear weapons stockpile. SNL supports the W76-1 Life Extension Program (LEP) design, qualification, production, and surveillance activities. SNL supports Retired Systems activities, including required characterization of stockpile weapon components. SNL activities include: surety assessments, the Annual Assessment Report, the semi-annual weapon reliability reports, support to the Nuclear Explosive Safety Studies (NESS), laboratory and flight surveillance, neutron generator design and development, cross-cutting subjects in Significant Finding Investigations (SFIs), aircraft compatibility, and military liaison with the Department of Defense (DoD). Sandia has design and production mission assignments for Neutron Generators; arming, fusing and firing system; and a dozen other technologies that require extensive engineering oversight to produce. In FY 2009, SNL was assigned gas transfer system design responsibility.

SNL also supports continuing efforts to examine how the B61 Phase 6.2/6.2A study can address issues of safety, security and long-term reliability of the nation's nuclear deterrent.

Science Campaign
SNL will continue to leverage its unique capabilities and tools in the pulsed power sciences and the materials and process sciences to support the mission of the Science Campaign for stockpile stewardship.

- Advanced Certification: SNL activities for the Advanced Certification subprogram will continue efforts to review, evaluate, and implement key recommendations from the JASON review of the Reliable Replacement Warhead regarding approaches to establish an accredited warhead certification plan, without nuclear testing, in an era in which changes to nuclear components will occur due to aging or design concerns. Sandia will obtain actinide, gas, and other material equation of state data.

- Primary Assessment Technologies: For the Primary Assessment Technologies subprogram, SNL will begin executing a plan for theoretical and experimental activities for boost that are consistent with the National Boost Initiative strategy.

- Dynamic Materials Properties: The Z pulsed-power facility has a unique capability to isentropically (i.e., shocklessly) compress materials and to accelerate flyer plates to shock compress materials to high pressures, thus providing equation-of-state and constitutive property data to the SNL, LANL, and LLNL material communities for inclusion in models and for the quantification of margins and uncertainty (QMU) process. In particular, SNL will continue to conduct experiments to obtain fundamental and integrated data on special nuclear materials (i.e., plutonium) to quantify initial conditions for boost processes and to develop new techniques for measuring dynamic strength on Z. In addition, SNL provides the science basis for developing new non-nuclear materials, improving fabrication processes, and characterizing the performance of materials based on composition, processing, and microstructure to advance the state of the art.

- Advanced Radiography and Transformational Technologies: In pulsed power at SNL, the advanced radiography capabilities include the design, development, and deployment of state-of-the-art, compact, reliable, and high-intensity flash x-ray radiographic sources for experiments conducted at the Nevada Test Site (NTS) and for above ground dynamic experiments for LANL and the Atomic Weapons Establishment (AWE) in support of improved physics models. Moreover, SNL will demonstrate new technologies such as the linear transformer driver for advanced applications to both radiography and dynamic materials and conduct radiographic source coupling tests.

- Secondary Assessment Technologies: At the Z pulsed power facility, SNL also develops intense energetic radiation sources, sophisticated x-ray diagnostics, and an enhanced radiographic capability for the Z Beamlet laser and supports the utilization of these sources and diagnostics by LANL for applications to Secondary Assessment Technologies in radiation transport, complex hydrodynamics, and integrated implosions. In addition, SNL develops plasma radiation source for impulse testing and technical safety requirements (TSR) to support radiation effects to customers.

Engineering Campaign

The Engineering Campaign is a key element to realize the transformation goals for the Nuclear Security Enterprise with a sustainable stockpile. The SNL Engineering Campaign develops the modern engineering tools, capabilities, and technologies needed to ensure the safety, security, survivability, reliability, and performance of the existing and future stockpile, and to provide a sustained engineering science basis, through the use of quantified margins and uncertainties, for stockpile assessment and certification. The SNL portion of the Engineering Campaign supports the following subprograms: Enhanced Surety, Weapon System Engineering Assessment Technology, Nuclear Survivability, and Enhanced Surveillance.

Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign

The SNL ICF activities support the High Energy Density Physics (HEDP) experimental program on the Z pulsed power facility. In FY 2009, Sandia brought Z back into full operation after the completion of the Refurbishment project. The performance milestones were met and high leverage Equation of State, Radiation Physics, and ICF experiments were conducted. In February 2009, Z preformed 9 shots in 9 days showing its readiness to run at full single shift operation. Z will conduct stockpile stewardship experiments in (Dynamic Materials, Secondary Assessment Technology, and Nuclear Survivability

subprograms and DSW), pulsed-power-ICF and x-ray-source-development experiments, and a combination of basic science, z-pinch physics, power flow, and Inertial Fusion Energy experiments.

This ICF Campaign activity also develops, maintains, and operates the diagnostics capability associated with the Z-Beamlet back lighter facility that is coupled to the Z pulsed-power facility; design, fabricates, and assembles the majority of the load and target hardware; develops, maintains, and operates all of the x-ray, particle, and laser-based diagnostics; develops, maintains, and operates multi-dimensional simulation codes, and supports the staff who design, perform, and analyze the experiments. Research on Z and Z-Beamlet is performed in cooperation and collaboration with other national laboratories, Defense Threat Reduction Agency laboratories, universities, and the Atomic Weapons Establishment.

Advanced Simulation and Computing (ASC) Campaign
In FY 2010, SNL ASC activities will focus on the development and application of simulation tools supporting the NNSA Defense Programs mission for annual assessments, LEPs, Significant Finding Investigations (SFIs), and the mission priorities of the Stockpile Stewardship Program (SSP), including the continuing improvement of predictivity and certification methodologies (e.g., Quantification of Margins and Uncertainties, or QMU). Opportunities will also be sought to leverage ASC technology in support of other national nuclear security mission needs including secure transportation and emerging threats. Foundational elements of the SNL ASC program include development of the toolset needed to quantify the uncertainty in the predictions of the NNSA weapons codes – including the effective use of supercomputing and forward looking cost-effective architectures, and application of new methodologies for demonstrating credibility of simulation results. Defense Programs will assess any impact to simulation credibility of ASC program consolidation.

Readiness Campaign
The Readiness Campaign supports development of advanced design and production technologies as required to support production at SNL and some of the other Production Agencies. Readiness Campaign activities at SNL involve three of the five subprograms within the Campaign.

- High Explosives and Weapons Operations: SNL's main objective is the Predictive Optimization/Control of High Explosive Fabrication.

- Nonnuclear Readiness: the principal Sandia focus has been achieving "Readiness" through continued modernization of neutron-generator testers.

- Tritium Readiness: Sandia continues to model the design of the Tritium Producing Burnable Absorber Rods (TPBARs) for comparison against experimental data gathered during the initial irradiation cycles in order to understand the permeation performance of the TPBARs.

Readiness in Technical Base and Facilities (RTBF)
The RTBF Program supports a broad base of activities that enable the laboratory to meet its mission and obligations to the NNSA and the nation. The activities are derived from the staffing and operation of a number of critical Nuclear Weapons Program capabilities and facilities, operation of test capabilities and test ranges, supporting development work and studies in weapons materials, waste management, education, and high energy density physics readiness. The SNL RTBF projects range from the staffing and operation of complex experimental capabilities (e.g., Tech Area V reactors, Tonopah Test Range, and Environmental Test Facilities) to production and support capabilities (e.g. Microelectronics Development Laboratory, Neutron Generator equipment maintenance, and the Primary Standards Laboratory). Sandia provides the primary standards capabilities for the Nuclear Security Enterprise.

Also critical within the RTBF program are efforts to develop programs to maintain key nuclear weapons critical skills and develop the critical capabilities for the next generation of program needs.

Secure Transportation Asset (STA)
The SNL provides the research, design, and engineering development, and operational support for new technology, mobile communications, and vehicle production. The SNL conducts safety and security studies and analyzes risks involving nuclear weapons transportation. The SNL maintains the STA safety and security authorization basis, and designs, analyzes tests, and documents all nuclear weapon and material cargo tie-down systems for STA ground and air transportation, engineering production, configuration management, and field support for the Safeguards Transporter (SGT), Safe Secure Trailer (SST), Next Generation Armored Tractor (NGAT), and Escort Vehicles (EVs), and maintains a "24X7" emergency response capability for convoy missions.

Defense Nuclear Security
The SNL Defense Nuclear Security program provides laboratory protection measures consistent with requirements documented in its Site Safeguards and Security Plan (SSSP). In FY 2010, SNL will continue to focus on improving the efficiency of the security program, including modernization of the security infrastructure and implementation of technology upgrades.

Cyber Security
The Cyber security program will focus on the implementation of the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation processes for proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Nuclear Counterterrorism Incident Response
The SNL assists the DOE and the NNSA's Office of Emergency Response, in operating, exercising, and maintaining DOE's capability to provide assistance to Federal, state and local government agencies for responding to radiological accidents and incidents. The SNL deploys trained, qualified technical and professional personnel and specialized equipment and provides research and development, training, exercises, operations, maintenance and required coordination with other Federal agencies and foreign governments to effectively address current and projected threats. The SNL is an active participant in the NNSA Nuclear Emergency Support Team (NEST), which can respond to any type of emergency involving radioactive or nuclear materials in the U.S. or abroad. The SNL also supports the National Technical Nuclear Forensics (NTNF) and Stabilization Operations programs which will continue through the planning period. Also, SNL activities include the conduct of operations and technical integration in support of the Joint Technical Operations Team (JTOT), Accident Response Group (ARG), and Home Team (HT) in the form of technical support, research and development, intelligence support, field operations, and training and exercises. In addition, SNL provides research and support to the Office of Emergency Operations with unique expertise in supporting the Office of Nuclear Counterterrorism.

Facilities and Infrastructure Recapitalization Program (FIRP)
The SNL uses FIRP funding for projects that support refurbishment of building systems and utilities for mission-critical Defense Programs facilities and infrastructure. In FY 2010, the Heating System Modernization (HSM) project will receive the final year of FIRP funding for demolition of the steam plant and fuel oil system related to the steam plant. This project supports facilities within Sandia's

Technical Area I involved in directed stockpile work, neutron generator production, surveillance and engineering campaigns, and advance computing systems supporting modeling and simulation activities in support of the stewardship mission. Recapitalization projects planned for FY 2010 will fund projects to include chiller replacements supporting Sandia's scientific and classified computing resources, mechanical and electrical upgrades in facilities involved with thermal power source R&D and production, and machining of critical classified components for weapons subsystems. Facility footprint reduction is especially important at SNL because any modernization is confined to existing boundaries.

Environmental Projects and Operations (EPO) – Long-Term Stewardship (LTS)
The LTS activities at the SNL continue to support remedial actions completed at 263 of 265 release sites. In FY 2009, NNSA LTS activities include program management, the maintenance of remedies at a number of environmental restoration sites at SNL/New Mexico, and groundwater monitoring at SNL/California. In FY 2010, all LTS activities will be moved under the Site Stewardship program.

Site Stewardship
This is a new Government Performance and Results Act (GPRA) unit in FY 2010 that integrates Environmental Projects and Operations and new program responsibilities for Nuclear Materials Integration into one funding entity that will operate under a consistent policy. In FY 2010, Site Stewardship activities will be directed toward maintaining site infrastructure, ensuring environmental regulatory compliance, reducing and consolidating Special Nuclear Material (SNM) inventories, and Stewardship Planning for facility deactivation and demolition and energy saving projects.

Nonproliferation and Verification Research and Development
The SNL Nonproliferation and Verification R&D program will develop, demonstrate, and validate improvements to data processing and analysis tools in support of ground-based nuclear detonation detection. The program will design, develop, and produce new optical detectors for the next generation of U.S. satellite-based monitoring nuclear/radiation detection nuclear detonation detection program. SNL serves as the national center on research on Synthetic Aperture Radar systems and analysis methods for national security applications. The SNL Nonproliferation and Verification R&D program will continue field-testing a remote chemical detection system for stand-off detection of nuclear weapon production activities. The SNL will continue to develop radiation algorithms to improve performance of commercially available hand-held and portal nuclear/radiation detection systems. The program's research includes definition and testing of components for future UAV-based effluent collection systems to support proliferation detection requirements. The program conducts state-of-the-art research in the use of anti-neutrino detector systems for nuclear reactor monitoring applications.

International Nuclear Materials Protection and Cooperation (INMP&C)
The INMP&C program at SNL provides experience with the design and installation of physical protection systems and has specific technical expertise in access delay systems; intrusion detection and assessment systems and associated display systems; access control systems; and vulnerability analysis procedures, processes and associated computer codes. The INMP&C program at SNL also provides technical expertise to advise Russian institutes, enterprises, and government agencies as they develop and implement physical protection systems, regulations, and sustainability and training programs and to support the Second Line of Defense program. Additionally, the INMP&C program at SNL supports installation of radiation detection equipment at border crossings and airports/seaports within both Russia and the Former Soviet Union States under the Second Line of Defense Core Program and at major

container shipping terminals within the global maritime cargo transportation system under the Second Line of Defense Program's Megaport Initiative.

Nonproliferation and International Security (NIS)
The NIS program at SNL conducts technical exchanges and technology development under the Warhead and Fissile Material Transparency Program, develops nuclear transparency measures, including through technical analysis and technology development, and supports policymaking and negotiations regarding various arms control and nonproliferation regimes. The NIS program at SNL also supports HEU Transparency Program implementation and development. The NIS SNL program provides support for licensing operations through reviews of export controlled equipment, materials and software, and analytical tools and technical references for use in developing recommendations on U.S. export license applications, international safeguards technology assessment, policy support and nonproliferation assessment, multilateral outreach through support efforts for policymaking and negotiations regarding various nonproliferation control regimes, and international cooperation, primarily in the Former Soviet Union but increasingly in transit states as well. The NIS SNL program supports regional security efforts and export control activities and NNSA regional security objectives, particularly with the Cooperative Monitoring Center. In addition, the program supports safeguards and international physical protection cooperation, provides vulnerability assessment support for foreign sites of interest, training to foreign nationals as needed, support to IAEA and USG meetings abroad to strengthen physical protection measures globally, Additional Protocol outreach and training, and safeguards agreement implementation. The NIS SNL program helps create business opportunities for displaced weapons workers and engages former weapons of mass destruction scientists and engineers in civilian activity, redirecting their expertise to peaceful purposes, and integrating them into the larger international scientific and business communities.

Global Threat Reduction Initiative (GTRI)
The GTRI at SNL provides significant technical, scientific, and management expertise to two of the three key subprograms of GTRI–Remove and Protect—supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

SAVANNAH RIVER SITE

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	63,656	74,698	40,690
Engineering Campaign	1,809	1,947	1,199
Pit Manufacturing and Certification Campaign	425	0	300
Readiness Campaign	34,545	25,610	26,709
Readiness in Technical Base and Facilities	92,413	101,222	164,474
Nuclear Counterterrorism Incident Response	2,221	2,332	2,449
Site Stewardship	0	0	0
Defense Nuclear Security	10,842	12,420	12,668
Cyber Security	2,124	3,631	5,335
Subtotal Weapons Activities	**208,035**	**221,860**	**253,824**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	13,846	12,272	500
Fissile Materials Disposition	16,400	500	87,500
Global Threat Reduction Initiative	1,676	1,365	10,532
Subtotal Defense Nuclear Nonproliferation	**31,922**	**14,137**	**98,532**
Total, NNSA	**239,957**	**235,997**	**352,356**

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	1,535	1,500	1,437
Other	7,851	5,594	5,580
Total Facility	**9,386**	**7,094**	**7,017**

Congressional Items of Interest: Construction of the Mixed-Oxide Fuel Fabrication Facility and the Pit Disassembly and Conversion Facility.

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Savannah River Site (SRS) spans approximately 310 square miles bordering the Savannah River in western South Carolina. The Department of Energy Office of Environmental Management is the site landlord. The Savannah River Site is designated as a National Environmental Research Park and covers a small portion of Aiken, Barnwell, and Allendale counties.

The SRS Tritium Facilities, which occupy a portion of the total site, are supporting the National Nuclear Security Administration (NNSA) Stockpile Stewardship and Stockpile Evaluation programs, and are executing a plan to meet the challenges of the future through the following core missions:

- Provide tritium and non-tritium loaded reservoirs to meet Nuclear Weapons Stockpile Plan requirements;
- Conduct the Stockpile Evaluation Program; and
- Extract tritium produced at TVA reactors.

The SRS Tritium Facilities are aligned with Nuclear Security Enterprise transformation activities.

ACTIVITIES:

Directed Stockpile Work (DSW)
The SRS activities include processing tritium and inert reservoirs and associated components in support of the Life Extension Program (LEP) and enduring weapon systems. The LEP activities include production Retrofit Evaluation System Test (REST) surveillance, and production sampling evaluation associated with the refurbishment of the W76-1. Stockpile Systems categories include Limited Life Component Exchange (LLCE), Gas Transfer System (GTS) Surveillance, Stockpile Laboratory Tests (SLTs), and Life Storage Program (LSP) activities. Reservoirs and associated parts will be processed as necessary to support LLCE schedules per production directive requirements for the enduring stockpile. Retired Systems includes reservoirs returned from retired weapons that will be unloaded, welded closed for disposal, or managed per NNSA requirements.

In FY 2008, Congress transferred the funding for the Pit Disassembly and Conversion Facility (PDCF) construction project from the Office of Defense Nuclear Nonproliferation to DSW Weapons Dismantlements and Disposition within the NNSA Office of Defense Programs. The SRS supports disposition of U.S. plutonium and, as such, provides design authority for the Pit Disassembly and Conversion Facility (PDCF).

Engineering Campaign
The Enhanced Surveillance subprogram activities develop the tools, techniques, and procedures to advance the capabilities of the Nuclear Security Enterprise to measure, analyze, calculate, and predict the effects of aging on weapons materials, components, and systems to determine if and/or when these effects will impact weapon reliability, safety, or performance. The SRS role in this campaign is to develop methods for surveillance of tritium reservoirs and other Gas Transfer System components.

Readiness Campaign
The SRS role in support of the Readiness Campaign encompasses one subprogram:

- Tritium Readiness: activities include operation of the Tritium Extraction Facility (TEF). The TEF provides the capability to receive and extract tritium-containing gases from tritium producing burnable absorber rods. This will provide sufficient tritium to support stockpile requirements per the baseline schedule. The TEF project was completed in FY 2007, and extraction operations began in January 2007.

Readiness in Technical Base and Facilities (RTBF)
The RTBF program at SRS maintains the facilities and infrastructure in a readiness state in support of the DSW missions, including LEPs, Stockpile Services, and Production Support. Operations of Facilities include facilities management and support activities for mission operations. Preventive, predictive, and corrective maintenance of process and infrastructure equipment/facilities are performed. Environmental, safety, and health activities are conducted to ensure the well being of SRS workers, the public, and the environment, as well as developing and providing updates to the Authorization Bases. Contracted costs of providing utilities to the SRS Tritium Facilities are included. Capital equipment and general plant projects that meet base maintenance and infrastructure needs are planned and executed to maintain the safety, utility, and capability of the process facilities. Material Recycle and Recovery involves recovery and purification of tritium, deuterium, and helium-3 gases from reservoir recycle gas, hydride storage vessels, and facility effluent-cleanup systems. The SRS performs physical maintenance of various shipping containers, and provides operational, regulatory, and technical support of Pressure Vessels. The SRS also designs and tests replacement shipping containers for use within the DOE Complex.

Defense Nuclear Security
The SRS Defense Nuclear Security program provides security for the Tritium Facility consistent with requirements documented in its approved facility Master Security Plan. In FY 2010, the security program will also focus on ensuring NNSA's role in MOX and PDCF security are fully supported.

Cyber Security
The Cyber security program will focus on implementation of the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation processes for proper documentation of risks and justification of associated operations for systems at all sites; and education and awareness that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Facilities and Infrastructure Recapitalization Program (FIRP)
The FIRP has allowed the SRS to achieve a reduction of the baseline deferred maintenance to facilities and infrastructure, including roof replacements, renovations to end-of-life electrical distribution systems and fire protection systems, and replacement of HVAC systems. Future FIRP funds will continue to support high-priority projects that restore and rehabilitate mission critical facilities and infrastructure for transformation of the Enterprise, replace old temporary buildings that have lower replacement costs than maintenance costs and provide long term cost savings.

Fissile Materials Disposition (FMD)
The FMD program supports disposition of U.S. plutonium and, as such, provides site coordination services for the Mixed-Oxide (MOX) Fuel Fabrication Facility (FFF). This program supports the design review of the MOX FFF and integration of the two plutonium disposition facilities with other site support services (actual design of facilities is contracted to industry firms). The SRS primary contractor is responsible for the construction of the MOX project. In addition, during the construction phase, the site M&O will be responsible for the site infrastructure , electric power, water and sewer, roads, communications, waste management, fire protection, security and related services and operation of the Waste Solidification Building (WSB). The SRS will provide project and contract management support for the U.S. plutonium disposition program, which includes MOX and the WSB. During construction of the plutonium disposition projects, the FMD program will continue to provide contract management services such as funding direction and authority over contractors, overseeing contract performance, and

providing legal and accounting services in support of NNSA Headquarters. Finally, the FMD program provides support for qualification, irradiation, transportation, and procurement and characterization of feed materials for MOX fuel.

Nonproliferation and Verification Research and Development
The Nonproliferation and Verification R&D program at SRS provides nuclear materials analysis efforts (advance mass spectrometry developments, ultra-sensitive separation, and detection techniques) and characterization of nuclear materials. The program also provides state-of-the-art scientific research to define improved effluent collection systems and research for development of a Field Guide of Environmental Accumulators. The program has developed physical model software hosted on a desktop that quickly and directly derives total heat flux through the surface of a cooling lake from statistical measures of temperature variability of convective cells obtained from thermal images. This model's information could be used to estimate plutonium production in nuclear reactors.

Nonproliferation and International Security (NIS)
The NIS program at SRS provides safeguards and export control support, specifically in the area of vulnerability assessment support for foreign sites of interest, necessary training to foreign nationals, Additional Protocol outreach and training, and safeguards agreement implementation. The NIS program supports implementation of the U.S.-Russia Plutonium Production Reactor Agreement and denuclearization efforts in North Korea. The program supports licensing operations through reviews of export controlled equipment, materials and software, and analytical tools and technical references for use in developing recommendations on U.S. export license applications and interdictions, including managing and providing WMD training to Department of Homeland Security and other enforcement agencies, and technical reach-back on enforcement investigations with ANL, KCP, LANL, LLNL, ORNL, PNNL, and SNL. The NIS program supports domestic and foreign training and other engagement on strategic trade and export controls.

Global Threat Reduction Initiative (GTRI)
The GTRI provides significant technical, scientific, and management expertise to one of the three key subprograms of GTRI–Remove—supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide.

Y-12 NATIONAL SECURITY COMPLEX

TABLES

FUNDING BY PROGRAM:

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	204,582	176,758	216,357
Engineering Campaign	3,460	3,799	3,500
Advanced Simulation and Computing Campaign	500	250	0
Pit Manufacturing and Certification Campaign	25	0	0
Readiness Campaign	16,892	20,960	4,621
Readiness in Technical Base and Facilities	429,477	406,521	346,766
Secure Transportation Asset	3,381	3,495	3,350
Nuclear Counterterrorism Incident Response	1,159	1,217	1,278
Facilities and Infrastructure Recapitalization Program	54,610	42,905	39,202
Site Stewardship	0	0	7,000
Defense Nuclear Security	167,461	162,980	201,000
Cyber Security	7,048	6,764	7,587
Subtotal Weapons Activities	**888,595**	**825,649**	**830,661**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification Research & Development	1,238	1,515	7,903
Nonproliferation and International Security	1,374	1,374	1,532
International Nuclear Materials Protection and Cooperation	1,656	2,673	1,871
Fissile Materials Disposition	20,143	14,951	12,991
Global Threat Reduction Initiative	2,458	5,784	7,613
Subtotal Defense Nuclear Nonproliferation	**26,869**	**26,297**	**31,910**
Total, NNSA	**915,464**	**851,946**	**862,571**

EMPLOYMENT:

	FY 2008	FY 2009	FY 2010
Contractor Employment (End of Year)			
NNSA	4,619	4,560	4,502
Other	11	255	255
Total Facility	**4,630**	**4,815**	**4,757**

Congressional Items of Interest: Construction of the Highly Enriched Uranium Materials Facility and the Uranium Processing Facility.

Major Changes or Shifts: This site is undergoing a major transformation that is closely aligned with the NNSA Nuclear Security Enterprise planning.

Site Description

INTRODUCTION:

The Y-12 National Security Complex is located on the Department of Energy (DOE) Oak Ridge Reservation (ORR), which covers approximately 35,000 acres. Most of the ORR lies within the corporate limits of the city of Oak Ridge, Tennessee, which is approximately 2 miles southwest of its population center. In addition to Y-12, the ORR is home to Oak Ridge National Laboratory (ORNL) and East Tennessee Technology Park. The ORR is bordered on the north and east by the city and on the south and west by the Clinch River/Melton Hill Lake impoundment.

The Y-12 role includes the following activities:

- Manufacturing and assessing nuclear-weapon secondaries, cases, and other weapons components;
- Dismantling weapons returned from the stockpile;
- Providing safe and secure storage and management of special nuclear material;
- Supplying special nuclear material for use in naval reactors;
- Promoting international nuclear safety and nonproliferation;
- Reducing global dangers from weapons of mass destruction; and
- Supporting U.S. leadership in science and technology.

The transformation for Y-12 reflects consolidation of storage and manufacturing operations of special nuclear material (SNM), footprint reduction, and revitalization and construction of the Highly Enriched Uranium Materials Facility (HEUMF) and construction of the Uranium Processing Facility (UPF). In addition, the Protected Area Reduction Project (PARP) will complete the high security area perimeter and the Consolidated Manufacturing Complex (CMC) will consolidate all non-enriched uranium manufacturing operations. The completion of both these near-term and long-term actions will enable:

- Reducing the site "footprint" by nearly 90 percent, thereby shrinking the requirement for high levels of security for special nuclear materials;
- Reducing the overall site footprint to less than one-half of its current size;
- Consolidating, manufacturing and processing operations to reduce the number of facilities square footage required, improve workflow efficiencies, and facilitate reduction of high-security perimeter;
- Consolidating material storage operations to reduce the number of buildings, square footage, and long-term maintenance operating cost;
- Consolidating administrative and technical operations into permanent and new facilities based on functional, security, and workflow requirements; and
- Consolidating plant support operations into permanent new facilities to improve workflow efficiency and reduce long-term maintenance, operation and security costs.

ACTIVITIES:

Directed Stockpile Work (DSW)

The DSW Y-12 activities include weapon secondary manufacturing, quality evaluation, disposition, and case manufacturing. The Y-12 supports increased emphasis on conducting surveillance of the existing stockpile, predicting its life, performing refurbishments for the Life Extension Program (LEP), dismantling weapons, and providing safe, secure management, and storage of the nation's inventory of highly enriched uranium (HEU) and other weapons materials. Significant tasks include the steady-state

rate production of the W76-1 LEP. Stockpile Systems quality evaluations will also continue, as will dismantlement of selected retired weapon systems.

Engineering Campaign
The Y-12 Enhanced Surveillance subprogram activity provides a lifetime prediction and improved surveillance diagnostics and methods, including non-destructive techniques for canned sub-assemblies, cases, and nonnuclear components to the DSW program for transforming surveillance to be more predictive in finding defects in weapons. Lifetime-prediction efforts include work to improve knowledge of weapon materials, materials interactions, and aging phenomena. The Engineering Campaign Y-12 activities also include development of tools to predict the future condition of the stockpile with enough lead-time to enable preventive maintenance of the stockpile. Diagnostic activities include full deployment of new quality-evaluation technologies, focused on evaluating the condition and aging behavior of canned sub-assemblies, cases, and non-nuclear components. The behavior of materials and components as they age beyond past experience must be defined in terms that can facilitate preventive maintenance of the stockpile.

Readiness Campaign
One subprogram is supported by the Readiness Campaign at Y-12:

- Stockpile Readiness: examines modern and emerging technologies and applies them to the development of new or replacement design and production capabilities in those cases for which modern technology would lead to cost-effective, lean processes, shortened cycle times, built-in quality and acceptance, closer integration of activities across the Nuclear Security Enterprise, a more productive workforce, and agile processes that enhance responsiveness to future national security needs. These efforts will revitalize Y-12's ability to meet Readiness Campaign mission requirements in a more efficient and cost-effective manner, and provide new or enhanced capabilities to meet the future needs of the Nuclear Security Enterprise.

Readiness in Technical Base and Facilities (RTBF)
The RTBF program ensures the readiness of the facilities, infrastructure, materials, and personnel to support Defense Programs mission objectives at Y-12.

The elements of the Y-12 RTBF Program include the following:
- Maintaining base operations support for the entire site infrastructure approximately 350 Y-12 buildings, as well as base operations including maintenance, utilities, and compliance;
- Providing construction line item management, including all pre-conceptual planning and other project costs (OPC) for all RTBF-funded line items;
- Developing and updating the master site plan and Ten Year Site Plans (TYSP);
- Providing inter- and intra-site containers for the transportation of SNM and waste;
- Providing for the management and storage of HEU and other SNM;
- Managing legacy material disposition to promote footprint reduction and compliance with Design Basis Threat requirements;
- Providing for the recycle and recovery of HEU and Lithium;
- Managing responsibilities associated with the Chronic Beryllium Disease Prevention Program (CBDPP); and
- Consolidating excess uranium and other nuclear materials from the Y-12 Plant.

As noted earlier, two major RTBF projects, the Highly Enriched Uranium Materials Facility (HEUMF) and the Uranium Processing Facility (UPF) are underway to provide modern, consolidated enriched uranium storage and production and to enable the 90 percent reduction of the high security area.

Facilities and Infrastructure Recapitalization Program (FIRP)
The facility conditions of Y-12 are noticeably improved due in large measure to the aggressive execution of the Facilities and Infrastructure Recapitalization Program. Y-12 has established a deferred maintenance reduction program that is focused on mission facilities and infrastructure projects that directly support Directed Stockpile Work (DSW), Campaigns, and support transformation of the Enterprise. In FY 2010, recapitalization projects will address deficiencies for electrical, mechanical, utility, specialty and structural systems across the site. Y-12 also continues to participate in the Enterprise's Roof Asset Management Program (RAMP) to correct priority deficiencies and extend the life on the roofing assets. Y-12 is executing two Line Item projects that address the most demanding utility issues at Y-12 – (1) Steam Plant Life Extension and (2) Potable Water System Upgrade.

Site Stewardship
This is a new Government Performance and Results Act (GPRA) unit in FY 2010 that integrates a number of activities such as Nuclear Materials Integration into one funding entity that will operate under a consistent policy. In FY 2010, Site Stewardship activities will be directed toward maintaining site infrastructure, ensuring environmental regulatory compliance, and reducing/consolidating SNM inventories, and Stewardship Planning for facility deactivation and demolition and energy saving projects. Nuclear Materials Integration subprogram activities are funded in FY 2010.

Secure Transportation Asset (STA)
The Y-12 provides mechanical and electrical support to the STA for the Fleet Management Program at Oak Ridge, TN. Support for STA equipment includes annual on-site preventive maintenance inspections, on-site surveillance, and electrician efforts to support incidental communications repair work that arises out of trip support activity.

For Engineering Armored Tractor (AT) Maintenance, Y-12 provides readied ATs in support of weekly mission requirements, as specified by STA. A Fleet of ATs will be maintained to STA specifications including preventive maintenance (Preparation-for-Use, Type 1, Type 2, Type 3, and DOE annual inspections) repair maintenance, and program-specified modifications. Material and effort of garage mechanics, electricians, and mobile equipment service persons to accomplish the maintenance objections are included. The Y-12 will also provide planning, training, and documentation of STA's On-the-Job Training Program and fuel for operation of vehicles.

For Engineering Oak Ridge Escort Vehicles (EV) Maintenance – Mechanical & Vehicle Fuel, Y-12 provides readied EVs in support of weekly mission requirements as specified by AOEC. A fleet of EVs Escort Vehicles w/C Chassis (EV-Cs), Special Response Vehicles (SRVs), and Operational Enhancement Support (OES) vehicles will be maintained to STA specifications including preventive maintenance, repair maintenance, and STA specified modifications.

For Engineering Oak Ridge Safe Secure Transportation (SST)/Safeguard Transporter (SGT) mechanical maintenance, Y-12 provides readied trailers in support of weekly mission requirements as specified by STA. A fleet of trailers will be maintained to STA specification including preventive maintenance (Preparation-for-Ship, Preparation-for-Use, Annual Inspection, 120 Day generator inspection, and DOE annual inspection) repair maintenance, and program specified modifications.

Defense Nuclear Security
The Y-12 Defense Nuclear Security program provides protection measures consistent with protection requirements documented in the facility Site Safeguards and Security Plan (SSSP). In FY 2010, activities will focus on development of the 2008 Graded Security Protection (GSP) policy implementation plan, including consolidation of SNM, adding protective force posts and redeploying protective force personnel to lengthen adversary delay times, implement new vehicle delay measures, and other interim barrier features. The Y-12 Defense Nuclear Security Program will continue to focus on improving the efficiency of the security program, including modernization of the security infrastructure and implementation of technology upgrades.

Cyber Security
The Cyber security program will focus on the implementation of the Department of Energy's revitalization plan, which will enable NNSA to respond to its highest priorities and to address current and future risks; unclassified system certification and accreditation processes for proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness that provides training for federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Fissile Materials Disposition (FMD)
The Y-12 FMD program supports disposition activities through the HEU Disposition Program Office. The program also provides form conversions and packaging of surplus HEU for shipment to down-blending contractors.

The FMD program provides for the planning and implementation of HEU disposition activities, which include blending and transfer of off-specification materials to the Tennessee Valley Authority, transfer of materials to Nuclear Fuel Services for down-blending associated with the Reliable Fuel Supply initiative, tracking and evaluation of surplus HEU inventories, and planning for disposition of unallocated surplus HEU material. The FMD program supports planning and implementing the disposition program in the areas of strategic and tactical planning, oversight, technical analyses, regulatory coordination, business development and marketing, and coordination of interfaces among key participants and stakeholders. The program also manages the design, certification, and procurement of shipping containers for surplus HEU and plutonium.

Global Threat Reduction Initiative (GTRI)
The GTRI at Y-12 provides significant technical, scientific, and management expertise to three key subprograms of GTRI–Convert, Remove, and Protect—supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The HEU Reactor Conversion subprogram supports the conversion of domestic and international civilian research reactors and isotope production facilities from Highly Enriched Uranium to Low Enriched Uranium. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

ARGONNE NATIONAL LABORATORY

FUNDING BY PROGRAM:

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Advanced Simulation and Computing Campaign	200	0	0
Readiness in Technical Base and Facilities	760	0	0
Nuclear Counterterrorism Incident Response	2,084	2,188	2,297
Subtotal Weapons Activities	**3,044**	**2,188**	**2,297**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification Research & Development	0	2,800	0
Nonproliferation and International Security	6,121	6,122	6,823
International Nuclear Materials Protection and Cooperation	2,935	2122	823
Global Threat Reduction Initiative	17,135	48,214	34,813
Subtotal Defense Nuclear Nonproliferation	**26,191**	**59,258**	**42,459**
Total, NNSA	**29,235**	**61,446**	**44,756**

EMPLOYMENT: NNSA does not have access to employment data as it is not the landlord for this site.

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Argonne National Laboratory (ANL) is not a National Nuclear Security Administration (NNSA) managed site. The Office of Science is the site landlord for the Department of Energy. However, significant NNSA work is conducted at the site.

ACTIVITIES:

Global Threat Reduction Initiative (GTRI)
The GTRI provides significant technical, scientific, and management expertise to three key subprograms of GTRI–Convert, Remove, and Protect—supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The HEU Reactor Conversion subprogram supports the conversion of domestic and international civilian research reactors and isotope production facilities from Highly Enriched Uranium to Low Enriched Uranium. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

Nonproliferation and International Security (NIS)

In FY 2010, the NIS program will continue to provide safeguards and export control support, specifically in the area of vulnerability assessment support for foreign sites of interest, training to foreign nationals as needed, Additional Protocol outreach and training, and safeguards agreement implementation. The NIS program supports implementation of the U.S.-Russia Plutonium Production Reactor Agreement and supports denuclearization efforts in North Korea. The NIS program supports licensing operations through reviews of export controlled equipment, materials and software, and analytical tools and technical references for use in developing recommendations on U.S. export license applications and interdictions, including managing and providing WMD training to Department of Homeland Security and other enforcement agencies, and technical reach back on enforcement investigations with ANL, KCP, LANL, LLNL, ORNL, PNNL, and SNL. The NIS program supports domestic and foreign training and other engagement on strategic trade and export controls.

BROOKHAVEN NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM:

(dollars in thousands)

	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Readiness in Technical Base and Facilities	215	0	0
Nuclear Counterterrorism Incident Response	1,621	1,702	1,787
Subtotal Weapons Activities	**1,836**	**1,702**	**1,787**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	1,240	1,845	1,517
Nonproliferation and International Security	5,677	5,677	10,328
International Nuclear Materials Protection and Cooperation	33,586	34,256	32,808
Global Threat Reduction Initiative	331	632	421
Subtotal Defense Nuclear Nonproliferation	**40,834**	**42,410**	**45,074**
Total, NNSA	**42,670**	**44,112**	**46,861**

EMPLOYMENT: NNSA does not have access to employment data as it is not the landlord for this site.

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Brookhaven National Laboratory (BNL) is not a National Nuclear Security Administration (NNSA) managed site. The Office of Science is the site landlord for the Department of Energy. However, significant NNSA work is conducted at the site.

ACTIVITIES:

Nonproliferation and Verification Research and Development
The BNL Nonproliferation and Verification R&D program develops radiation detection, scientific foundations, and instrumentation to improve the technical foundations of radiation detection through demonstrations of advanced concepts and systems to detect and track fissile materials. The BNL is using the National Synchrotron Light Source to characterize the electrical, structural, and transport properties of advanced detector materials at the micron scale to identify defects that correlate with poor detector performance.

Nonproliferation and International Security (NIS)
The BNL NIS program supports international safeguards technology assessment, policy support and nonproliferation assessment. The BNL NIS program supports international cooperation efforts,

including scientist engagement and redirection efforts in the former Soviet Union. Additionally, the BNL NIS program provides support for conducting technical exchanges and technology development under the Warhead and Fissile Material Transparency Program and development of nuclear transparency measures as well as denuclearization work in N. Korea and the U.S. Support Program to IAEA Safeguards.

International Nuclear Materials Protection and Cooperation (MPC&A)
The INMP&C program at BNL provides experience in the design and implementation of MPC&A upgrades on Russian facilities by virtue of their actual work at such facilities and by their involvement with developing MPC&A approaches for such facilities. The BNL provides experience in contracting with various Russian vendors, including government-run institutes, and contracts all of the down blending activities for material conversion and consolidation. Also, the BNL provides support in the development and delivery of MPC&A training courses. The BNL is the lead laboratory that provides support for the MPC&A Operations Monitoring Project, the Technical Survey Team Project, the Insider Threat Review Project, and for the Project Planning and Effectiveness Project.

CHICAGO OPERATIONS OFFICE

TABLES

FUNDING BY PROGRAM:

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Advanced Simulation and Computing Campaign	5,580	5,830	6,300
Readiness Campaign	30,164	39,834	22,058
Subtotal Weapons Activities	**35,744**	**45,664**	**28,358**
Nuclear Nonproliferation			
Nonproliferation and Verification Research & Development	1,500	0	0
Total, NNSA	**37,244**	**45,664**	**28,358**

EMPLOYMENT: NNSA does not have access to employment data as it is not the landlord for this site.

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Chicago Operations Office (CHO) is not a National Nuclear Security Administration (NNSA) managed site operation within the Department of Energy. However, significant NNSA work is conducted through CHO using the office's technical and administrative expertise, and funding and contracting arrangements.

ACTIVITIES:

Readiness Campaign
The Readiness Campaign CHO program supports the Tritium Readiness activity to re-establish and operate the Department's capability for producing tritium to maintain the national inventory of tritium to support the nuclear weapons stockpile. The activity is being implemented at the Tennessee Valley Authority's Watts Bar reactor.

IDAHO NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM:

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	227	0	0
Readiness Campaign	3,850	1,993	3,400
Readiness in Technical Base and Facilities	3,415	1,200	0
Nuclear Counterterrorism Incident Response	558	586	615
Defense Nuclear Security	14,713	0	0
Subtotal Weapons Activities	**22,763**	**3,779**	**4,015**
Congressionally Directed Projects	985	952	0
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	3,838	3,915	5,257
Nonproliferation and International Security	2,010	2,010	2,241
International Nuclear Materials Protection and Cooperation	941	1,243	747
Global Threat Reduction Initiative	27,873	108,213	77,331
Subtotal Defense Nuclear Nonproliferation	**34,662**	**115,381**	**85,576**
Naval Reactors	**56,906**	**68,900**	**78,400**
Total, NNSA	**115,316**	**189,012**	**167,991**

EMPLOYMENT: NNSA does not have access to employment data as it is not the landlord for this site.

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Idaho National Laboratory (INL) is not a National Nuclear Security Administration (NNSA) managed site. The Office of Nuclear Energy is the site landlord for the Department of Energy. However, significant NNSA work is conducted at the site.

ACTIVITIES:

Global Threat Reduction Initiative (GTRI)

The GTRI at INL provides significant technical, scientific, and management expertise to three key subprograms–Convert, Remove, and Protect—supporting the comprehensive GTRI approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The HEU Reactor Conversion subprogram supports the conversion of domestic and international civilian research

reactors and isotope production facilities from Highly Enriched Uranium to Low Enriched Uranium. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

Nonproliferation and Verification Research and Development
The Nonproliferation and Verification R&D program at INL provides research to assess alternative fissile material production methods and advanced nuclear fuel cycle development. Also, the program provides research in improved mass spectrometry applications and nondestructive measurement technologies to obtain micro-structural information on the quality of advanced detector materials.

Naval Reactors (NR)
The NR Advance Test Reactor (ATR) is designed to evaluate the effects of intense radiation on material samples, especially nuclear fuels. The principal customer for the ATR over most of its lifetime has been the NR program. The ATR produces very high neutron flux, which allows the effects of many years of operation in other reactor environments to be simulated in as short as one-tenth the time. Subsequent evaluations of test specimens in the NR Expended Core Facility and the Knolls Atomic Power Laboratory Radioactive Materials Laboratory facilities are the main source of data on the performance of reactor fuel, poison, and structural materials under irradiated conditions. NR continues to develop enhanced systems for high temperature irradiation testing with precise temperature control and environmental monitoring in the ATR.

OAK RIDGE NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM:

	(dollars in thousands)		
	FY 2007	FY 2008	FY 2009
NNSA			
Weapons Activities			
Directed Stockpile Work	20	0	0
Advanced Simulation and Computing Campaign	1,180	400	0
Pit Manufacturing and Certification Campaign	75	0	0
Readiness in Technical Base and Facilities	4,296	0	0
Nuclear Counterterrorism Incident Response	1,142	1,199	1,259
Subtotal Weapons Activities	**6,713**	**1,599**	**1,259**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	15,889	15,262	10,258
Nonproliferation and International Security	17,253	17,254	23,232
International Nuclear Materials Protection and Cooperation	150,517	81,676	96,769
Global Threat Reduction Initiative	6,839	18,657	16,144
Subtotal Defense Nuclear Nonproliferation	**190,498**	**132,849**	**146,403**
Total, NNSA	**197,211**	**134,448**	**147,662**

EMPLOYMENT: NNSA does not have access to employment data as it is not the landlord for this site.

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Oak Ridge National Laboratory (ORNL) is not a National Nuclear Security Administration (NNSA) managed site. The Office of Science is the site landlord for the Department of Energy. However, significant NNSA work is conducted at the site.

ACTIVITIES:

International Nuclear Materials Protection and Cooperation (INMP&C)
The INMP&C program at ORNL is where subject matter experts have unique working experience in the development of vulnerability assessments; personnel reliability program development for insider protection; the design and application of physical security and material control and accounting systems; performance assurance; sustainability; and life cycle management; transportation security and packaging; storage; and response force training for Ministry of Defense, Rosatom, and civilian Russian sites. The INMP&C ORNL program's experience in defense conversion, and the handling, processing and safeguard of extremely large and varied inventories of enriched uranium and related materials,

provides unique experience to the Material Conversion and Consolidation efforts. In addition, ORNL provides expertise in the areas of transportation security, acceptance testing, performance assurance, maintenance, and procedures to the national programs. The ORNL has critical expertise necessary to test and evaluate the radiation detection equipment; and analyze the data retrieved from radiation portal monitors deployed by the Second Line of Defense (SLD) program. The ORNL maintains the repository for all of the data retrieved by systems installed by the SLD program. The ORNL has an integral role in the development of training and implementation of sustainability with the SLD program. The ORNL serves as the lead laboratory in developing independent cost estimates that support the SLD Program's acquisition planning strategy and cost-effective implementation of its CORE and MEGAPORTS projects. The ORNL also serves as the laboratory intermediary for complementary DOE and Defense Threat Reduction Agency project areas related to sustainability.

Nonproliferation and International Security (NIS)
In FY 2010, the NIS program at ORNL will continue to support safeguards work verification of nuclear weapons program dismantlement; licensing activities, and export control cooperation with international partners. The ORNL supports the development of nuclear transparency measures. The facility also provides expertise on various arms control and nonproliferation agreements and treaties. The ORNL further provides technical support to the Subcommittee on Technical Programs and Cooperation and the U.S.-Russia-IAEA Working Group on the Trilateral Initiative (TI). Also, ORNL provides technical support related to safeguards and verification measures and uranium enrichment processing facilities, and supports work with Russia to negotiate and implement transparent nuclear reductions. In addition, ORNL supports licensing operations through reviews of export controlled equipment, materials and software, and analytical tools and technical references for use in developing recommendations on U.S. export license applications, including WMD training to Department of Homeland Security and other enforcement agencies, specialized expertise in the control of nuclear reactor-related technology, prepares analyses to revise U.S. and international nuclear export control lists, studies of export control implications of the development of advanced fuel cycle technologies, and tracks global machine tool supply trends. ORNL supports nonproliferation assessment activities, denuclearization efforts in North Korea, and the IAEA with technology development and assessment and environmental monitoring development. ORNL supports operation of the Blend Down Monitoring System (BDMS) in the HEU Transparency Program. ORNL supports the development, shipping, installation, licensing and maintenance of BDMS equipment, as well as training of Russian and U.S. personnel on BDMS operations and maintenance. Also, ORNL provides experts to participate in monitoring visits to Russian facilities and to interpret resultant BDMS data. ORNL supports efforts to strengthen international safeguards at all levels of nuclear development. ORNL provides analytical and technological systems services in support of international border security capacity building outreach, as well as export control outreach efforts.

Nonproliferation Verification Research and Development
The ORNL conducts research to address the threat from nuclear weapons and radiological disposal devices. ORNL also provides leading-edge research into candidate materials, which could replace exiting nuclear detectors used for gamma spectroscopy and neutron detection. The ORNL also provides nuclear material analysis efforts using advanced mass spectrometry and characterization of nuclear materials. The ORNL leads research efforts to better understand and detect uranium enrichment operations and contributes to understanding associated effluents associated with those processes.

Global Threat Reduction Initiative (GTRI)
The GTRI at ORNL provides significant technical, scientific, and management expertise to the three subprograms of GTRI–Convert, Remove, and Protect—supporting the comprehensive GTRI approach to

achieving its mission and denying terrorists access to nuclear and radiological materials. The HEU Reactor Conversion subprogram supports the conversion of domestic and international civilian research reactors and isotope production facilities from Highly Enriched Uranium to Low Enriched Uranium. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

PACIFIC NORTHWEST NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM:

	(dollars in thousands)		
	FY 2008	FY 2009	FY 2010
NNSA			
Weapons Activities			
Directed Stockpile Work	23	0	0
Readiness Campaign	8,261	10,578	13,100
Nuclear Counterterrorism Incident Response	1,912	3,628	2,990
Subtotal Weapons Activities	**10,196**	**14,206**	**16,090**
Defense Nuclear Nonproliferation			
Nonproliferation and Verification R&D	69,428	52,856	31,334
Nonproliferation and International Security	17,613	17,614	31,634
International Nuclear Materials Protection and Cooperation	165,904	99,381	109,031
Global Threat Reduction Initiative	25,693	48,754	75,721
Subtotal Defense Nuclear Nonproliferation	**278,638**	**218,605**	**247,720**
Total, NNSA	**288,834**	**232,811**	**263,810**

EMPLOYMENT: NNSA does not have access to employment data as it is not the landlord for this site.

Congressional Items of Interest: Construction of the Pacific Northwest National Laboratory Replacement Facility.

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Pacific Northwest National Laboratory (PNNL) is not a National Nuclear Security Administration (NNSA) managed site. The Office of Science is the site landlord for the Department of Energy. However, significant NNSA work is conducted at the site.

ACTIVITIES:

Nonproliferation and Verification Research and Development
The Nonproliferation and Verification R&D program at PNNL provides tools for radionuclide detection and statistical expertise (seismic discrimination) in the ground-based portion of the nuclear detonation detection program. The PNNL plays a key role in the identification of detection signatures and observables, nonproliferation data exploitation, leading edge research and in development of "spectral signatures library" to aid in proliferation signatures detection. The spectral measurements being conducted at PNNL are state-of-the-art in accuracy and sensitivity. Also, PNNL is providing nuclear materials analysis efforts (advanced mass spectrometry developments, ultra-sensitive separation and

detection techniques) and in radiation detection R&D (HEU detection, long-range SNM detection, and new room-temperature, high-resolution materials).

Construction: PNNL provides capabilities replacement efforts for NNSA in the 300 Area and in the new triangle area. The acceleration of Environment Management clean-up activities, with respect to the River Corridor Contract, forces the evacuation of most of the 300 Area facilities by 2009. This project supports a joint effort with the DOE Office of Science and the Department of Homeland Security to construct the 300 Area PNNL Capabilities Replacement Facilities at Hanford. The PNNL provides significant research in the development of methods and tools for enhanced detection of uranium enrichment and plutonium reprocessing facilities using both ground-based effluent collectors and remote sensing systems. The PNNL provides tools for nuclear forensics sample collection efforts in post-detonation environments.

Nonproliferation and International Security (NIS)
The NIS program at PNNL provides support for conducting technical exchanges and technology development under the Warhead and Fissile Material Transparency Program, HEU Purchase Agreement policy and transparency development, Plutonium Production Reactor Agreement implementation, development of nuclear transparency measures, technical analysis, denuclearization efforts in North Korea, and technology development, and regional security efforts in policymaking and negotiations regarding various nonproliferation and arms control regimes. The PNNL provides support for licensing operations through reviews of export controlled equipment, materials and software, and analytical tools and technical references for use in developing recommendations on U.S. export license applications, including Chemical/Biological Weapons related training to Department of Homeland Security, multilateral outreach through support efforts for policymaking and negotiations of various nonproliferation control regimes, international safeguards and physical protection technology assessments, policy support and nonproliferation assessments, and international cooperation, primarily in the Former Soviet Union but increasingly in transit states as well. The NIS program supports the development of safeguards tools and methodologies, as well as training to foreign nationals as needed. The program also provides technical support on nuclear safeguards, safety and security to developing countries interested in nuclear power for nuclear infrastructure development efforts. The NIS program supports domestic and foreign training and other engagement on strategic trade and export controls and program management services in support of international border security capacity building outreach. The program participates in projects which engage former WMD scientists and engineers in civilian activity, redirecting their expertise to peaceful purposes and integrating them into the larger international scientific and business communities.

International Nuclear Materials Protection and Cooperation (INMP&C)
The INMP&C program at PNNL provides technical, contracting, and management expertise for NNSA's INMP&C Program. In particular, this includes the efforts of experts in physical security, material control and accounting, and protective forces, as well as experienced project managers. The PNNL also manages several projects related to materials protection cooperation and accounting (MPC&A) infrastructure in Russia, including physical protection, material, control and accounting, and protective forces training, regulatory development, and inspections/oversight. In addition, PNNL management and technical experts provide project management support, sustainability assistance and training expertise to the Second Line of Defense program.

Global Threat Reduction Initiative (GTRI)
The GTRI program at PNNL provides significant technical, scientific, and management expertise to the key subprograms of GTRI–Convert, Remove, and Protect— supporting the comprehensive GTRI

approach to achieving its mission and denying terrorists access to nuclear and radiological materials. The HEU Reactor Conversion subprogram supports the conversion of domestic and international civilian research reactors and isotope production facilities from Highly Enriched Uranium to Low Enriched Uranium. The Nuclear and Radiological Material Removal subprogram supports the removal and disposal of excess nuclear and radiological materials from civilian sites worldwide. The Nuclear and Radiological Material Protection subprogram supports the securing of high priority nuclear and radiological materials worldwide from theft and sabotage.

GENERAL PROVISIONS

Sec. 301. Contract Competition.
(a) None of the funds in this or any other appropriations Act for fiscal year [2009] *2010* or any previous fiscal year may be used to make payments for a noncompetitive management and operating contract, or a contract for environmental remediation or waste management in excess of $100,000,000 in annual funding at a current or former management and operating contract site or facility, or to award a significant extension or expansion to an existing management and operating contract, or other contract covered by this section, unless such contract is awarded using competitive procedures or the Secretary of Energy grants, on a case-by-case basis, a waiver to allow for such a deviation. The Secretary may not delegate the authority to grant such a waiver.
(b) Within 30 days of formally notifying an incumbent contractor that the Secretary intends to grant such a waiver, the Secretary shall submit to the Subcommittees on Energy and Water Development of the Committees on Appropriations of the House of Representatives and the Senate a report notifying the Subcommittees of the waiver and setting forth, in specificity, the substantive reasons why the Secretary believes the requirement for competition should be waived for this particular award.
(c) In this section the term ``competitive procedures'' has the meaning provided in section 4 of the Office of Federal Procurement Policy Act (41 U.S.C. 403) and includes procedures described in section 303 of the Federal Property and Administrative Services Act of 1949 (41 U.S.C. 253) other than a procedure that solicits a proposal from only one source.
Sec. 302. Unfunded Requests for Proposals. None of the funds appropriated by this Act may be used to prepare or initiate Requests For Proposals (RFPs) for a program if the program has not been funded by Congress.
Sec. 303. Department of Energy Defense Nuclear Facilities Workforce Restructuring. None of the funds appropriated by this Act may be used--
(1) to augment the funds made available for obligation by this Act for severance payments and other benefits and community assistance grants under section 4604 of the Atomic Energy Defense Act (50 U.S.C. 2704) unless the Department of Energy submits a reprogramming [request]*notice* to the appropriate congressional committees; or
(2) to provide enhanced severance payments or other benefits for employees of the Department of Energy under such section; or
(3) develop or implement a workforce restructuring plan that covers employees of the Department of Energy.
Sec. 304. Unexpended Balances. The unexpended balances of prior appropriations provided for activities in this Act may be available to the same appropriation accounts for such activities established pursuant to this title. Available balances may be merged with funds in the applicable established accounts and thereafter may be accounted for as one fund for the same time period as originally enacted.
Sec. 305. Bonneville Power Authority Service Territory. None of the funds in this or any other Act for the Administrator of the Bonneville Power Administration may be used to enter into any agreement to perform energy efficiency services outside the legally defined Bonneville service territory, with the exception of services provided internationally, including services provided on a reimbursable basis, unless the Administrator certifies in advance that such services are not available from private sector businesses.

Sec. 306. User Facilities. When the Department of Energy makes a user facility available to universities or other potential users, or seeks input from universities or other potential users regarding significant characteristics or equipment in a user facility or a proposed user facility, the Department shall ensure broad public notice of such availability or such need for input to universities and other potential users. When the Department of Energy considers the participation of a university or other potential user as a formal partner in the establishment or operation of a user facility, the Department shall employ full and open competition in selecting such a partner. For purposes of this section, the term ``user facility'' includes, but is not limited to: (1) a user facility as described in section 2203(a)(2) of the Energy Policy Act of 1992 (42 U.S.C. 13503(a)(2)); (2) a National Nuclear Security Administration Defense Programs Technology Deployment Center/User Facility; and (3) any other Departmental facility designated by the Department as a user facility.

Sec. 307. Intelligence Activities. Funds appropriated by this or any other Act, or made available by the transfer of funds in this Act, for intelligence activities are deemed to be specifically authorized by the Congress for purposes of section 504 of the National Security Act of 1947 (50 U.S.C. 414) during fiscal year [2009] *2010* until the enactment of the Intelligence Authorization Act for fiscal year [2009] *2010*.

Sec. 308. Laboratory Directed Research and Development. Of the funds made available by the Department of Energy for activities at government-owned, contractor-operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory directed research and development: *Provided*, That the Secretary may also authorize a specific amount not to exceed 4 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site directed research and development[: *Provided further*, That notwithstanding Department of Energy order 413.2A, dated January 8, 2001, beginning in fiscal year 2006 and thereafter, all DOE laboratories may be eligible for laboratory directed research and development funding].

[Sec. 309. Reliable Replacement Warhead. None of the funds provided in this Act shall be available for the Reliable Replacement Warhead (RRW).]

Sec. [310]309. General Plant Projects. Plant or construction projects for which amounts are made available under this and subsequent appropriation Acts with a current estimated cost of less than $10,000,000 are considered for purposes of section 4703 of Public Law 107-314 as a plant project for which the approved total estimated cost does not exceed the minor construction threshold and for purposes of section 4704 of Public Law 107--314 as a construction project with a current estimated cost of less than a minor construction threshold.

[Sec. 311. Energy Production. The Secretary of Energy shall provide funding to the National Academy of Sciences to conduct an inventory of the energy development potential on all lands currently managed by the Department of Energy together with a report, to be submitted not later than July 1, 2009, which includes (1) a detailed analysis of all such resources including oil, gas, coal, solar, wind, geothermal and other renewable resources on such lands, (2) a delineation of the resources presently available for development as well as those potentially available in the future, and (3) an analysis of the environmental impacts associated with any future development including actions

necessary to mitigate negative impacts.]
[Sec. 312.
(a) Reno Hydrogen Fuel Project. The non-Federal share of project costs shall be 20 percent.
(b) The cost of project vehicles, related facilities, and other activities funded from the Federal Transit Administration sections 5307, 5308, 5309, and 5314 program, including the non-Federal share for the FTA funds, is an eligible component of the non-Federal share for this project.
(c) Contribution of the non-Federal share of project costs for all grants made for this project may be deferred until the entire project is completed.
(d) All operations and maintenance costs associated with vehicles, equipment, and facilities utilized for this project are eligible project costs.
(e) This section applies to project appropriations beginning in fiscal year 2004.]
[Sec. 313.
(a) Integrated University Program. The Secretary of Energy, along with the Administrator of the National Nuclear Security Administration and the Chairman of the Nuclear Regulatory Commission, shall establish an Integrated University Program.
(b) For the purposes of carrying out this section, $45,000,000 is authorized to be appropriated in each of fiscal years 2009 to 2019 as follows:
(1) $15,000,000 for the Department of Energy;
(2) $15,000,000 for the Nuclear Regulatory Commission; and
(3) $15,000,000 for the National Nuclear Security Administration.
(c) Of the amounts authorized to carry out this section, $10,000,000 shall be used by each organization to support university research and development in areas relevant to their respective organization's mission, and $5,000,000 shall be used by each organization to support a jointly implemented Nuclear Science and Engineering Grant Program that will support multiyear research projects that do not align with programmatic missions but are critical to maintaining the discipline of nuclear science and engineering.]
Sec. *310. None of the funds made in this or subsequent Acts may be used for the testing of nuclear explosives in the recovery of oil and gas.*
Sec. *311. (a) Section 1801 of the Atomic Energy Act of 1954 (42 U.S.C. 2297g) is amended in subsection (b)(2) by striking "amounts contained within the Fund" and inserting "assessments collected pursuant to section 1802 of the Atomic Energy Act of 1954 (42 U.S.C. 2297g-1) as amended".*
(b) Section 1802 of the Atomic Energy Act of 1954 (42 U.S.C. 2297g-1) is amended:

(1) in subsection (a):

(A) by striking "$518,233,333" and inserting "$663,000,000"; and

(B) by striking "on October 24, 1992" and inserting "with fiscal year 2011".

(2) in subsection (c):

(A) by inserting "(1)" before "The Secretary";

(B) by inserting after "utilities": ", only to the extent provided in advance in appropriation Acts";

(C) by striking "$150,000,000" and inserting "$200,000,000";

(D) by inserting "beginning in fiscal year 2011" after "adjusted for inflation";

(E) by striking "(1)" and inserting "(A)";

(F) by striking "(2)" and inserting "(B)";

(G) by adding a new paragraph 2, ",(2) Amounts authorized to be collected pursuant to this section shall be deposited in the Fund and credited as offsetting receipts."

(3) in subsection (d), by striking "for the period encompassing 15 years after the date of the enactment of this title" and inserting "through fiscal year 2025"; and

(4) in subsection (e):

(A) in paragarph (1), by striking "15 years after the date of the enactment of this title" and inserting "September 30, 2025";

(B) in paragraph (2), by striking "$2,250,000,000" and inserting "$3,000,000,000"; and

(C) in paragraph (2) by inserting "beginning in fiscal year 2011" after "adjusted for inflation".
Sec. 312. Not to exceed 5 per centum, or $100,000,000, of any appropriation, whichever is less, made available for Department of Energy activities funded in this Act or subsequent Energy and Water Development Appropriations Acts may hereafter be transferred between such appropriations, but no such appropriation, except as otherwise provided, shall be increased or decreased by more than 5 per centum by any such transfers, and notification of such transfers shall be submitted promptly to the Committees on Appropriations of the House and Senate.(Energy and Water Development and Related Agencies Appropriations Act, 2009.)