DOE/CF-014
Volume 1

Department of Energy

FY 2008 Congressional Budget Request

National Nuclear Security Administration

Office of the Administrator
Weapons Activities
Defense Nuclear Nonproliferation
Naval Reactors

February 2007

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

Department of Energy
Appropriation Account Summary
(dollars in thousands - OMB Scoring)

	FY 2006 Current Approp.	FY 2007 Cong. Request	FY 2007 CR Rate	FY 2008 Cong. Request	FY 2008 Request vs. FY 2007 Request $	%
Discretionary Summary By Appropriation						
Energy And Water Development, And Related Agencies						
Appropriation Summary:						
Energy Programs						
Energy supply and Conservation	1,812,397	1,923,361	1,817,487	2,187,943	+264,582	+13.8%
Fossil energy programs						
Clean coal technology	-20,000	——	-5,000	-58,000	-58,000	N/A
Fossil energy research and development	580,669	469,686	558,204	566,801	+97,115	+20.7%
Naval petroleum and oil shale reserves	21,285	18,810	18,275	17,301	-1,509	-8.0%
Elk Hills school lands fund	83,520	——	2,000	——	——	——
Strategic petroleum reserve	207,340	155,430	155,430	331,609	+176,179	+113.3%
Northeast home heating oil reserve	——	4,950	4,950	5,325	+375	+7.6%
Strategic petroleum account	-43,000	——	——	——	——	——
Total, Fossil energy programs	829,814	648,876	733,859	863,036	+214,160	+33.0%
Uranium enrichment D&D fund	556,606	579,368	556,525	573,509	-5,859	-1.0%
Energy information administration	85,314	89,769	85,185	105,095	+15,326	+17.1%
Non-Defense environmental cleanup	349,687	310,358	309,946	180,937	-129,421	-41.7%
Uranium Sales and Remediation	——	——	——	——	——	——
Science	3,632,044	4,101,710	3,605,000	4,397,876	+296,166	+7.2%
Nuclear waste disposal	148,500	156,420	141,511	202,454	+46,034	+29.4%
Departmental administration	120,595	128,825	102,582	148,548	+19,723	+15.3%
Inspector general	41,580	45,507	41,784	47,732	+2,225	+4.9%
Innovative Technology Loan Guarantee Program	——	——	——	8,390	+8,390	N/A
Total, Energy Programs	7,576,537	7,984,194	7,393,879	8,715,520	+731,326	+9.2%
Atomic Energy Defense Activities						
National nuclear security administration:						
Weapons activities	6,355,297	6,407,889	6,412,001	6,511,312	+103,423	+1.6%
Defense nuclear nonproliferation	1,619,179	1,726,213	1,620,901	1,672,646	-53,567	-3.1%
Naval reactors	781,605	795,133	780,343	808,219	+13,086	+1.6%
Office of the administrator	354,223	386,576	341,991	394,656	+8,080	+2.1%
Total, National nuclear security administration	9,110,304	9,315,811	9,155,236	9,386,833	+71,022	+0.8%
Environmental and other defense activities:						
Defense environmental cleanup	6,129,729	5,390,312	5,551,812	5,363,905	-26,407	-0.5%
Other defense activities	635,578	717,788	638,129	763,974	+46,186	+6.4%
Defense nuclear waste disposal	346,500	388,080	346,163	292,046	-96,034	-24.7%
Total, Environmental & other defense activities	7,111,807	6,496,180	6,536,104	6,419,925	-76,255	-1.2%
Cerro grande fire activities	742	——	——	——	——	——
Total, Atomic Energy Defense Activities	16,222,853	15,811,991	15,691,340	15,806,758	-5,233	-0.0%
Power marketing administrations:						
Southeastern power administration	5,544	5,723	5,544	6,463	+740	+12.9%
Southwestern power administration	29,864	31,539	29,864	30,442	-1,097	-3.5%
Western area power administration	231,652	212,213	212,213	201,030	-11,183	-5.3%
Falcon & Amistad operating & maintenance fund	2,665	2,500	2,500	2,500	——	——
Colorado River Basins	——	-23,000	——	-23,000	——	——
Total, Power marketing administrations	269,725	228,975	250,121	217,435	-11,540	-5.0%
Federal energy regulatory commission	——	——	——	——	——	——
Subtotal, Energy And Water Development and Related Agencies	24,069,115	24,025,160	23,335,340	24,739,713	+714,553	+3.0%
Uranium enrichment D&D fund discretionary payments	-446,490	-452,000	——	-463,000	-11,000	-2.4%
Excess fees and recoveries, FERC	-50,015	-19,221	——	-17,462	+1,759	+9.2%
Total, Discretionary Funding	**23,572,610**	**23,553,939**	**23,335,340**	**24,259,251**	**+705,312**	**+3.0%**

Strategic Performance Overview

The Overviews in these budget requests will describe, Mission, Benefits, Strategic Themes, and Funding by Strategic Goal. These items together put the appropriation in perspective. The Annual Performance Results and Targets, Means and Strategies, and Validation and Verification sections address how the goals will be achieved and how performance will be measured. Finally, the Overviews will address R&D Investment Criteria, and Program Assessment Rating Tool (PART).

Strategic Context
Following publication of the Administration's National Energy Policy, the Department developed a Strategic Plan that defines its mission, five strategic themes for accomplishing that mission, and 16 strategic goals to support the strategic goals. Each appropriation has developed quantifiable goals to support the strategic goals. Thus, the "performance cascade" is the following:

Department Mission → Strategic Theme → Strategic Goal → GPRA Unit Program Goal (GPRA Unit) → Annual Targets → Milestones

The performance cascade accomplishes two things. First, it ties major activities for each program to successive goals and, ultimately, to DOE's mission. This helps ensure the Department focuses its resources on fulfilling its mission. Second, the cascade allows DOE to track progress against quantifiable goals and to tie resources to each goal at any level in the cascade. Thus, the cascade facilitates the integration of budget and performance information in support of the GPRA and the President's Management Agenda (PMA).

To provide a concrete link between budget, performance, and reporting, the Department developed a "GPRA[1] unit"concept. Within DOE, a GPRA Unit defines a major activity or group of activities that support the core mission and aligns resources with specific goals. Each GPRA Unit has completed or will complete a Program Assessment Rating Tool (PART). A unique program goal was developed for each GPRA unit. A numbering scheme has been established for tracking performance and reporting.[2]

R&D Investment Criteria
Another important component of our strategic planning – and the President's Management Agenda – is use of the Administration's R&D investment criteria to plan and assess programs and projects. The criteria were developed in 2001 and further refined with input from agencies, Congressional staff, the National Academy of Sciences, and numerous private sector and nonprofit stakeholders.

The chief elements of the R&D investment criteria are quality, relevance, and performance. Programs must demonstrate fulfillment of these elements. For example, to demonstrate relevance, programs are expected to have complete plans with clear goals and priorities. To demonstrate quality, programs are expected to commission periodic independent expert reviews. There are several other requirements, many of which R&D programs have and continue to undertake.

An additional set of criteria were established for R&D programs developing technologies that address industry issues. Some key elements of the criteria include: the ability of the programs to articulate the

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[1] Government Performance and Results Act of 1993
[2]The numbering scheme uses the following numbering convention: x.x.xx.xx. The first position identifies the Strategic Theme (01 through 05); the second position identifies the Strategic Goal; the third position identifies the GPRA Unit Program; the fourth position is reserved for future use.

appropriateness and need for Federal assistance; relevance to the industry and the marketplace; identification of a transition point to industry commercialization (or of an off-ramp if progress does not meet expectations), and; the potential public benefits, compared to alternative investments, that may accrue if the technology is successfully deployed.

OMB-OSTP on-going guidance describes the R&D investment criteria fully and identifies steps agencies should take to fulfill them. Where appropriate throughout these justification materials, especially in the Explanation of Funding Changes subheadings, specific R&D investment criteria and requirements are cited to explain the Department’s allocation of resources.

National Nuclear Security Administration

Overview

Appropriation Summary

	(dollars in millions)			
	FY 2006 Current Appropriations	FY 2007 Request	Estimated FY 2007 CR	FY 2008 Request
National Nuclear Security Administration (NNSA)				
Office of the Administrator	354.2	386.6	342.0	394.7
Weapons Activities (after S&S WFO offset)	6,355.3	6,407.9	6,412.0	6,511.3
Defense Nuclear Nonproliferation	1,619.2	1,726.2	1,620.9	1,672.6
Naval Reactors	781.6	795.1	780.3	808.2
Total, NNSA	9,110.3	9,315.8	9,155.2	9,386.8

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

The FY 2008 Request for the National Nuclear Security Administration (NNSA) is $9.4 billion, about $71 million or 0.8 percent, over the FY 2007 request. Within the Weapons Activities appropriation, the major growth areas are Safeguards and Security and Nuclear Weapons Incident Response. Defense Nuclear Security increases $112 million, about 17.7 percent, supporting both base program increases and the revised schedule for 2005 Design Basis Threat implementation at NNSA sites. The Cyber Security activities increase $13.5 million, about 15.3 percent. The Cyber Security increases are the first step in a major five-year effort focused on revitalization, certification, accreditation and training across the NNSA complex. The Nuclear Weapons Incident Response program increases $26.4 million, 19.5 percent, supporting two new R&D initiatives.

The Defense Programs request decreases from the FY 2007 Request by $51 million, about 1 percent, and the programs are being refocused to support the *Defense Programs Strategic Vision for 2030*. The programs in Defense Nuclear Nonproliferation show an overall 3.1 percent decrease from the FY 2007 request level reflecting the completion of some major upgrades and construction activities in Russia. The Office of the Administrator account increases by 2.1 percent, reflecting a leveling of staffing growth and recognition of increasing personnel costs driven by salaries and benefits. The Naval Reactors program increases about 1.6 percent over the FY 2007 President's Budget Request.

The NNSA budget justification contains information for five years as required by Sec. 3253 of P.L. 106-065. This section, entitled *Future-Years Nuclear Security Program (FYNSP)*, requires the Administrator to submit to Congress each year the estimated expenditures necessary to support the programs, projects and activities of the NNSA for a five-year fiscal period, in a level of detail comparable to that contained in the budget.

Outyear Appropriation Summary

NNSA Future-Years Nuclear Security Program (FYNSP)

(dollars in millions)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
NNSA					
Office of the Administrator	395	405	415	425	436
Weapons Activities (after S&S offset)	6,511	6,705	6,904	7,111	7,324
Defense Nuclear Nonproliferation	1,673	1,798	1,845	1,893	1,942
Naval Reactors	808	828	849	870	892
Total, NNSA	9,387	9,736	10,013	10,299	10,594

The FY 2008-2012 FYNSP projects $50.0 billion for NNSA programs though 2012. This is an increase of about $1.5 billion over last year's projections in line with the Administration's strong commitment to the nation's defense and homeland security. The FY 2008 request is slightly smaller than last year's projection in order to adequately fund the Global Nuclear Energy Partnership, which is a major element of the Administration's nonproliferation approach. The outyears, however, are increased starting in 2009. Within these amounts, there is significant growth projected for the Defense Nuclear Nonproliferation programs to support homeland security, including new initiatives and acceleration of programs for Global Threat Reduction and increased inspection of seagoing cargoes destined for ports in the United States. Additional outyear funding associated with the Complex 2030 initiative is still under evaluation and is not addressed in this budget request.

FY 2006 Execution

(dollars in thousands)

	FY 2006 Appropriation	PY Balance/ General Reduction	Rescission	Reprogramming and other Transfers	Total Adjustments	Final FY 2006
Office of the Administrator	341,869	0	-3,419	+15,773	+12,354	354,223
Weapons Activities	6,433,936	0	-64,339	-14,300	-78,639	6,355,297
Defense Nuclear Nonproliferation	1,631,151	0	-16,312	+4,340	-11,972	1,619,179
Naval Reactors	789,500	0	-7,895	0	-7,895	781,605
Total, NNSA	**9,196,456**	**0**	**-91,965**	**5,813**	**-86,152**	**9,110,304**

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 Department of Energy (DOE). The NNSA brought together three existing major program components that maintain all of the weapons in the U.S. nuclear weapons stockpile and the nuclear weapons complex infrastructure; lead the Administration's efforts to reduce and prevent the proliferation of nuclear weapons, materials, and expertise; and provide cradle-to-grave support for the Navy fleet's nuclear propulsion.

The NNSA is funded through four appropriations. The Weapons Activities appropriation funds four programs, Defense Programs, Nuclear Weapons Incident Response, Infrastructure and Environment, and Safeguards and Security, and has 13 GPRA units. The Defense Nuclear Nonproliferation appropriation funds one program, Defense Nuclear Nonproliferation, 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 Secure Transportation Asset couriers and Naval Reactors), and also provides for Information Technology for Federal employees in Headquarters and field locations, and is a single GPRA Unit Program.

This overview will describe Mission, Strategic Goals, and Funding by GPRA Unit Program. These items together put the NNSA program in perspective. It will also address the Program Assessment Rating Tool (PART) assessments for NNSA subprograms, Significant Program Shifts, and provides a high level summary of the program proposals.

Mission

The mission of the National Nuclear Security Administration is to strengthen national security through the military application of nuclear energy and by reducing the global threat from terrorism and weapons of mass destruction.

Strategic Themes and Goals

The Department's Strategic Plan identifies five Strategic Themes (one each for nuclear security, energy security, science, management, and environmental aspects of the mission) plus sixteen Strategic Goals that tie to the Strategic Themes. The NNSA supports the following elements of the DOE Strategic Plan:

Theme 2, Nuclear Security: Ensuring America's nuclear security.

Contribution to Strategic Goals

Strategic Goal 2.1, Nuclear Deterrent: Transform the nation's nuclear weapons stockpile and supporting infrastructure to be more responsive to the threats of the 21st century.

This Administration inherited an aging nuclear weapons complex and a legacy nuclear stockpile that was too large, lacked modern safety and security features, did not have acceptable long-term reliability, and was poorly suited for the uncertain future of the 21st century. The Department of Energy has created a plan for a revitalized nuclear weapons complex called "Complex 2030." This significantly more agile and responsive complex will allow further reductions in the nuclear stockpile by providing an industrial hedge against geopolitical or technical problems and will reduce security costs by consolidating nuclear materials. Complex 2030 is in the planning stages at this time; in compliance with the National Environmental Policy Act, NNSA is preparing a Complex 2030 supplement to the 1996 Stockpile Stewardship and Management Programmatic Environmental Impact Statement. NNSA expects to issue a Record of Decision for Complex 2030 in the fall of 2008.

The NNSA activities funded by the Weapons Activities appropriation contribute to achieving these goals in support of Strategic Goal 2.1. These programs provide personnel and facilities and support for research, development, and production activities associated with maintaining the enduring nuclear weapons stockpile. The activities are conducted at a nationwide network of government-owned, contractor operated laboratories, testing facilities and production plants that are secured, maintained, and recapitalized by the Federal government, and staffed by a highly specialized and trained scientific/technical workforce to assure a robust infrastructure supporting the U.S. nuclear deterrent. The NNSA activities assure safeguards and security for all NNSA facilities, including cyber security, and support the long-term environmental stewardship at NNSA sites after completion of remediation activities by the DOE Office of Environmental Management.

Although the NNSA mission activities are undertaken for purposes of Stockpile Stewardship, many Weapons Activities programs and facilities also contribute to Strategic Goal 3.2, Foundations of Science, to advance the nation's science enterprise. Examples include innovation in scientific computing achieved in the NNSA Advanced Simulation and Computing Campaign, high energy density physics knowledge through the National Ignition Facility, and applied and basic research in microelectronics, plutonium metallurgy, neutron science, and a number of other disciplines. Some NNSA facilities, including the Los Alamos Neutron Science Center (LANSCE) at Los Alamos National Laboratory and the OMEGA laser at Rochester, support scientific research users from other elements of the DOE, as well as other Federal agencies, and partners in the academic and industrial communities. Also, Weapons Activities programs support Strategic Goal 5.3, Infrastructure, through the Facilities and Infrastructure Recapitalization programs, Readiness in Technical Base and Facilities, construction projects, and the Complex 2030 planning.

Detailed multi-year performance goals, indicators, annual targets, and results for all programs funded by the Weapons Activities appropriation are included on tables within each GPRA Unit.

Strategic Goal 2.2, Weapons of Mass Destruction: Prevent the acquisition of nuclear and radiological materials for use in weapons of mass destruction and in other acts of terrorism.

Under a variety of programs, the United States is working to improve the security of fissionable material in the former Soviet Union. The multi-part strategy involves ending fissile material production, consolidating it, improving its security, and beginning the process of eliminating it where feasible. The Departments of State and Defense contribute to this effort, but the Department of Energy has the lead in multiple areas.

All NNSA activities funded by the Defense Nuclear Nonproliferation appropriation contribute to achieving Strategic Goal 2.2. The nonproliferation programs address the full dimension of the threat of weapons of mass destruction proliferation, and achieve the desired controls through enhanced detection capabilities, protecting or eliminating weapons and weapons-usable materials, infrastructure, and expertise, and by reducing the risk of accidents in nuclear fuel cycle facilities worldwide.

The United States is participating with the world community in a comprehensive ten-year nonproliferation effort known as the Global Partnership. The United States intends to provide half of the total $20 billion committed to fund nonproliferation programs in the Former Soviet Union through the DOE, DoD, and Department of State. The DOE/NNSA are providing more than half of the U. S. funding in FY 2006 to FY 2009.

Strategic Goal 2.2 is also supported by programs funded in the Weapons Activities appropriation, with national assets for transportation of weapons, weapon components and materials and national nuclear emergency response assets. In addition, beginning in FY 2006 DOE established a Nuclear Counterterrorism Design Support (NCDS) program within the Office of Defense Programs to utilize the nuclear weapons physics and engineering expertise, analysis, information, and technologies refined during decades of stockpile stewardship, to develop the best technical solutions to address the threat of nuclear terrorism. This program leverages the nuclear weapons program by using assets, facilities, and experimental platforms built for stockpile stewardship purposes. The synergy created with the nuclear weapons program makes this effort unique among U.S. government programs aimed at protecting the nation from radiological and nuclear threats. The focus of NCDS is to bring U.S. nuclear weapon expertise to bear against the Improvised Nuclear Device (IND) threat. The NCDS program evaluates the possible IND design space and uses IND design knowledge to help develop effective strategies, tools, techniques, and procedures to counter this threat.

Detailed multi-year performance goals, indicators, annual targets, and results for all programs funded within the Defense Nuclear Nonproliferation appropriation are included on tables within each GPRA Unit.

Strategic Goal 2.3, Nuclear Propulsion Plants: Provide safe, militarily effective nuclear propulsion plants to the U.S. Navy.

All NNSA activities funded by the Naval Reactors appropriation contribute to Strategic Goal 2.3. Naval Reactors is responsible for all naval nuclear propulsion work, beginning with reactor technology development, and continuing through reactor operation, and ending with reactor plant disposal. The program ensures the safe operation of reactor plants in operating nuclear powered submarines and aircraft carriers (constituting 40 percent of the Navy's principal combatants), and fulfills the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements. Detailed multi-year performance goals, indicators, annual targets and results for the Naval Reactors program are included on tables within the GPRA Unit Program Goal.

Strategic Theme 5, Management Excellence: Enabling the mission through sound management

Strategic Goals 5.1, Integrated Management, Goal 5.2 Human Capital, and Goal 5.4, Resources

The Office of the Administrator appropriation supports Strategic Goal 2.1, Nuclear Security and Strategic Goal 2.2, Weapons of Mass Destruction, and funding is distributed under those strategic goals. However, it also supports Strategic Theme 5, Management Excellence. The Office of the Administrator contributes to the National Nuclear Security Administration's Strategic Goals by providing the Federal personnel and resources necessary to plan, manage, and oversee the operation of the programs designed to meet these goals.

Funding by Strategic and GPRA Unit Program Goal

(dollars in millions)

	FY 2006	FY 2007	FY 2008
Strategic Goal 2.1, Nuclear Deterrent			
GPRA Unit Program Goal 2.1.26, Directed Stockpile Work	1,372.3	1,410.3	1,447.2
GPRA Unit Program Goal 2.1.27, Science Campaign	276.7	263.8	273.1
GPRA Unit Program Goal 2.1.28, Engineering Campaign	247.9	160.9	152.7
GPRA Unit Program Goal 2.1.29, ICF Ignition and High Yield Campaign	543.6	451.2	412.3
GPRA Unit Program Goal 2.1.30, Advanced Simulation and Computing Campaign	599.8	618.0	585.7
GPRA Unit Program Goal 2.1.31, Pit Manufacturing and Certification Campaign	238.7	237.6	281.2
GPRA Unit Program Goal 2.1.32, Readiness Campaign	216.6	206.0	161.2
GPRA Unit Program Goal 2.1.33, Readiness in Technical Base and Facilities	1,654.8	1,685.8	1,662.1
GPRA Unit Program Goal 2.1.34, Secure Transportation Asset	210.0	209.3	215.6
GPRA Unit Program Goal 2.1.35, Nuclear Weapons Incident Response	117.6	135.4	161.7
GPRA Unit Program Goal 2.1.36, Facilities and Infrastructure Recapitalization Program	149.4	291.2	293.7
GPRA Unit Program Goal 2.1.37, Safeguards and Security (net of WFO offset)	765.8	721.4	847.1
GPRA Unit Program Goal 2.1.38, Environmental Projects and Operations	0	17.2	17.5
Program Direction	304.0	323.6	330.7
Total, Strategic Goal 2.1, Nuclear Deterrent	6,697.0	6,731.4	6,842.0
Strategic Goal 2.2, Weapons of Mass Destruction			
GPRA Unit Program Goal 2.2.39, Nonproliferation and Verification Research and Development	312.7	268.9	265.3
GPRA Unit Program Goal 2.2.40, Elimination of Weapons-Grade Plutonium Production	187.1	206.7	181.6
GPRA Unit Program Goal 2.2.41, Nonproliferation and International Security	74.3	127.4	124.9
GPRA Unit Program Goal 2.2.42, International Materials, Protection, Control, and Cooperation	422.7	413.2	371.8
GPRA Unit Program Goal 2.2.43, Fissile Materials Disposition	468.8	638.0	609.5
GPRA Unit Program Goal 2.2.44, Global Threat Reduction Initiative	97.0	106.8	119.6
HEU Transparency Implementation	19.3	0	0
Global Initiatives for Proliferation Prevention	39.6	0	0

	(dollars in millions)		
	FY 2006	FY 2007	FY 2008
Program Direction	57.1	63.0	64.0
Total, Strategic Goal 2.2, Weapons of Mass Destruction	1,678.5	1,823.9	1,736.6
Total, Strategic Goal 2.3, Program Goal 2.3.45, Defense Nuclear Power (Naval Reactors)	781.6	795.1	808.2
Use of Prior Year Balances	-46.8	-34.7	0
Total, NNSA	9,110.3	9,315.8	9,386.8

Outyear Target Funding by Strategic and GPRA Unit Program Goal

	(dollars in millions)			
	FY 2009	FY 2010	FY 2011	FY 2012
Strategic Goal 2.1, Nuclear Deterrent				
GPRA Unit Program Goal 2.1.26, Directed Stockpile Work	1,483.4	1,520.5	1,558.5	1,597.5
GPRA Unit Program Goal 2.1.27, Science Campaign	282.7	275.6	270.4	275.6
GPRA Unit Program Goal 2.1.28, Engineering Campaign	147.1	144.4	142.6	145.4
GPRA Unit Program Goal 2.1.29, ICF Ignition and High Yield Campaign	406.1	413.2	411.9	407.5
GPRA Unit Program Goal 2.1.30, Advanced Simulation and Computing Campaign	598.2	583.6	570.9	582.2
GPRA Unit Program Goal 2.1.31, Pit Manufacturing and Certification Campaign	291.9	339.5	357.6	347.3
GPRA Unit Program Goal 2.1.32, Readiness Campaign	190.5	184.7	180.4	183.9
GPRA Unit Program Goal 2.1.33, Readiness in Technical Base and Facilities	1,698.4	1,765.5	1,862.7	1,952.6
GPRA Unit Program Goal 2.1.34, Secure Transportation Asset	228.3	237.7	253.0	262.1
GPRA Unit Program Goal 2.1.35, Nuclear Weapons Incident Response	169.8	178.3	187.2	196.6
GPRA Unit Program Goal 2.1.36, Facilities and Infrastructure Recapitalization Program	286.6	297.1	304.3	312.0
GPRA Unit Program Goal 2.1.37, Safeguards and Security (net of WFO offset)	889.4	933.9	980.6	1,029.6
GPRA Unit Program Goal 2.1.38, Environmental Projects and Operations	32.5	29.9	30.9	31.6
Program Direction	339.9	348.9	357.9	367.8
Total, Strategic 2.1, Nuclear Deterrent	7,044.9	7,252.9	7,468.9	7,691.8

	(dollars in millions)			
	FY 2009	FY 2010	FY 2011	FY 2012
Strategic Goal 2.2, Weapons of Mass Destruction				
GPRA Unit Program Goal 2.2.39, Nonproliferation and Verification Research and Development	305.1	335.6	353.0	364.5
GPRA Unit Program Goal 2.2.40, Elimination of Weapons-Grade Plutonium Production	138.9	24.5	0	0
GPRA Unit Program Goal 2.2.41, Nonproliferation and International Security	133.0	158.7	166.5	174.3
GPRA Unit Program Goal 2.2.42, International Materials, Protection, Control, and Cooperation	408.2	402.5	407.2	414.0
GPRA Unit Program Goal 2.2.43, Fissile Materials Disposition	660.8	771.2	802.8	813.4
GPRA Unit Program Goal 2.2.44, Global Threat Reduction Initiative	151.9	152.6	163.5	175.8
HEU Transparency Implementation	0	0	0	0
Global Initiatives for Proliferation Prevention	0	0	0	0
Program Direction	65.1	66.1	67.1	68.2
Total, Strategic Goal 2.2, Weapons of Mass Destruction	1,863.1	1,911.1	1,960.1	2,010.2
Total, Strategic Goal 2.3, Program Goal 2.3.45, Defense Nuclear Power (Naval Reactors)	828.0	849.0	870.0	892.0
Total, NNSA	9,736.0	10,013.0	10,299.0	10,594.0

Program Assessment Rating Tool (PART)

The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The PART provides a standardized assessment of Federal programs on how well they are managed to deliver meaningful results to taxpayers. The ratings are intended to help link budget requests to actual program performance and provide a consistent approach to rating programs across the Federal government.

The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional technical reviews. The PART process links seamlessly with the NNSA Planning, Programming, Budgeting, and Evaluation (PPBE) concept, and PART "self-assessments" for all NNSA programs are a prominent aspect of the annual program evaluation cycle. The NNSA ratings on PART self-assessments have achieved consistency with the OMB ratings, which indicates rigor in our process.

The NNSA program management and financial structures are completely integrated, and each program is working toward a number of longer-term "endpoint targets" that facilitate development of realistic annual targets for each year of the FYNSP. These provide meaningful information for program management and evaluation, and are the basis for performance management linkage from the DOE Strategic Plan through the Headquarters programs to the laboratories, test site, and plants carrying out the technical mission work.

The FY 2008-2012 budget cycle will mark the fifth year DOE has participated in the OMB PART review. NNSA program ratings compare very favorably with PART ratings in the DOE and across the government. In the first 4 years, 7 of 17 NNSA reviews were *"Effective"* and the remaining 10 were *"Moderately Effective."* The ratings for the FY 2008 cycle are consistent with this trend.
Results of PART assessments are summarized in the following table:

National Nuclear Security Administration
OMB PART Assessments

FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Advanced Simulation and Computing Campaign – *Effective*	Inertial Confinement Fusion Ignition & High Yield Campaign and National Ignition Facility – *Moderately Effective*	Directed Stockpile Work – *Moderately Effective*	Science Campaign – *Moderately Effective*	Nuclear Weapons Incident Response – *Moderately Effective*
International Materials Protection and Cooperation – *Effective*	Readiness in Technical Base and Facilities – Operations – *Moderately Effective*	Secure Transportation Asset – *Moderately Effective*	Readiness Campaign –*Effective*	Pit Campaign – *Effective*
Facilities and Infrastructure Recapitalization – *Moderately Effective*	Elimination of Weapons Grade Plutonium Production (new program) – *Results Not Demonstrated (reassessed in FY 2007 as Effective)*	Nonproliferation and International Security – *Effective*	Nonproliferation and Verification Research and Development – *Moderately Effective*	Global Threat Reduction Initiative – *Moderately Effective*
Safeguards and Security – *Adequate (reassessed in FY 2006 as Moderately Effective)*			Global Initiatives for Proliferation Prevention – *Effective*	Fissile Materials Disposition – *Moderately Effective*
			Naval Reactors – *Effective*	Engineering Campaign – *Moderately Effective*

NNSA Budget Request Summary

The NNSA FY 2008-2012 budget proposal continues significant efforts to meet Administration and Secretarial priorities to leverage science to promote national security. Key focus areas include:

- Transforming the nuclear weapons stockpile and infrastructure while meeting Department of Defense requirements, through the Reliable Replacement Warhead and other Complex 2030 initiatives;
- Conducting innovative programs in the Former Soviet Union and other countries to address Nonproliferation priorities;
- Supporting naval nuclear propulsion requirements for the nuclear Navy;
- Providing nuclear emergency response assets in support of homeland security;

- Maintaining comprehensive security for facilities, employees and information, and sustaining 2003 DBT upgrades that are the foundation for continuing upgrades throughout the complex in response to the 2005 Design Basis Threat.
- Reducing the deferred maintenance backlog for critical facilities and achieving facility footprint reduction goals; and,
- Providing corporate management and oversight for NNSA programs and operations.

Outyear Budget/Future-Years Nuclear Security Program (FYNSP) baselines were established in February 2006, with the submission of the FY 2007 President's Budget. During the NNSA PPBE process, the NNSA realigned some of its baseline programs to best balance efforts within outyear funding levels. The outyear profiles accompanying this request are discussed in the program writeups. The Administration is still considering the plans and outyear funding requirements for Complex 2030.

Key Changes within the Request:

- Begins to restore balance to Defense Programs (DP) activities to meet Department of Defense (DoD) requirements and to prepare to move ahead with implementing the Complex 2030 initiatives and, the Reliable Replacement Warhead (RRW) strategy;
- Shifts funding to Defense Nuclear Security (+17.7 percent) to support the 2003 Design Basis Threat baseline at NNSA sites and complete the 2005 DBT Implementation in a phased manner at the five NNSA enduring sites (Pantex Plant in FY 2008, Lawrence Livermore National Laboratory in FY 2008) Nevada Test Site in FY 2009, Y-12 National Security Complex in FY 2011, and Los Alamos National Laboratory in FY 2011);
- Provides significant growth (+15.3 percent) in Cyber Security to address current and future needs;
- Establishes a National Technical Nuclear Forensics research and development (R&D) and operations program, and a Stabilization Implementation program through Render Safe R&D development of first generation equipment; and
- Reflects functional transfers associated with moving some of the former Office of Environment, Safety and Health activities to NNSA, and moving NNSA Counterintelligence activities out to the DOE/Office of Counterintelligence.

Legislative Proposals:

There are no new legislative proposals associated with this budget request.

New Initiatives:

- On November 30, 2006, the Nuclear Weapons Council approved the Reliable Replacement Warhead program as the long-term strategy for maintaining a safe, secure and credible nuclear deterrent. This shift in strategy from a Life Extension Program to a RRW program will require substantial planning and resource realignments between the Departments of Defense and Energy that will not be completed in time for the FY 2008 budget submission.
- NNSA support for the Global Nuclear Energy Partnership (GNEP) initiative is integrated with the overall Department of Energy (DOE) effort led by the Office of Nuclear Energy. The NNSA contribution is focused on the Defense Nuclear Nonproliferation program's safeguards technology development activities, and $10 million is requested for FY 2008 in the Nonproliferation and International Security program;

- Within the Nuclear Weapon Incident Response (NWIR) programs, a National Technical Nuclear Forensics research and development (R&D) and operations program is established;
- Also within NWIR, a stabilization program through leveraged Render Safe R&D development of first generation equipment;
- NNSA and the Office of Science plan to establish a joint program in high energy density laboratory plasmas (HEDLP), a major sub-area within the discipline of high energy density physics, by the spring of 2007. The HEDLP program will be jointly funded by the Office of Science and NNSA, and NNSA's planned contribution for FY 2008 totals $12,356,000, included in the ICF and Science Campaigns; and
- Complex 2030 (see discussion below).

Complex 2030

The future nuclear weapons complex will provide a smaller, safer, more secure, and more reliable stockpile through a smaller, robust industrial and scientific capability that can respond in a flexible and agile manner to changing technical, geopolitical or military requirements. The National Nuclear Security Administration (NNSA) must implement the approved U.S. policy specified in the Nuclear Posture Review submitted to Congress in early 2002 to: (1) change the size, composition, and character of our nuclear stockpile in a way that reflects the reality that the Cold War is over; (2) achieve a credible deterrent with the lowest-possible number of nuclear warheads consistent with our national security needs, including our obligations to our allies; and (3) transform the NNSA nuclear weapons complex into a responsive infrastructure that supports the specific stockpile requirements and maintains the essential U.S. nuclear capabilities needed for an uncertain global future. To implement these policies, NNSA established "Complex 2030" as the planning scenario to guide transformation from the nuclear weapons complex of today to the complex of the future.

Complex 2030 is not the complex of today, nor is it the Cold War complex. Complex 2030 is a responsive nuclear weapons infrastructure that is fully capable of responding to threats in an uncertain security environment, while meeting stockpile commitments. NNSA relies on four implementing strategies to achieve Complex 2030: (1) transform the nuclear stockpile in partnership with the Department of Defense (DoD); (2) transform to a modernized, cost-effective complex; (3) create a fully integrated and interdependent complex; and (4) drive the science and technology base essential for long-term National Security. These strategies are complemented by a near-term commitment to focus the complex on essential weapons program deliverables and to build confidence in the transformation process by "getting the job done."

In the next several years, the Stockpile Stewardship Program and Complex 2030 will be judged not only by the success of the continuing efforts to maintain the nuclear stockpile but also by the success of efforts to plan and achieve a truly responsive nuclear weapons infrastructure. The term "responsive" refers to the agility of the nuclear enterprise's capabilities to respond to unanticipated events or emerging threats, as well as the ability to anticipate and counter innovations by an adversary before the Nation's deterrent is degraded. The elements of a responsive infrastructure include the people, the science and technology base, the facilities and equipment to support a right-sized nuclear weapons enterprise, as well as practical and streamlined business practices that will enable the complex to respond rapidly and flexibly to emerging needs.

The NNSA is working closely with the Department of Defense (DoD) to establish objectives to ensure Complex 2030 is responsive to the Nation's national security needs. Specifically, an NNSA responsive infrastructure must provide proven and demonstrable capabilities on appropriate timescales, and in support of DoD requirements to:

- Identify, understand, and resolve any technical issues with the stockpile in time to assure continued confidence in the reliability and safety of the stockpile;
- Dismantle warheads on a timescale consistent with policy requirements;
- Ensure warheads are available to augment the operationally deployed force on a timescale that supports DoD requirements;
- Design, develop, certify, and complete first production units of refurbished or replacement warheads on a frequency that both sustains the stockpile and exercises the supporting infrastructure and critical skills;
- Improve the capability to design, develop, certify, and complete production of warheads in the event of new military requirements;
- Produce required quantities of warheads in time to meet military requirements;
- Demonstrate nuclear competencies that assure allies, dissuade adversaries, and ensure against technological surprise;
- Sustain readiness to conduct underground nuclear tests; and
- Ensure an economically sustainable nuclear weapons enterprise.

Nuclear Materials Consolidation and Disposition

Consistent with the preferred scenario for Complex 2030, the NNSA is transforming its business model to standardize program and facilities management within the Nuclear Weapons Complex. In FY 2008, transformation highlights include steps to improve program management, consolidate special nuclear materials (SNM), and improve facility-supported operations. By the end of FY 2008, we will drive uniformity in the management of the facilities program using a national work breakdown structure and activity-based costing methods. Institutional site support projects will be more responsive to changing programmatic requirements, focusing on smaller facilities and modernizing selected equipment that support programmatic missions while reducing operating and maintenance costs. Regarding material consolidation, we will complete final shipments of TA-18 nuclear materials to final destinations, and package surplus nuclear materials at Los Alamos National Laboratory for off-site shipment. We will develop a plan in 2007 for removal of Category (CAT) I/II SNM and transition of Lawrence Livermore National Laboratory (LLNL) programmatic work involving CAT I/II SNM to LANL and the Nevada Test Site. We have begun moving material from LLNL. In addition, we will eliminate the need for CAT I/II SNM security at Sandia National Laboratories (SNL) by the end of 2008. Operational improvements include consolidating flight test operations and ceasing NNSA operations at Tonopah Test Range by the end of 2009 through use of alternative, non-NNSA operated ranges, elimination of joint test assemblies containing SNM, and use of alternative designs and/or test techniques.

NNSA Budget Summary by Program

The NNSA FY 2008 Request is $9.4 billion, essentially level with the FY 2007 Request. The FY 2008-2012 FYNSP will provide a program level of $50.0 billion.

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

Defense Programs
The FY 2008 budget request for Defense Programs is $5.2 billion, decrease of 1 percent from the FY 2007 Request. It is allocated to adequately provide for the safety, security, and reliability of the nuclear weapons stockpile. Some implementation actions for "Complex 2030" are incorporated into existing program elements in Directed Stockpile Work, Campaigns, Readiness in Technical Base and Facilities, and Secure Transportation Asset. The FY 2008 President's Budget contains some of the resources required for transformation of the Complex in ongoing base program activities that are already underway and contributing to 2030 objectives. The Administration is still studying plans and funding projections for other parts of the effort.

On November 30, 2006, the Nuclear Weapons Council approved the Reliable Replacement Warhead program as the long-term strategy for maintaining a safe, secure and credible nuclear deterrent. This shift in strategy from a Life Extension Program to a RRW program will require substantial planning and resource realignments between the Departments of Defense and Energy that will not be completed in time for the FY 2008 budget submission. When planning is complete, expected at the end of FY 2007, an RRW budget adjustment will be requested.

Some program elements, such as Readiness in Technical Base and Facilities and the Readiness Campaign, are particularly pivotal in enhancing long-term responsiveness of the Nuclear Weapons Complex. Funding to manage the strategies, drive change, and support cross-cutting initiatives required to achieve responsiveness objectives is currently included in Directed Stockpile Work – Stockpile Services. Campaigns decrease by 4 percent, attributable mainly to the completion of funding for the major National Ignition Facility and the Microsystems and Engineering Sciences Applications (MESA) construction projects. Readiness in Technical Base and Facilities decreases by 1 percent from the FY 2007 Request. There are three new construction starts requested: High Pressure Fire Loop and the High Explosive Pressing Facility, both at the Pantex Plant; and the TA-55 Reinvestment Project at the Los Alamos National Laboratory.

Nuclear Weapon Incident Response
The Nuclear Weapons Incident Response (NWIR) program responds to and mitigates nuclear and radiological incidents worldwide as the United States (U.S.) government's primary capability for radiological and nuclear emergency response. The FY 2008 Request for these activities is $161.7 million, supporting the base programs and including $28 million for two new initiatives to support implementation of both the National Technical Nuclear Forensics (NTNF) Research and Development and Stabilization Implementation programs.

The entire Nuclear Weapons Incident Response program is a homeland security related activity.

Infrastructure and Environment

This organization is responsible for both the Facilities and Infrastructure Recapitalization Program and the Long-Term Stewardship for NNSA facilities following completion of remediation activities by the DOE Office of Environmental Management.

The FY 2008 Request for the FIRP is $293.7 million, a level comparable with the FY 2007 Request. The funding level is sustained and slightly increased through the FYNSP reflecting the NNSA commitment to reduce the large NNSA backlog of deferred maintenance and return the condition of the nuclear weapons complex to acceptable standards. At NNSA's request, the FIRP end date has been extended by the Congress from 2011 to 2013 to enable successful completion of the FIRP mission. The FIRP implementation of its Integrated Prioritized Project List (IPPL) will enable the program to prioritize and fund outyear legacy deferred maintenance reduction projects that significantly reduce the NNSA deferred maintenance backlog to acceptable levels and support the Stockpile Stewardship Program mission and transformation of the complex. Two new construction project starts are requested in FY 2008: the Mercury Highway at the Nevada Test Site, and Potable Water Systems Upgrades at the Y-12 National Security Complex.

The Environmental Projects and Operations/Long-Term Stewardship program is requested at $17.5 million in FY 2008, essentially level with the FY 2007 Request. The five-year estimates for this program are driven by regulatory compliance requirements following the completion of legacy environmental cleanup. Internal reallocations were required in part due to the need for Long-Term Stewardship at two additional NNSA sites, LLNL Site 300 and Pantex, and to support requirements in the outyears that were in excess of the FY 2007-2011 FYNSP profile.

Safeguards and Security

The Safeguards and Security (S&S) program is comprised of two subprograms, both of which are categorized as "Homeland Security activities": Defense Nuclear Security and Cyber Security. These subprograms are managed by separate NNSA organizations and have separate funding controls.

The FY 2008 Request for Defense Nuclear Security is $744.8 million, an increase of 17.7 percent over the FY 2007 Request. This increase is necessary to accommodate within the program baseline the increased cost of sustaining the implementation of the 2003 Design Basis Threat (DBT) and the phased implementation of the response to the 2005 DBT in 2008 and the outyears. The planned completion dates are as follows: Pantex Plant in FY 2008, Lawrence Livermore National Laboratory in FY 2008, the Nevada Test Site in FY 2009, the Y-12 National Security Complex in FY 2011, and Los Alamos National Laboratory in FY 2011. During FY 2008, the program will focus on eliminating or mitigating identified vulnerabilities across the weapons complex. Measures will include additional protective force training, acquiring updated weapons and support equipment, improving physical barrier systems and standoff distances, and reducing the number of locations with "targets of interest." Physical security systems will be upgraded and deployed to enhance detection and assessment, add delay and denial capabilities, and to improve perimeter defenses at several key sites. There is one new construction start requested: Nuclear Materials S&S Upgrade, Phase 2, at the Los Alamos National Laboratory.

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 2008 Request for Cyber Security is $102.2 million, an increase of 15.3 percent over the

FY 2007 Request level. This supports Cyber security revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

Defense Nuclear Nonproliferation

The Defense Nuclear Nonproliferation program goal is to detect, prevent, and reverse the proliferation of Weapons of Mass Destruction (WMD). Our programs address the danger 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 2008 request for these programs totals $1.673 billion, a decrease from the FY 2007 request of 3 percent.

Most DNN programs are essentially maintained at the FY 2007 President's Budget level, except for Elimination of Weapons Grade Plutonium Production program that decreases in accordance with the funding requirements for the project baselines. The International Nuclear Materials Protection and Cooperation activities are below the FY 2007 level reflecting completion of the upgrades to 5 Strategic Rocket Forces sites. The U.S. Fissile Materials Disposition project for the Mixed Oxide Fuel Fabrication Facility has completed the DOE process for approval of the project baseline, and is awaiting authorization to start construction. Changes in the funding profile are reflected in the budget request.

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 2008 request for Naval Reactors of $808.2 million is an increase of 1.6 percent over the FY 2007 President's Request level.

Office of the Administrator

This account provides for all Federal NNSA staff in Headquarters and field locations except those supporting Naval Reactors and the Secure Transportation Asset couriers. The FY 2008 request is $394.7 million, an increase of 2.1 percent over the FY 2007 level.

Staffing increases in FY 2008 by 59 Full Time Equivalents (FTEs), to support the full year requirements for the new hires brought on board late in the year during FY 2007. A steady-state staffing level will be attained by the end of FY 2007 and maintained through the outyear period. Information Technology (IT) for the Federal staff is also included in this account, and the FY 2008 IT request reflects efficiencies planned for A-76 efforts initiated in FY 2006. The outyear budget addresses significant challenges due to the impacts of escalation on payroll and needed support to the NNSA Federal staff.

Funding is included for activities previously funded by the former Office of Environment, Safety, and Health and the former Office of Security and Safety Performance Assurance that transferred to the National Nuclear Security Administration (FY 2008 Office of the Administrator: (+$2.3 million); Weapons Activities: (+$0.5 million). Pursuant to Section 3117 of the John Warner National Defense Authorization Act for FY 2007 (P.L. 109-364), beginning in FY 2008, the functions, personnel, funds, assets, and other resources of the Office of Defense Nuclear Counterintelligence of the National Nuclear

Security Administration are transferred to the Secretary of Energy, to be administered (except to any extent otherwise directed by the Secretary) by the Director of the Office of Counterintelligence of the Department of Energy (FY 2008 Office of the Administrator: (-$2.0 million).

Site Estimates
(Dollars in Thousands)

	FY 2006	FY 2007	FY 2008				
Site	Approp	Request	OA	WA	NN	NR	Total
AECL	—	100					—
Ames	357	357			357		357
ANL	24,131	26,791		2,606	22,796		25,402
BAPL	371,030	386,436				395,157	395,157
BNL	42,738	36,783		1,406	38,187		39,593
CH	281,372	55,873		26,777			26,777
GA	21,472	16,563		16,740			16,740
HQ	347,714	534,647	215,175	492,100	47,485	14,122	768,882
ID	2,444	2,474		1,292	1,244		2,536
INL	80,787	86,233		1,519	15,504	58,800	75,823
KAPL	306,713	309,846				318,126	318,126
KCP	403,159	389,391		408,364	1,440		409,804
KSO	6,111	6,174	6,697				6,697
LANL	1,594,268	1,652,374		1,381,221	169,203		1,550,424
LASO	19,075	17,078	18,750				18,750
LBNL	7,348	5,155			5,155		5,155
LLNL	1,146,191	1,166,468		1,001,357	69,499		1,070,856
LSO	18,205	17,902	18,932				18,932
NBL	603	935			935		935
NETL	5,189	4,536		1,611			1,611
NREL	300	1,797			1,797		1,797
NRL	29,498	—					—
NNSA Service Center	582,326	595,450	69,292	226,403	309,751		605,446
NTS	311,841	286,648		261,447	7,061		268,508
NVSO	131,150	117,100	19,432	83,341	2,758		105,531
OR	3,667	5,884		5,953			5,953
ORISE	14,449	6,250		6,520			6,520
ORNL	169,221	149,076		2,172	116,866		119,038
OSTI	150	135		136			136
Other	3,100	3,066				3,436	3,436
Pittsburgh NR	9,314	9,626				10,596	10,596
PNNL	154,839	132,064		15,790	100,551		116,341
PSO	13,263	12,713	13,039				13,039
PX	486,176	488,887		531,700	6,718		538,418
RL	1,710	2,511		2,536			2,536
SNL	1,341,200	1,246,569		969,942	174,043		1,143,985
SR	2,591	1,159			1,563		1,563
SRS	269,550	688,020		189,084	525,962		715,046
SRSO	4,916	4,704	5,147				5,147
SSO	15,128	13,133	14,123				14,123
Schenectady NR	6,946	7,127				7,982	7,982
UR/LLE	67,982	44,150		53,044			53,044
Y-12	847,740	797,750		862,251	23,771		886,022
YSO	43,185	53,571	14,069		30,000		44,069
Adjustments	-78,845	-67,695		-34,000			-34,000
Grand Total	9,110,304	9,315,811	394,656	6,511,312	1,672,646	808,219	9,386,833

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 millions)

	FY 2006	FY 2007	FY 2008	$ Change	% Change
Los Alamos National Laboratory (LANL)	5.6	6.3	7.6	+1.3	+20.6%
Lawrence Livermore National Laboratory (LLNL)	3.3	11.8	9.0	-2.8	-23.7%
Sandia National Laboratories (SNL)	8.5	7.7	6.3	-1.4	-18.2%
Total Site IGPP	**17.4**	**25.8**	**22.9**	**-2.9**	**-11.2%**

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

In FY 2007, examples of NNSA approved projects for LANL, SNL and LLNL include:

- LANL – A utility corridor through TA-3 and a parking lot construction project.
- SNL – A number of infrastructure improvement projects such as TA-I and TA-II Site Infrastructure Upgrades, and Chilled Water Extension (from building 890 – building 894).
- LLNL – Seismic building upgrades and road and paving improvements are high priority initiatives.

In FY 2008, IGPP is projected to include additional institutional multi-program infrastructure improvements; substation replacement; infrastructure security investment; and road upgrade projects and parking lot improvements.

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 [a,b]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Bettis Atomic Power Laboratory	5,771	5,388	5,469
Kansas City Plant	8,458	9,410	9,350
Kesselring Site Operations	1,804	2,324	1,777
Knolls Atomic Power Laboratory	8,683	8,609	8,616
Lawrence Livermore National Laboratory	90,090	91,248	92,812
Los Alamos National Laboratory	52,884	48,387	47,420
Naval Reactors Facility	531	558	450
Nevada Test Site	24,627	25,316	44,311
Pantex Plant	0	0	0
Sandia National Laboratories	73,774	74,659	83,698
Savannah River Site	3,215	3,334	3,979
Y-12 National Security Complex	0	0	0
Total, Indirect-Funded Maintenance and Repair	269,837	269,233	297,882

Outyear Indirect-Funded Maintenance and Repair [a,b]

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Bettis Atomic Power Laboratory	5,524	5,539	5,625	5,682
Kansas City Plant	9,566	9,788	10,291	11,112
Kesselring Site Operations	2,597	2,722	2,977	3,049
Knolls Atomic Power Laboratory	8,614	8,231	8,613	8,299
Lawrence Livermore National Laboratory	95,594	96,082	97,630	99,717
Los Alamos National Laboratory	47,420	47,420	47,420	47,420
Naval Reactors Facility	334	342	372	305
Nevada Test Site	45,330	46,373	47,439	48,530
Pantex Plant	0	0	0	0
Sandia National Laboratories	86,905	87,999	88,563	89,412

[a] All other FY funding profiles are estimates based on FY 2007 Ten-Year Site Plans (TYSPs) and are consistent with outyear FYNSP guidance.

[b] Naval Reactors Maintenance and Repair is reported separately.

	FY 2009	FY 2010	FY 2011	FY 2012
	(dollars in thousands)			
Savannah River Site	4,086	4,197	4,310	4,426
Y-12 National Security Complex	0	0	0	0
Total, Indirect-Funded Maintenance and Repair	305,970	308,693	313,240	317,952

Direct-Funded Maintenance and Repair [a,b]

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		
Bettis Atomic Power Laboratory	0	0	0
Kansas City Plant	22,258	24,762	24,308
Kesselring Site Operations	3,602	4,134	3,820
Knolls Atomic Power Laboratory	468	542	535
Lawrence Livermore National Laboratory	3,091	3,171	3,238
Los Alamos National Laboratory	47,883	46,446	45,517
Naval Reactors Facility	3,003	3,162	2,547
Nevada Test Site	13,447	13,824	13,688
Pantex Plant	37,000	33,000	35,157
Sandia National Laboratories	5,739	5,808	5,260
Savannah River Site	18,234	19,345	21,959
Y-12 National Security Complex	49,658	49,658	52,426
Total, Direct-Funded Maintenance and Repair	204,383	203,852	208,455

Outyear Direct-Funded Maintenance and Repair

	FY 2009	FY 2010	FY 2011	FY 2012
	(dollars in thousands)			
Bettis Atomic Power Laboratory	0	0	0	0
Kansas City Plant	24,933	25,574	25,955	26,040
Kesselring Site Operations	4,937	5,126	5,248	5,220
Knolls Atomic Power Laboratory	537	538	538	537
Lawrence Livermore National Laboratory	3,313	3,389	3,467	3,547
Los Alamos National Laboratory	45,517	45,517	45,517	45,517
Naval Reactors Facility	1,890	1,936	2,107	1,730

[a] All other FY funding profiles are estimates based on FY 2007 Ten-Year Site Plans (TYSPs) and are consistent with outyear FYNSP guidance.

[b] Naval Reactors Maintenance and Repair is reported separately.

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Nevada Test Site	14,002	14,324	14,654	14,991
Pantex Plant	35,965	36,793	37,639	38,504
Sandia National Laboratories	5,323	5,387	5,452	5,517
Savannah River Site	22,551	23,161	23,787	24,429
Y-12 National Security Complex	53,631	54,865	56,127	57,418
Total, Direct-Funded Maintenance and Repair	212,599	216,610	220,491	223,450

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

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Kansas City Plant	6,559	2,000	0
Lawrence Livermore National Laboratory	13,975	31,839	30,354
Los Alamos National Laboratory	14,760	52,460	51,965
Nevada Test Site	11,108	25,047	17,007
Pantex Plant	8,203	27,505	35,110
Sandia National Laboratories	3,632	15,439	15,986
Savannah River Site	500	0	0
Y-12 National Security Complex	7,966	47,520	30,914
Total, Direct-Funded Deferred Maintenance Backlog Reduction	66,703	201,810	181,336

[a] FY 2007 FIRP site splits have been updated since the FY 2007 Congressional budget.

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

[c] Outyear funding profiles are consistent with outyear FYNSP guidance.

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

(dollars in thousands)	FY 2009	FY 2010	FY 2011	FY 2012
Kansas City Plant	0	0	0	0
Lawrence Livermore National Laboratory	31,459	35,772	36,676	37,633
Los Alamos National Laboratory	51,223	57,640	59,095	60,637
Nevada Test Site	16,179	25,101	25,734	26,406
Pantex Plant	34,509	39,977	40,986	42,056
Sandia National Laboratories	17,451	23,353	34,219	35,113
Savannah River Site	0	0	0	0
Y-12 National Security Complex	28,479	80,374	82,403	84,555
Total, Direct-Funded Deferred Maintenance Backlog Reduction	179,300	262,217	279,113	286,400

Total Maintenance and Repair Dollars

(dollars in thousands)	FY 2006	FY 2007	FY 2008
Kansas City Plant	37,275	36,172	33,658
Lawrence Livermore National Laboratory	107,156	126,258	126,404
Los Alamos National Laboratory	115,527	147,293	144,902
Nevada Test Site	49,182	64,287	75,006
Pantex Plant	45,203	59,405	70,267
Sandia National Laboratories	83,145	96,906	104,944
Savannah River Site	21,949	22,679	25,938
Y-12 National Security Complex	57,624	97,178	83,340
Total, Maintenance and Repair Dollars	517,061	650,178	664,459

[a] FY 2007 FIRP site splits have been updated since the FY 2007 Congressional budget. While the FY 2007 total is the same, site split reallocations have been made in recognition of plans to move the Kansas City Plant to a new facility. KCP FY 2007 funding reflects minimum required to cover ongoing projects. Likewise, outyear DM buy-down funding for KCP has been zeroed out and that funding has been reallocated to other NNSA sites to address other DM requirements.

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

[c] Outyear funding profiles are consistent with outyear FYNSP guidance.

Total Outyear Maintenance and Repair Dollars

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Kansas City Plant	34,499	35,362	36,246	37,152
Lawrence Livermore National Laboratory	130,366	135,243	137,773	140,897
Los Alamos National Laboratory	144,160	150,577	152,032	153,574
Nevada Test Site	75,511	85,798	87,827	89,927
Pantex Plant	70,474	76,770	78,625	80,560
Sandia National Laboratories	109,679	116,739	128,234	130,042
Savannah River Site	26,637	27,358	28,097	28,855
Y-12 National Security Complex	82,110	135,239	138,530	141,973
Total, Outyear Maintenance and Repair Dollars	673,436	763,086	787,364	802,980

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.

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) $394,656,000 to remain available until expended.

Office of the Administrator
National Nuclear Security Administration

Overview

Appropriation Summary by Program

(dollars in thousands)

	FY 2006 Current Appropriation	FY 2007 Request	FY 2007 CR	FY 2008 Request
Office of the Administrator	361,119[a]	386,576	341,991	394,656
Use of Prior-Year Balances	-6,896	0	0	0
Total, Office of the Administrator	354,223	386,576	341,991	394,656

Public Law Authorization:
John Warner National Defense Authorization Act for FY 2007 (P.L. 109-364)

Outyear Appropriation Summary

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Office of the Administrator	405,000	415,000	425,000	436,000

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 and safeguards and security oversight. The Nation also benefits from the re-engineering of NNSA Federal personnel which demonstrated that resources and staff deployment are regularly assessed against current and future program needs, and rigorous program management standards in the Program Assessment Rating Tool (PART), for the most efficient and cost-effective deployment of Federally-funded management resources.

[a] Reflects the Congressionally approved appropriation transfers of $15,773,000 (06-D-8) from sources within the Weapons Activities and Defense Nuclear Nonproliferation appropriations.

Strategic Theme and Goals
The Department's Strategic Plan identifies five strategic themes (one each for defense, energy, science, environment, and management aspects of the mission) plus strategic goals that tie to the strategic themes. The Office of the Administrator appropriation supports the following strategic goals:

Strategic Theme, Nuclear Security: Ensuring America's Nuclear Security.

Strategic Goal 2.1, Nuclear Deterrent: Transform the Nation's nuclear weapons stockpile and supporting infrastructure to be more responsive to the threats of the 21st Century.

Strategic Goal 2.2, Weapons of Mass Destruction: Prevent the acquisition of nuclear and radiological materials for use in weapons of mass destruction and in other acts of terrorism.

Contribution to Strategic Goals 2.1 and 2.2
The Office of the Administrator (GPRA Unit Program Number 2.0.25), contributes to the Strategic Goals by providing the Federal personnel and resources necessary to plan, manage, and oversee the operation of the National Nuclear Security Administration's programs designed to meet these goals.

Funding by Strategic Goal

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Strategic Goal 2.1, Nuclear Deterrent	303,986	323,557	330,674
Strategic Goal 2.2, Weapons of Mass Destruction	57,133	63,019	63,982
Total, Office of the Administrator	361,119	386,576	394,656

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding by Strategic Goal

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Strategic Goal 2.1, Nuclear Deterrent	339,878	348,860	357,911	367,791
Strategic Goal 2.2, Weapons of Mass Destruction	65,122	66,140	67,089	68,209
Total, Office of the Administrator	405,000	415,000	425,000	436,000

Annual Performance Results and Targets
(R = Results; T = Targets)

Performance Indicators	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
GPRA Unit Program Goal 2.0.25, Office of the Administrator								
Cumulative average NNSA Program score on the OMB Program Assessment Rating Tool (PART) assessment indicating progress in budget performance integration and results (Efficiency)	R : 82% T: 80%	T: 85%	T: 85%	T: 85%	T: 85%	T: 85%	T: 85%	By 2007, increase average PART scores to 85%.

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. 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 will use creative personnel practices to ensure the best talent is recruited, retained, and rewarded, and all employees are accountable to the NNSA Administrator for performance in achieving their elements of the NNSA's mission. The re-engineering of NNSA Federal staffing that was developed jointly by managers throughout the organization has redeployed technical staff to where the work is performed, and centralized common business and administrative functions to improve the quality of oversight and increase efficiency.

The Office of the Administrator budget is comprised of 71 percent Salaries and Benefits for NNSA Federal staff. The remaining 29 percent includes several major efforts with largely fixed costs in the areas of Information Technology, Space and Occupancy, and support for the International Offices. A small percentage of discretionary funds are spent for Travel, Training, and Support Services.

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 continuing 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-track 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 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 is 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) the Office of Management and Budget's (OMB) Program Assessment Rating Tool (PART); (2) NNSA Administrator Program Reviews; (3) Program Manager Detailed Technical Reviews; (4) the NNSA Mid-Year Finance and Performance Review; (5) quarterly reporting of progress through the Department's JOULE performance tracking system; (6) Program Management Self Assessment (PMSA) reporting; and (7) the NNSA Administrator's Annual Performance Report.

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 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 another 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 reviews work together to ensure that advance warnings are given to NNSA managers in order for corrective actions to be implemented.

The results of these reviews are reported quarterly in the Department's JOULE performance tracking system and PMSA reporting, and annually in the NNSA Administrator's Annual Performance Report and the DOE Performance Accountability Report (PAR). These documents help to measure the progress that NNSA programs are making toward achieving both annual targets and long-term goals. These summary level documents help senior managers verify and validate progress toward NNSA and Departmental commitments listed in the budget.

In addition, NNSA programs are independently reviewed. The Government Accountability Office (GAO), Inspector General (IG), National Security Council, Defense Nuclear Facilities Safety Board, Secretary of Energy Advisory Board, and others conduct these independent reviews. Recent GAO and IG reports on the Office of the Administrator include PPBE Process and Structure (A02AL048) and Review of NNSA’s Management Structure (360337). The review of the Department’s Inspector General on the Design Basis Threat (DBT) implementation, and the independent review of NNSA’s security activities (MEIS) in April of 2005, both reported very favorably on the NNSA PPBE processes. Additionally, GAO has reviewed the implementation of the NNSA Act (Title XXXII) and has favorably commented on the PPBE process that has been established. Furthermore, GAO is completing a third review of Title XXXII implementation and has indicated that PPBE is still considered a success.

Significant Program Shifts

- Staffing increases in FY 2008 by 59 Full Time Equivalents or FTEs (from 1,890 to 1,949), to support the full year requirements for the new hires brought on board throughout FY 2007. The end-state staffing level is planned by the end of FY 2007 and maintained through the outyear period.

- The training budget is increased significantly in FY 2007 and FY 2008, moving toward NNSA’s goal of doubling the training budget for NNSA Federal staff by FY 2009.

- Space and Occupancy costs experience normal growth combined with the effect of moving toward the policy of full cost recovery for office space occupied by NNSA Federal staff.

- Beginning in FY 2008, funding is included for activities previously funded by the former Office of Environment, Safety, and Health and the former Office of Security and Safety Performance Assurance that transferred to the National Nuclear Security Administration (FY 2008: +$2,296,000).

- Pursuant to Section 3117 of the John Warner National Defense Authorization Act for FY 2007 (P.L. 109-364), beginning in FY 2008, the functions, personnel, funds, assets, and other resources of the Office of Defense Nuclear Counterintelligence of the National Nuclear Security Administration are transferred to the Secretary of Energy, to be administered (except to any extent otherwise directed by the Secretary) by the Director of the Office of Counterintelligence of the Department of Energy (FY 2008: -$2,039,000).

Outyear Priorities and Assumptions

- The outyear projections for The Office of the Administrator account total $1,681,000,000 (FY 2009 through FY 2012). The trend for salaries and benefits through the five-year period is increasing consistent with approved escalation, and reflects steady National Nuclear Security Administration (NNSA) Federal staff levels. However, the NNSA will face significant challenges in the outyears with the impacts of actual escalation to payroll supporting the NNSA Federal staff. In order to support steady NNSA Federal staff levels, non-payroll funding will reflect an annual decrease averaging 3.5 percent.

Historically Black Colleges and Universities (HBCU) Support

A research and education partnership program with the HBCUs and the Massie Chairs of Excellence was initiated by the Congress through earmarks in the Office of the Administrator appropriation in FY 2005 and FY 2006. The NNSA has established an effective program to target national security research opportunities for these institutions to increase their participation in national security-related research and to train and recruit HBCU graduates for employment within the NNSA. The NNSA goal is a stable $10 million annual effort. In FY 2008, the Office of the Administrator appropriation will provide continued funding of $1 million to support HBCU activities. However, the majority of the efforts directly support program activities, and it is expected that programs funded in the Weapons Activities appropriation will provide approximately $4 to $6 million; the Defense Nuclear Nonproliferation appropriation will provide approximately $2 to $3 million; and the Naval Reactors program will fund approximately $1 million of HBCU efforts in FY 2008 in multiple research areas.

Office of the Administrator

Full Time Equivalents (FTEs)

	Actual FY 2006	Projected FY 2007	FY 2007 Change	Requested FY 2008	FY 2008 Change
Office of the Administrator					
Headquarters					
Office of the Administrator	66	68	2	71	3
Defense Programs	165	178	13	187	9
Defense Nuclear Nonproliferation	241	248	7	257	9
Emergency Operations	77	85	8	86	1
Infrastructure and Environment	28	28	-	31	3
Management and Administration	91	90	(1)	90	-
Defense Nuclear Security	26	28	2	29	1
Future Leaders Program	40	57	17	57	-
Subtotal, Headquarters	*734*	*782*	*48*	*808*	*26*
NNSA Service Center	446	460	14	469	9
Livermore Site Office	90	98	8	103	5
Los Alamos Site Office	107	109	2	116	7
Sandia Site Office	87	88	1	92	4
Nevada Site Office	97	104	7	108	4
Pantex Site Office	84	85	1	85	-
Y-12 Site Office	81	86	5	86	-
Kansas City Site Office	47	47	-	49	2
Savannah River Site Office	24	31	7	33	2
Total, Office of the Administrator	**1,797**	**1,890**	**93**	**1,949**	**59**

Office of the Administrator

Funding by Site

(dollars in thousands)

	FY 2006 Adjusted Approp	FY 2007 Cong Request	FY 2008 Cong Request	$ Change	% Change
NNSA Program Direction					
Headquarters	194,960	215,886	215,175	-711	-0.3%
NNSA Service Center	64,897	67,049	69,292	+2,243	+3.3%
Livermore Site Office	16,484	17,902	18,932	+1,030	+5.8%
Los Alamos Site Office	18,285	17,078	18,750	+1,672	+9.8%
Sandia Site Office	13,378	13,133	14,123	+990	+7.5%
Nevada Site Office	18,047	18,366	19,432	+1,066	+5.8%
Pantex Site Office	12,486	12,713	13,039	+326	+2.6%
Y-12 Site Office	12,755	13,571	14,069	+498	+3.7%
Kansas City Site Office	6,111	6,174	6,697	+523	+8.5%
Savannah River Site Office	3,716	4,704	5,147	+443	+9.4%
Subtotal	**361,119**	**386,576**	**394,656**	**+8,080**	**+2.1%**
Use of Prior Year Balances	-6,896	0	0	+0	+0.0%
Total	**354,223**	**386,576**	**394,656**	**+8,080**	**+2.1%**

Office of the Administrator

Funding by Object Class

(dollars in thousands)

	FY 2006 Adjusted Approp	FY 2007 Cong Request	FY 2008 Cong Request	$ Change	% Change
NNSA Program Direction					
Salaries and Benefits	236,973	267,559	280,282	+12,723	+4.8%
Travel	12,948	14,120	13,119	-1,001	-7.1%
Support Services	34,800	27,754	25,330	-2,424	-8.7%
Other Related Expenses					
Space and Occupancy Costs	33,803	35,512	37,681	+2,169	+6.1%
Information Technology	27,116	31,601	28,273	-3,328	-10.5%
Other Related Expenses	13,922	7,882	7,390	-492	-6.2%
Training	1,557	2,148	2,581	+433	+20.2%
Subtotal, Other Related Expenses	76,398	77,143	75,925	-1,218	-1.6%
Subtotal	**361,119**	**386,576**	**394,656**	**+8,080**	**+2.1%**
Use of Prior Year Balances	-6,896	0	0	+0	+0.0%
Total	**354,223**	**386,576**	**394,656**	**+8,080**	**+2.1%**

NOTE: The FY 2006 Column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Salaries and Benefits	**236,973**	**267,559**	**280,282**

Provides support for the National Nuclear Security Administration (NNSA) Federal staff (1,949 Full Time Equivalents or FTEs in FY 2008), including annual Cost of Living Adjustments (COLAs), base salary increases, promotions, severance costs, performance awards, health and retirement benefits, workman's compensation, and other payroll adjustments (including NNSA's pay for performance pilot). The request also supports the international offices, including Foreign Service Nationals.

FY 2008 continues to provide Salaries and Benefits funding to support the Future Leaders Program (the fourth class of NNSA interns is planned to start in the 4^{th} quarter of FY 2008). The Future Leaders Program supports 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 assume a position within the staffing targets at the receiving locations.

Salaries consume approximately 80 percent of the estimate, leaving about 20 percent for benefits. Benefit escalation, particularly the Government's share of health insurance premiums, has proven to be much more costly than average cost of living adjustments (increasing over 10 percent annually in recent years). The Government pays about 70 percent of an employee's health insurance premium.

Travel	**12,948**	**14,120**	**13,119**

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 growth of the Defense Nuclear Nonproliferation mission; it is a key element of the nonproliferation work with international agencies and the Former Soviet Union republics. Defense Nuclear Nonproliferation travel accounts for 36 percent of the total travel request.

Support Services	**34,800**	**27,754**	**25,330**

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, ES&H, and project management (FY 2008 $12,103,705).

Administrative support includes the operation of mailrooms and maintenance of various databases in addition to clerical support (FY 2008 $11,409,898).

Funding request provides management support for studies and review of NNSA corporate policies and procedures concerning management operations and planning (FY 2008 $1,816,609).

Any escalation cost increases or new contract requirements will be offset by reductions to the burn rate of existing tasks and/or the elimination of other tasks.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Other Related Expenses	**76,398**	**77,143**	**75,925**

Provides Information Technology (IT) support for the NNSA Federal staff, including network services, maintenance and equipment; help desk support; and user equipment and software (consistent with the Department's A-76 efforts), including support for Department-wide systems such as the financial information reporting systems.

The IT request for FY 2008 is $28,273,100 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. The IT request reflects efficiencies planned from A-76 efforts initiated in FY 2006.

Supports $37,681,087 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 2008 allocation for space and occupancy costs is comprised of the following areas and associated funding estimates:

- Rental payments $14,896,000
- Facilities and maintenance $9,908,173
- Utilities $4,027,000
- Office space – full cost recovery $2,908,538
- A-123 program contribution $1,953,000
- Standard Accounting and Reporting System (STARS) $1,256,000
- Supplies and materials $1,230,976
- Equipment maintenance $761,840
- Printing and production $739,560

Provides $3,513,191 in FY 2008 for operational costs associated with the international offices in Moscow, Vienna, Tokyo, Kiev, and Beijing; all critical to executing the Defense Nuclear Nonproliferation programs. The international office funding supports full operation of the Beijing Office, State Department security cost sharing charges, and the State Department's international cooperative administrative support charges.

Supports necessary training and skills maintenance of the NNSA Federal staff of $2,581,011. The FY 2008 training budget reflects an increase of $433,182; moving toward NNSA's goal of doubling the training budget by FY 2009. The training budget also reflects efficiencies resulting from the Department's transition to the Most Efficient Organization for training services at the NNSA Service Center.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

Provides $1,355,116 in FY 2008 for E-Government initiatives (Business Gateway, Grants.gov, Geospatial One-Stop, Recruitment One-Stop, Enterprise Human Resource Initiative, Lines of Business, and the Integrated Acquisition Environment).

FY 2008 supports $1,000,000 in continuing funding for the NNSA's partnership with the Historically Black Colleges and Universities (HBCU) and the Massie Chairs of Excellence Program.

Provides $750,000 in support of non-payroll funding for Permanent Change of Station (PCS) moves for Federal personnel.

Supports $676,316 in funding for activities required for NNSA's Federal personnel, including minor procurements; the National Archives and Records Administration (NARA); the Diversity Partnership program; Small Business Administration Certification and Training; and other services and miscellaneous activities.

Supports the Defense Contract Audit Agency (DCAA) audit assessment of $83,290.

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

	FY 2006	FY 2007	FY 2008
Subtotal, Office off the Administrator	**361,119**[a]	**386,576**	**394,656**
Use of Prior Year Balances	-6,896	0	0
Total, Office of the Administrator	**354,223**	**386,576**	**394,656**

[a] Reflects the Congressionally approved appropriation transfers of $15,773,000 (06-D-8) from sources within the Weapons Activities and Defense Nuclear Nonproliferation appropriations.

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
▪ **Salaries and Benefits**	
Reflects a 4.8 percent increase associated with 59 additional FTEs (supporting FY 2007 new hires for the full year), projected Cost of Living Adjustments or COLAs, support for benefit escalation, promotions and within-grade increases, projected excepted service increases, and the implementation of the NNSA pay for performance pilot for general schedule employees (pay banding and annual awards/salary increases based on performance ratings - similar to the system used currently for NNSA excepted service employees).	**+12,723**
▪ **Travel**	
Reflects a 7.1 percent decrease due to 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.	**-1,001**
▪ **Support Services**	
Reflects an 8.7 percent decrease for reductions to the burn rate of existing tasks and/or the elimination of other tasks in administrative, management, and technical support areas. The decrease in support service funding is possible due to the increase in NNSA Federal staff.	**-2,424**
▪ **Other Related Expenses**	
Reflects a 1.6 percent decrease primarily due to the decrease in Information Technology of 10.5 percent resulting from the increased FY 2007 level needed to respond to deferred activities such as desktop and network equipment refresh, application consolidation, and sunset technology replacement; partially offset by increases in space and occupancy costs to support expanded Federal staffing.	**-1,218**
Total Funding Change, Office of the Administrator	**+8,080**

Funding Profile by Category

(dollars in thousands)

	FY 2006	FY 2007	FY 2008	$ Change	% Change
Headquarters					
Salaries and Benefits	103,328	126,591	127,237	+646	+0.5%
Travel	9,663	10,548	9,751	-797	-7.6%
Support Services	21,112	15,754	14,641	-1,113	-7.1%
Other Related Expenses	60,856	62,993	63,546	+553	+0.9%
Total, Headquarters	194,959	215,886	215,175	-711	-0.3%
Total, Full Time Equivalents	734	782	808	+26	+3.3%
NNSA Service Center					
Salaries and Benefits	49,278	51,977	55,708	+3,731	+7.2%
Travel	1,121	1,122	1,169	47	4.2%
Support Services	7,165	5,733	5,110	-623	-10.9%
Other Related Expenses	7,333	8,217	7,305	-912	-11.1%
Total, NNSA Service Center	64,897	67,049	69,292	+2,243	+3.3%
Total, Full Time Equivalents	446	460	469	+9	+2.0%
Livermore Site Office					
Salaries and Benefits	12,853	14,262	15,656	+1,394	+9.8%
Travel	341	412	391	-21	-5.1%
Support Services	1,535	1,511	1,384	-127	-8.4%
Other Related Expenses	1,755	1,717	1,501	-216	-12.6%
Total, Livermore Site Office	16,484	17,902	18,932	+1,030	+5.8%
Total, Full Time Equivalents	90	98	103	+5	+5.1%
Los Alamos Site Office					
Salaries and Benefits	15,200	15,519	17,347	+1,828	+11.8%
Travel	378	318	286	-32	-10.1%
Support Services	766	640	576	-64	-10.0%
Other Related Expenses	1,941	601	541	-60	-10.0%
Total, Los Alamos Site Office	18,285	17,078	18,750	+1,672	+9.8%
Total, Full Time Equivalents	107	109	116	+7	+6.4%
Sandia Site Office					
Salaries and Benefits	11,622	11,821	12,945	+1,124	+9.5%
Travel	165	279	215	-64	-22.9%
Support Services	741	754	756	+2	+0.3%
Other Related Expenses	851	279	207	-72	-25.8%
Total, Sandia Site Office	13,379	13,133	14,123	+990	+7.5%
Total, Full Time Equivalents	87	88	92	+4	+4.5%

Funding Profile by Category (continued)

(dollars in thousands)

	FY 2006	FY 2007	FY 2008	$ Change	% Change
Nevada Site Office					
Salaries and Benefits	13,912	14,596	16,047	+1,451	+9.9%
Travel	407	437	368	-69	-15.8%
Support Services	1,525	1,478	1,403	-75	-5.1%
Other Related Expenses	2,203	1,855	1,614	-241	-13.0%
Total, Nevada Site Office	18,047	18,366	19,432	+1,066	+5.8%
Total, Full Time Equivalents	97	104	108	+4	+3.8%
Pantex Site Office					
Salaries and Benefits	10,953	11,279	11,840	+561	+5.0%
Travel	239	221	213	-8	-3.6%
Support Services	918	893	805	-88	-9.9%
Other Related Expenses	376	320	181	-139	-43.4%
Total, Pantex Site Office	12,486	12,713	13,039	+326	+2.6%
Total, Full Time Equivalents	84	85	85	+0	+0.0%
Y-12 Site Office					
Salaries and Benefits	10,821	11,741	12,401	+660	+5.6%
Travel	279	286	238	-48	-16.8%
Support Services	922	895	570	-325	-36.3%
Other Related Expenses	733	649	860	+211	+32.5%
Total, Y-12 Site Office	12,755	13,571	14,069	+498	+3.7%
Total, Full Time Equivalents	81	86	86	+0	+0.0%
Kansas City Site Office					
Salaries and Benefits	5,698	5,802	6,362	+560	+9.7%
Travel	156	188	187	-1	-0.5%
Support Services	43	9	8	-1	-11.1%
Other Related Expenses	214	175	140	-35	-20.0%
Total, Kansas City Site Office	6,111	6,174	6,697	+523	+8.5%
Total, Full Time Equivalents	47	47	49	+2	+4.3%
Savannah River Site Office					
Salaries and Benefits	3,308	3,971	4,739	+768	+19.3%
Travel	199	309	301	-8	-2.6%
Support Services	73	87	77	-10	-11.5%
Other Related Expenses	136	337	30	-307	-91.1%
Total, Savannah River Site Office	3,716	4,704	5,147	+443	+9.4%
Total, Full Time Equivalents	24	31	33	+2	+6.5%

Funding Profile by Category (continued)

(dollars in thousands)

	FY 2006	FY 2007	FY 2008	$ Change	% Change
Office of the Administrator					
Salaries and Benefits	236,973	267,559	280,282	+12,723	+4.8%
Travel	12,948	14,120	13,119	-1,001	-7.1%
Support Services	34,800	27,754	25,330	-2,424	-8.7%
Other Related Expenses	76,398	77,143	75,925	-1,218	-1.6%
Subtotal, Office of the Administrator	361,119	386,576	394,656	+8,080	+2.1%
Use of Prior Year Balances	-6,896	0	0	+0	0.0%
Total, Office of the Administrator	354,223	386,576	394,656	+8,080	+2.1%
Total, Full Time Equivalents	1,797	1,890	1,949	+59	+3.1%

NOTE: The FY 2006 Column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Support Services

	(dollars in thousands)				
	FY 2006	FY 2007	FY 2008	$ Change	% Change
Administrative support	16,457	12,418	11,410	-1,008	-8.1%
Management support	4,693	2,943	1,817	-1,126	-38.3%
Technical support					
Other technical support	4,991	4,349	4,865	+516	+11.9%
Security support	4,472	4,503	4,254	-249	-5.5%
ES&H technical support	2,238	1,800	1,427	-373	-20.7%
Project management support	1,581	1,457	1,234	-223	-15.3%
Facility representative support	368	284	323	+39	+13.7%
Subtotal, Technical support	13,650	12,393	12,103	-290	-2.3%
Total, Support Services	**34,800**	**27,754**	**25,330**	**-2,424**	**-8.7%**

Other Related Expenses

	(dollars in thousands)				
	FY 2006	FY 2007	FY 2008	$ Change	% Change
Training	1,557	2,148	2,581	+433	+20.2%
Space and Occupancy Costs					
Rental payments	14,185	14,264	14,896	+632	+4.4%
Facilities and maintenance	8,249	8,726	9,908	+1,182	+13.5%
Utilities	4,797	4,314	4,027	-287	-6.7%
Office space - full cost recovery	2,592	2,595	2,909	+314	+12.1%
A-123 program contribution	0	1,636	1,953	+317	+19.4%
STARS	1,195	1,195	1,256	+61	+5.1%
Supplies and materials	1,416	1,364	1,231	-133	-9.8%
Equipment maintenance	745	748	762	+14	+1.9%
Printing and production	624	670	739	+69	+10.3%
Subtotal, Space and Occupancy Costs	33,803	35,512	37,681	+2,169	+6.1%
Other Expenses					
International Offices	2,657	3,904	3,513	-391	-10.0%
Egov initiatives	1,062	1,355	1,355	+0	+0.0%
HBCU/HSIs	3,650	1,000	1,000	+0	0.0%
PCS moves	2,834	753	750	-3	-0.4%
Other Services	1,364	778	677	-101	-13.0%
DCAA audits	116	80	83	+3	+3.8%
Reception and representation	12	12	12	+0	0.0%
Departmental Taxes	2,227	0	0	+0	0.0%
Subtotal, Other Expenses	13,922	7,882	7,390	-492	-6.2%
Subtotal, Other Related Expenses	**49,282**	**45,542**	**47,652**	**+2,110**	**+4.6%**
Information Technology	27,116	31,601	28,273	-3,328	-10.5%
Total, Other Related Expenses	**76,398**	**77,143**	**75,925**	**-1,218**	**-1.6%**

NOTE: The FY 2006 Column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Weapons Activities

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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; $6,511,312,000 to remain available until expended.

Weapons Activities

Overview

Appropriation Summary by Program

(dollars in thousands)

	FY 2006 Current Appropriation	FY 2007 Request	FY 2007 CR	FY 2008 Request
Weapons Activities				
Directed Stockpile Work	1,372,327	1,410,268		1,447,236
Science Campaign	276,670	263,762		273,075
Engineering Campaign	247,907	160,919		152,749
Inertial Confinement Fusion Ignition and High Yield Campaign	543,582	451,191		412,259
Advanced Simulation and Computing Campaign	599,772	617,955		585,738
Pit Manufacturing and Certification Campaign	238,663	237,598		281,230
Readiness Campaign	216,567	205,965		161,169
Readiness in Technical Base and Facilities	1,654,840	1,685,772		1,662,144
Secure Transportation Asset	209,979	209,264		215,646
Nuclear Weapons Incident Response	117,608	135,354		161,748
Facilities and Infrastructure Recapitalization Program	149,365	291,218		293,743
Environmental Projects and Operations	0	17,211		17,518
Safeguards and Security	797,751	754,412		881,057
Subtotal, Weapons Activities	**6,425,031**	**6,440,889**		**6,545,312**
Use of Prior Year Balances				
Security Charge for Reimbursable Work	-32,000	-33,000		-34,000
Use of Prior Year Balances	-37,734	0		0
Total, Weapons Activities	**6,355,297**	**6,407,889**	**6,412,001**	**6,511,312**

Public Law Authorization:
John Warner National Defense Authorization Act for FY 2007 (P.L. 109-364)

Outyear Funding Profile by Subprogram

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Weapons Activities				
Directed Stockpile Work	1,483,417	1,520,502	1,558,515	1,597,478
Science Campaign	282,741	275,622	270,390	275,626
Engineering Campaign	147,090	144,448	142,614	145,417
Inertial Confinement Fusion Ignition and High Yield Campaign	406,098	413,186	411,851	407,487
Advanced Simulation and Computing Campaign	598,241	583,643	570,873	582,243
Pit Manufacturing and Certification Campaign	291,945	339,462	357,622	347,269
Readiness Campaign	190,477	184,703	180,357	183,946
Readiness in Technical Base and Facilities	1,698,403	1,765,458	1,862,729	1,952,633
Secure Transportation Asset	228,300	237,749	253,037	262,118
Nuclear Weapons Incident Response	169,835	178,327	187,243	196,605
Facilities and Infrastructure Recapitalization Program	286,572	297,096	304,330	312,000
Environmental Projects and Operations	32,471	29,923	30,864	31,574
Safeguards and Security	924,410	969,881	1,017,575	1,067,604
Subtotal, Weapons Activities	**6,740,000**	**6,940,000**	**7,148,000**	**7,362,000**
Security Charge for Reimbursable Work	-35,000	-36,000	-37,000	-38,000
Total, Weapons Activities	**6,705,000**	**6,904,000**	**7,111,000**	**7,324,000**

Major Outyear Priorities and Assumptions
Major outyear considerations are described in each GPRA-Unit.

Weapons Activities Summary
The National Nuclear Security Administration (NNSA) FY 2008-2012 budget proposal continues significant efforts to meet Administration and Secretarial priorities for Weapons Activities. Key focus areas include:

- Meeting the immediate needs of the stockpile.

- Transforming the nuclear weapons stockpile and infrastructure, while meeting Department of Defense (DoD) requirements, through the Reliable Replacement Warhead and Complex 2030 initiatives.

- Fully implementing the 2005 Design Basis Threat (DBT) at Pantex Plant and Lawrence Livermore National Laboratory for FY 2008 compliance and supporting Cyber Security revitalization, certification and accreditation, and education and training initiatives.

- Reducing the deferred maintenance backlog for critical facilities only and achieving facility footprint reduction goals.

- Providing nuclear emergency response assets in support of homeland security and implement Stabilization of the Render Safe Research and Development Program, and the National Technical Nuclear Forensics program for pre-detonation and post-detonation.

Stockpile Stewardship Program

Stockpile Stewardship is working – the stockpile remains safe and reliable. Throughout the past decade, the Stockpile Stewardship Program (SSP) has proven its ability to successfully sustain the safety and reliability of the nuclear arsenal without use of underground nuclear testing. The SSP has also enabled the nation to pursue the Reliable Replacement Warhead program as the strategy for maintaining a long term, safe, secure and reliable nuclear deterrent. This strategy also supports transformation of the stockpile from the Cold War era to a future stockpile that is significantly smaller. Stockpile Stewardship is based on cutting-edge scientific and engineering experiments and analyses, including extensive laboratory and flight tests of warhead components and subsystems. Each year, a more complete understanding of the complex physical processes underlying the performance of an aging nuclear stockpile affirms the collective judgment of the scientific community. As the NNSA begins its second decade of Stockpile Stewardship, a fundamental challenge is to maintain essential military capabilities, in addition to safety, security, and reliability, over the long term and enable significant reductions in reserve warheads. Furthermore, the United States (U.S.) must continue to make progress towards a truly responsive nuclear weapons infrastructure as called for in the Nuclear Posture Review (NPR) submitted to Congress in January 2002. The NPR confirms that nuclear weapons will continue to play an essential role in U.S. National Security Policy in the 21st Century, although that role will be quite different from what it had been throughout the latter half of the 20th Century. Stewardship of the nuclear weapons stockpile and the supporting infrastructure compels the NNSA to anticipate change and plan for the future.

The stockpile reductions of the 1990s and the SSP began a transformation process that must continue to evolve. In recent years, it has also become clear that it is essential to plan and undertake a revitalization and transformation of the nuclear weapons complex infrastructure. As we move forward then, the NNSA and the SSP have four simultaneous responsibilities: (1) sustain the legacy stockpile; (2) complete dismantlement of retired weapons; (3) revitalize, modernize, and reduce the size of the nuclear weapons complex; and (4) enable development of Reliable Replacement Warheads (RRWs) that leverage SSP tools and enable a responsive infrastructure. RRWs will enable a smaller nuclear force that provides long-term reliability, is less expensive to maintain, and includes modern safety and security features.

In testimony given before the House Armed Services Committee, Subcommittee on Strategic Forces, on April 5, 2006, Mr. Thomas D'Agostino, the Deputy Administrator for Defense Programs, NNSA, described Complex 2030 – NNSA's infrastructure planning scenario that will establish a planning basis for actions required to revitalize, modernize, and reduce the size of the nuclear weapons complex so that it effectively meets its nuclear deterrence role in the future. This budget and future updates of the Stockpile Stewardship Program Plan will reflect the stockpile and infrastructure-planning basis for the future nuclear weapons complex as envisioned in Complex 2030.

Complex 2030

The future nuclear weapons complex will provide a smaller, safer, more secure, and more reliable stockpile through a smaller, robust industrial and scientific capability that can respond in a flexible and agile manner to changing technical, geopolitical or military requirements. The National Nuclear Security Administration must implement the approved U.S. policy specified in the Nuclear Posture Review to: (1) change the size, composition, and character of our nuclear stockpile in a way that reflects the reality that the Cold War is over; (2) achieve a credible deterrent with the lowest-possible number of nuclear warheads consistent with our national security needs, including our obligations to our allies; and (3) transform the NNSA nuclear weapons complex into a responsive infrastructure that supports the specific stockpile requirements and maintains the essential U.S. nuclear capabilities needed for an uncertain global future. To implement these policies, NNSA established Complex 2030 as the planning scenario to guide transformation from the nuclear weapons complex of today to the complex of the future.

Complex 2030 is not the complex of today, nor is it the Cold War complex. While there may be eight sites in the future, each site will be very different from today. Complex 2030 is a responsive nuclear weapons infrastructure that is fully capable of responding to threats in an uncertain security environment, while meeting stockpile commitments. NNSA relies on four implementing strategies to achieve Complex 2030: (1) transform the nuclear stockpile in partnership with the Department of Defense; (2) transform to a modernized, cost-effective complex; (3) create a fully integrated and interdependent complex; and (4) drive the science and technology base essential for long-term National Security. These strategies are complemented by near-term commitments that focus the Complex on essential weapons program deliverables and build confidence in the transformation process by "Getting the Job Done."

The Deputy Administrator for Defense Programs established a "Getting the Job Done" list for the nuclear weapons complex in April 2006. By January 2007, the following commitments were complete: (1) delivering B61-7 and B61-11 Alt 357 first production units, (2) delivering the full capability of the Advanced Simulation and Computing Purple Machine, (3) updating pit lifetime estimates, and (4) supporting the Nuclear Weapons Council decision in November 2006 to proceed with the Reliable Replacement Warhead (5) extracting tritium for use in the stockpile at the new Tritium Extraction Facility. By FY 2008, the following commitments will also be done: (1) continuing to deliver our products (e.g., limited life components) to DoD, (2) eliminating the backlog of surveillance units consistent with an enhanced evaluation strategy (except the W84 and W88), (3) accelerating (49% increase from FY 2006 to FY 2007) the dismantlement of retired weapons, (4) delivering the W76-1 first production unit, (5) certifying the W88 with a new pit and manufacturing 10 W88 pits in 2007, and Delivery on these and future near-term commitments is essential during transformation of the Complex.

In the next several years, the Stockpile Stewardship Program and Complex 2030 will be judged not only by the success of the continuing efforts to maintain the nuclear stockpile but also by the success of efforts to plan and achieve a truly responsive nuclear weapons infrastructure. The term "responsive" refers to the agility of the nuclear enterprise's capabilities to respond to unanticipated events or emerging threats, as well as the ability to anticipate and counter innovations by an adversary before the nation's deterrent is degraded. The elements of a responsive infrastructure include the people, the science and technology base, the facilities and equipment to support a right-sized nuclear weapons enterprise, as well as practical and streamlined business practices that will enable the complex to respond rapidly and flexibly to emerging needs.

The NNSA is working closely with the Department of Defense to establish objectives to ensure Complex 2030 is responsive to the nation's national security needs. Specifically, an NNSA responsive infrastructure must provide proven and demonstrable capabilities on appropriate timescales, and in support of DoD requirements to:

- Identify, understand, and resolve any technical issues with the stockpile in time to assure continued confidence in the reliability and safety of the stockpile;
- Dismantle warheads on a timescale consistent with policy requirements;
- Ensure warheads are available to augment the operationally deployed force on a timescale that supports DoD requirements;
- Design, develop, certify, and complete first production units of refurbished or replacement warheads on a frequency that both sustains the stockpile and exercises the supporting infrastructure and critical skills;
- Improve the capability to design, develop, certify, and complete production of warheads in the event of new military requirements;
- Produce required quantities of warheads in time to meet military requirements;
- Demonstrate nuclear competencies that assure allies, dissuade adversaries, and ensure against technological surprise;
- Sustain readiness to conduct underground nuclear tests; and
- Ensure economically sustainable nuclear weapons enterprise.

The FY 2008 budget request for Weapons Activities is balanced and responsibly allocated to provide for the safety, security, and reliability of the nuclear weapons stockpile. Implementation actions for Complex 2030 are incorporated into existing program elements: Directed Stockpile Work (DSW), Campaigns, Readiness in Technical Base and Facilities (RTBF), and Secure Transportation Asset. Some program elements, such as RTBF and the Readiness Campaign, are particularly pivotal in enhancing long-term responsiveness of the nuclear weapons complex. Funding is requested to manage Complex 2030 strategies by the NNSA Office of Transformation, support decisions [i.e., complete business cases and a Complex 2030 National Environmental Policy Act (NEPA) process to evaluate alternatives], drive change, and facilitate cross-cutting initiatives required to achieve responsiveness objectives. The NNSA approach to transformation relies extensively on existing line program organizations owning individual actions required to change both the stockpile and its supporting infrastructure. This approach emphasizes working within a constrained total budget, re-prioritizing actions, and canceling lower-priority tasks to fund transformation tasks. Table 1 summarizes the approach taken by NNSA management in preparing of the FY 2008 budget to reflect each of the Complex 2030 four strategies.

Table 1: Complex 2030 FY 2008 Budget Preparation Approach

Strategy	FY 2008 Budget Approach	Other Considerations
Transform the stockpile in partnership with the DoD.	Emphasize Reliable Replacement Warhead study and accelerated dismantlement in the near-term. Maintain a relatively level DSW budget with RRW development funded through reductions in resources required to support legacy weapons.	Relies on a relatively flat DSW budget being sufficient for the long-term, i.e., reductions in legacy weapon requirements (e.g., number of life extensions and stockpile size/composition) are sufficient to pay for RRWs.
Transform to a modernized, cost-effective complex.	Use savings from special nuclear material (SNM) consolidation, reduction in complex square footage, elimination of duplicative capabilities at multiple sites, and productivity improvements to fund complex transformation.	Most savings take years to be realized thus greatly slowing the potential rate of transformation especially for costly nuclear facilities.
Create a fully integrated and interdependent complex.	Make changes to contracts, organization structure, project and risk management approaches, and technical business practices as rapidly as practical. Reprioritizing existing funding resources accommodates most changes.	While many changes are accommodated from within available funds, small amounts of incremental funding for some items (e.g., start-up of a supply chain management center) could greatly reduce resistance and time required for implementation.
Drive the science and technology base essential for long-term National Security.	Focus campaigns more directly on requirements to support RRW development. Team with the DOE Office of Science and other related organizations to ensure overall science and technology (S&T) portfolio sustains the essential science and technology base essential to our Nation's security.	Science and technology are essential to long-term robustness of the nuclear deterrent but funding will be under stress. A mission-focused organization tends to apply resources preferentially to near-term product needs. Challenge will be to find appropriate S&T portfolio balance.

Within a level funding profile and the need to meet near-term commitments to DoD and Congress, there is limited flexibility to rapidly transform into a responsive infrastructure. For the FY 2008 budget, the greatest impact of a level funding profile is on the rate of transformation to a modernized, cost-effective complex (i.e., the physical infrastructure and facilities). A key uncertainty is the fact that much of the planning is dependent on the outcome of the Complex 2030 National Environmental Policy Act (NEPA) process. This public NEPA process, as required to support several critical Complex 2030 decisions, started with the notice of intent (NOI) on October 19, 2006, and will not be complete until a record of decision is reached in 2008. Significant revisions to the Complex 2030 planning scenario may be necessary as this NEPA process is completed. For example, the proposed Complex 2030 action calls for multiple centers of production excellence. The Complex 2030 NEPA process may result in a decision supporting a different alternative. If a different alternative is selected, all of the outyear budget recommendations will have to be re-evaluated.

Another uncertainty hinges upon recovery of the Highly-Enriched Uranium Manufacturing Facility (HEUMF) project execution in FY 2007. The HEUMF, together with the Uranium Processing Facility (UPF), are the key facilities necessary for downsizing the Y-12 complex, meeting the DBT, decreasing operating costs, and provide a responsive manufacturing capability with respect to highly enriched uranium. Reallocation of FY 2007 resources will be required to complete this project within its current revised baseline.

The responsiveness of NNSA's infrastructure is also tied to the decision path for plutonium facilities. A decision on future plutonium facilities is a key element of the Complex 2030 NEPA process. The current Complex 2030 planning scenario relies on Los Alamos National Laboratory facilities to provide interim plutonium capabilities. Options for a consolidated plutonium center for long-term plutonium research, surveillance and production activities are currently being developed. To ensure that long-term requirements for plutonium facilities are more accurately defined, funding for the Chemistry and Metallurgy Research Replacement – Nuclear Facility (CMRR-NF) has been reduced in FY 2008. This allows more time to evaluate the near- and long-term roles of the CMRR-NF in Complex 2030 planning and to define long-term stockpile requirements with the DoD.

As the Complex 2030 planning scenario matures, the NNSA will review the performance measures (goal, indicators, and endpoint and annual targets) to ensure that they are consistent with the concept and to develop any required new measures.

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 NNSA and DOE missions 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 and Program Goals

The Department's Strategic Plan identifies five Strategic Themes (one each for energy security, nuclear security, scientific discovery and innovation, environmental responsibility, and management excellence) plus 16 Strategic Goals that tie to the Themes. The Weapons Activities authorization supports the following Strategic Themes and goals:

Strategic Theme 2, Nuclear Security: Ensuring America's Nuclear Security.

Goal 2.1, Nuclear Deterrent: Transform the Nations nuclear weapons stockpile and supporting infrastructure to be more responsive to the threats of the 21st Century.

Contribution to Goal 2.1

Within the Weapons Activities appropriation, 13 programs each make unique contributions to Goal 2.1 as follows:

The Directed Stockpile Work (GPRA Unit Program Goal 2.1.26) contributes to this goal by ensuring that the nuclear warheads and bombs in the U.S. nuclear stockpile are safe, secure, and reliable.

The Science Campaign (GPRA Unit Program Goal 2.1.27) contributes to this goal by developing improved capabilities to assess the safety, reliability, and performance of the nuclear portion of weapons without further underground testing; maintaining readiness to conduct underground nuclear testing if directed by the president; and developing essential scientific capabilities and infrastructure.

The Engineering Campaign (GPRA Unit Program Goal 2.1.28) contributes to this goal by providing validated engineering sciences and engineering modeling and simulation tools for design, qualification, and certification; improved surety technologies; radiation hardening design and modeling capabilities; microsystems and microtechnologies; component and material lifetime assessments; and predictive aging models and surveillance diagnostics.

The Inertial Confinement Fusion Ignition and High Yield Campaign (GPRA Unit Program Goal 2.1.29) contributes to this goal by developing laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation, including thermonuclear burn conditions, approaching those in a nuclear explosion and by conducting weapons-related research in these environments.

The Advanced Simulation and Computing Campaign (GPRA Unit Program Goal 2.1.30) contributes to this goal by providing leading edge, high-end simulation capabilities to meet weapons assessment and certification requirements, including weapon codes, weapons science, platforms, and computer facilities.

The Pit Manufacturing and Certification Campaign (GPRA Unit Program Goal 2.1.31) contributes to this goal by restoring the capability and some limited capacity to manufacture pits of all types required for the nuclear weapons stockpile.

The Readiness Campaign (GPRA Unit Program Goal 2.1.32) contributes to this goal by identifying, developing, and delivering new enhanced processes, technologies, and capabilities to meet the current and future nuclear needs of the stockpile and support the transformation of the nuclear weapons complex into an agile and more responsive enterprise with greater design to production integration, shorter cycle times and lower operating costs. As the specific needs of the Reliable Replacement Warhead activities and the transition issues associated with Complex 2030 become clearer, the planning and prioritization of the Readiness Campaign will increasingly be aligned within approved scope with these emerging priorities, within the anticipated outyear funding projection.

The Readiness in Technical Base and Facilities (GPRA Unit Program Goal 2.1.33) contributes to this goal by operating and maintaining 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 (staff, tools, and replacement parts); environmental, safety, and health costs; and planning, prioritizing and constructing state-of-the-art facilities, infrastructure, and scientific tools that are not directly attributable to Directed Stockpile Work or a campaign, within approved baseline costs and schedule.

The Secure Transportation Asset (GPRA Unit Program Goal 2.1.34) contributes to this goal by safely and securely transporting nuclear weapons, weapons components, and special nuclear materials to meet projected DOE, DoD, and other customer requirements.

The Nuclear Weapons Incident Response Program (GPRA Unit Program Goal 2.1.35) contributes to this goal by responding to and mitigating nuclear and radiological incidents worldwide. In FY 2008 NWIR is establishing two new programs in support of this and the national security mission. A National Technical Nuclear Forensics research and development (R&D) and operations program, and a Stabilization Implementation program through Render Safe R&D development and deployment of first generation equipment.

The Facilities Infrastructure and Recapitalization Program (GPRA Unit Program Goal 2.1.36) contributes to this goal by restoring, rebuilding, and revitalizing the physical infrastructure of the Nuclear Weapons Complex.

The Safeguards and Security Program (GPRA Unit Program Goal 2.1.37) contributes to this goal by protecting NNSA personnel, facilities, nuclear weapons, and information from a full spectrum of threats, most notably from terrorism, which has become of paramount concern after the September 11, 2001, attacks in the United States.

The Environmental Projects and Operations Program (GPRA Unit Program Goal 2.1.38) contributes to this goal by reducing the risks to human health and the environment at NNSA sites and adjacent areas by operating and maintaining environmental clean-up systems installed by the Office of Environmental Management; performing long-term environmental monitoring activities; and by integrating a responsible environmental stewardship program with the NNSA mission activities at these sites.

Goal 2.2, Weapons of Mass Destruction, is also supported by the Weapons Activities program, with national assets for transportation of weapons, weapon components and materials and national nuclear emergency response assets, as well as the Nuclear Counterterrorism Design Support inherent in our nuclear stockpile design efforts.

In addition, NNSA activities that are conducted in direct support of Stockpile Stewardship also contribute indirectly to Goal 3.2, Foundations of Science, that provides world class scientific research capacity needed to ensure the success of the Department missions in national and energy security; advance the frontiers of knowledge in physical sciences and areas of biological, medical, environmental and computational sciences; or provide world-class research facilities for the nation's science enterprise. Similarly, many of the Stockpile Stewardship programs indirectly support Strategic Goals 3.1, Scientific Breakthroughs; 3.3, Research Integration; 4.1, Environmental Cleanup; and 4.2, Managing the Legacy.

Funding by Strategic and GPRA Unit Program Goal

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Strategic Goal 2.1, Nuclear Deterrent			
GPRA Unit Program Goal 2.1.26, Directed Stockpile Work	1,372,327	1,410,268	1,447,236
GPRA Unit Program Goal 2.1.27, Science Campaign	276,670	263,762	273,075
GPRA Unit Program Goal 2.1.28, Engineering Campaign	247,907	160,919	152,749
GPRA Unit Program Goal 2.1.29, Inertial Confinement Fusion Ignition and High Yield Campaign	543,582	451,191	412,259
GPRA Unit Program Goal 2.1.30, Advanced Simulation and Computing Campaign	599,772	617,955	585,738
GPRA Unit Program Goal 2.1.31, Pit Manufacturing and Certification Campaign	238,663	237,598	281,230
GPRA Unit Program Goal 2.1.32, Readiness Campaign	216,567	205,965	161,169
GPRA Unit Program Goal 2.1.33, Readiness in Technical Base and Facilities	1,654,840	1,685,772	1,662,144
GPRA Unit Program Goal 2.1.34, Secure Transportation Asset	209,979	209,264	215,646
GPRA Unit Program Goal 2.1.35, Nuclear Weapons Incident Response	117,608	135,354	161,748
GPRA Unit Program Goal 2.1.36, Facilities and Infrastructure Recapitalization Program	149,365	291,218	293,743
GPRA Unit Program Goal 2.1.37, Safeguards & Security	797,751	754,412	881,057
GPRA Unit Program Goal 2.1.38, Environmental Projects and Operations	0	17,211	17,518
Total, Strategic Goal 2.1, Nuclear Deterrent	**6,425,031**	**6,440,889**	**6,545,312**
Use of Prior Year Balances	-37,734	0	0
Security Charge for Reimbursable Work	-32,000	-33,000	-34,000
Total, Weapons Activities	**6,355,297**	**6,407,889**	**6,511,312**

Outyear Funding by Strategic and GPRA Unit Program Goal

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Strategic Goal 2.1, Nuclear Deterrent				
GPRA Unit Program Goal 2.1.26, Directed Stockpile Work	1,483,417	1,520,502	1,558,515	1,597,478
GPRA Unit Program Goal 2.1.27, Science Campaign	282,741	275,622	270,390	275,626
GPRA Unit Program Goal 2.1.28, Engineering Campaign	147,090	144,448	142,614	145,417
GPRA Unit Program Goal 2.1.29, Inertial Confinement Fusion Ignition and High Yield Campaign	406,098	413,186	411,851	407,487
GPRA Unit Program Goal 2.1.30, Advanced Simulation and Computing Campaign	598,241	583,643	570,873	582,243
GPRA Unit Program Goal 2.1.31, Pit Manufacturing and Certification Campaign	291,945	339,462	357,622	347,269
GPRA Unit Program Goal 2.1.32, Readiness Campaign	190,477	184,703	180,357	183,946
GPRA Unit Program Goal 2.1.33, Readiness in Technical Base and Facilities	1,698,403	1,765,458	1,862,729	1,952,633
GPRA Unit Program Goal 2.1.34, Secure Transportation Asset	228,300	237,749	253,037	262,118
GPRA Unit Program Goal 2.1.35, Nuclear Weapons Incident Response	169,835	178,327	187,243	196,605
GPRA Unit Program Goal 2.1.36, Facilities and Infrastructure Recapitalization Program	286,572	297,096	304,330	312,000
GPRA Unit Program Goal 2.1.37, Safeguards & Security	924,410	969,881	1,017,575	1,067,604
GPRA Unit Program Goal 2.1.38, Environmental Projects and Operations	32,471	29,923	30,864	31,574
Total, Strategic Goal 2.1, Nuclear Deterrent	**6,740,000**	**6,940,000**	**7,148,000**	**7,362,000**
Security Charge for Reimbursable Work	-35,000	-36,000	-37,000	-38,000
Total, Weapons Activities	**6,705,000**	**6,904,000**	**7,111,000**	**7,324,000**

Funding for a proportional share of the NNSA annual assessment required to pay for Defense Contract Audit Agency activities is included in this appropriation. The amount for the Weapons Activities is $1,328,048 for FY 2007 and $1,374,178 for FY 2008, to be paid from RTBF funding.

Means and Strategies

The Weapons Activities Program will use various means and strategies to achieve its program goals. However, various external factors may impact the ability to achieve these goals. The program also performs collaborative activities to help meet its goals.

The NNSA will conduct a wide range of tests and experimental activities 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. Computer simulations will be used in these assessments. 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 the weapon production plants and the laboratories, 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. We will significantly increase dismantlement activities in this program compared to prior years to demonstrate our commitment to a smaller stockpile and ensure that transformation of the stockpile and infrastructure is not misperceived by other nations as "restarting the arms race." 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 campaigns approach for activities that develop or mature critical capabilities needed to achieve weapons stockpile certification. The campaigns are forward looking efforts with specific objectives and milestones, planned and executed by integrated teams from the laboratories, Nevada Test Site (NTS), and production plants. The six campaigns are Science, Engineering, Inertial Confinement Fusion Ignition and High Yield, Advanced Simulation and Computing, Pit Manufacturing and Certification, 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 implement the Presidents' Nuclear Posture Review by improving infrastructure, hiring and training personnel, and revising and exercising relevant plans and safety documentation. The NNSA test readiness activities are consistent on a timescale established by national policy. 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 Secure Transportation Asset (STA) program to meet increased operating and security standards, and will maintain nuclear emergency operations assets. The NNSA will identify the workforce skills necessary to meet long-term stockpile stewardship requirements and will develop staffing plans to attract and retain staff.

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

There are a number of collaborations with universities and colleges, mainly associated with the strategic computing activities, Science Campaign, and Inertial Confinement Fusion Ignition and High Yield Campaign research effort. Also, a limited number of technology partnership efforts with industry may be continued.

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 Security and Safety Performance Assurance (formerly Independent Oversight and Performance Assurance), 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: (1) the Office of Management and Budget (OMB) Program Assessment Rating Tool (PART); (2) NNSA Administrator Program Reviews; (3) Program Managers' Detailed Technical Reviews; (4) quarterly reporting of progress through the Department's Joule performance tracking and program management self-assessment systems; and (5) the NNSA Administrator's Annual Performance Report.

The NNSA is using the OMB PART process to perform annual internal self-assessments of the management strengths and weaknesses of each NNSA program. Among other things, the PART 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. Independent PART assessments conducted by OMB provide additional recommendations to strengthen NNSA programs.

Each NNSA program is reviewed at least annually by the NNSA Administrator during the 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.

Program reviews are conducted quarterly and monthly (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, and schedule 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 advanced warnings are given to NNSA managers, in order for corrective actions to 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.

The results of all of these reviews are reflected quarterly in the DOE Joule performance tracking systems and program management self-assessments, and the DOE Consolidated Quarterly Performance Report (CQPR), 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 enroute 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.

Additionally, the NNSA performs validations of approximately 20 percent of its budget on an annual basis. A new two-Phase process was developed to validate the FY 2006 Budget Formulation process and estimate. This consisted of Phase 1: Validation of the Need for the Program's Proposed Activities (Program Review) and Phase 2: Pricing Validation of Selected Programs (Pricing Review). Budget validation efforts focused 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 2008 process, the Weapons Activities Readiness Campaign Program and Safeguards and Security Defense Nuclear Security participated in Phase I and II. The reviews found the overall process for developing the budgets for the FY 2008 satisfactory and the cost estimates were determined to be valid and reasonable.

Program Assessment Rating Tool (PART)

The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The PART process links seamlessly with the NNSA PPBE concept, and we have initiated PART "self-assessments" for all NNSA programs as a prominent aspect of the annual program review cycle. The NNSA has incorporated feedback from the OMB into the FY 2008 NNSA Budget Request and will take the necessary steps to continue to improve performance.

Results of PART assessments in prior years are summarized in the table below:

FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Advanced Simulation and Computing Campaign – *Effective*	Inertial Confinement Fusion Ignition & High Yield Campaign and National Ignition Facility – *Moderately Effective*	Directed Stockpile Work – *Moderately Effective*	Science Campaign – *Moderately Effective*	Engineering Campaign – *Moderately Effective*
Facilities and Infrastructure Recapitalization – *Moderately Effective*	Readiness in Technical Base and Facilities – Operations – *Moderately Effective*	Secure Transportation Asset – *Moderately Effective*	Readiness Campaign – *Effective*	Pit Manufacturing & Certification Campaign – *Effective*
Safeguards and Security – *Adequate (reassessed in FY 2006 as Moderately Effective)*				Nuclear Weapons Incident Response – *Moderately Effective*

Significant Program Shifts

Complex 2030 has been established as an infrastructure planning scenario for a nuclear weapons complex able to meet the threats of the 21st century. The DoD Nuclear Posture Review calls for a transition from a threat-based nuclear deterrent with large numbers of deployed and reserve weapons to a deterrent based on capabilities with a smaller nuclear weapons stockpile, and greater reliance on the capability and responsiveness of the DoD and NNSA infrastructure to respond to threats. During the transformation to Complex 2030, the NNSA will continue all programs to meet the immediate needs of the stockpile, stockpile surveillance, annual assessment, and Life Extension Programs; will continue to move ahead with the Reliable Replacement Warhead to establish the path forward for stockpile transformation; and plans to increase the rate of warhead dismantlements, pursue complex-wide risk mitigation efforts, and expand the NNSA dismantlement infrastructure of people, processes, equipment, and tooling.

The campaigns are focused on long-term vitality in science and engineering, and on Research and Development (R&D) supporting future stockpile requirements. In addition, the NNSA is implementing a responsive infrastructure of people, science and technology base, and facilities and equipment needed to support an appropriate nuclear weapons infrastructure. NNSA and the Office of Science plan to establish a joint program in high energy density laboratory plasmas (HEDLP), a major sub-area within the discipline of high energy density physics (HEDP), by the spring of 2007. The purpose of the joint program is to steward effectively HEDLP within the DOE while maintaining the interdisciplinary nature of this area of science. The HEDLP program will be jointly funded by the Office of Science and NNSA. NNSA's planned contribution for FY 2008 totals $12,356,000 and is included in the ICF and Science Campaigns.

For the Facilities and Infrastructure and Revitalization Program, the NNSA continues to address the deferred maintenance backlog and footprint reduction goals, as well as meet prudent investment rates in addressing the backlog. The NNSA request to extend the completion date for the Facilities and Infrastructure Recapitalization Program from 2011 to 2013 was approved by Congress.

The FY 2008 request for the Nuclear Weapons Incident Response Program continues efforts to enhance Emergency Response capabilities, and this budget request supports all assets as planned and provides funds for standup of the National Technical Nuclear Forensics and the Stabilization Implementation program.

The FY 2008 request for the Safeguards and Security Defense Nuclear Security Program increase is about 17.7 percent above the FY 2007 request level, supporting both base program increases and the revised schedule for 2005 Design Basis Threat Implementation at NNSA sites. This phased 2005 DBT Implementation is spread over several years, which is a change from the earlier goal that all sites would meet the 2005 DBT by FY 2008.

The FY 2008 request for the Safeguards and Security Cyber Security Program increase is about 15 percent above the FY 2007 level. The individual cyber security improvements initiated under the Integrated Cyber Security Initiative have been, or soon will be, completed. Ongoing cyber security improvement activities, such as the Cyber Security Revitalization program, will remain integrated within the Cyber Security Infrastructure program while the operations of the Enterprise Secure Network will be focused within a coordinated set of Enterprise Secure Computing assets.

Historically Black Colleges and Universities (HBCU) Support

A research and education partnership program with the HBCUs and the Massie Chairs of Excellence was initiated by the Congress through earmarks in the Office of the Administrator appropriation in FY 2005 and FY 2006. The NNSA has established an effective program to target national security research opportunities for these institutions to increase their participation in national security-related research and to train and recruit HBCU graduates for employment within the NNSA. The NNSA goal is a stable $10 million annual effort. The majority of the efforts directly support program activities, and it is expected that programs funded in the Weapons Activities appropriation will fund research with the HBCU totaling approximately $4 to $6 million in FY 2008, in areas including engineering, material sciences, computational science, disaster modeling, and environmental sciences.

Directed Stockpile Work

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Directed Stockpile Work			
Life Extension Programs			
B61 Life Extension Program	51,045	58,934	63,115
W76 Life Extension Program	181,942	151,684	175,571
W80 Life Extension Program	84,744	102,044	0
Subtotal, Life Extension Programs	**317,731**	**312,662**	**238,686**
Stockpile Systems			
B61 Stockpile Systems	64,374	63,782	75,091
W62 Stockpile Systems	7,421	3,738	2,153
W76 Stockpile Systems	65,451	56,174	69,238
W78 Stockpile Systems	27,331	50,662	38,991
W80 Stockpile Systems	24,326	27,230	32,372
B83 Stockpile Systems	22,936	23,365	25,012
W84 Stockpile Systems	3,972	1,465	0
W87 Stockpile Systems	54,833	59,333	57,147
W88 Stockpile Systems	30,074	39,796	46,713
Subtotal, Stockpile Systems	**300,718**	**325,545**	**346,717**
Reliable Replacement Warhead	**24,750**	**27,707**	**88,769**
Weapons Dismantlement and Disposition	**59,400**	**75,000**	**52,250**
Stockpile Services			
Production Support	232,200	236,115	284,979
Research & Development Support	60,958	63,948	33,329
Research & Development Certification and Safety	215,081	194,199	181,984
Management, Technology, and Production	161,489	159,662	205,576
Responsive Infrastructure	0	15,430	14,946
Subtotal, Stockpile Services	**669,728**	**669,354**	**720,814**
Total, Directed Stockpile Work	**1,372,327**	**1,410,268**	**1,447,236**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Life Extension Programs				
B61 Life Extension Program	2,613	0	0	0
W76 Life Extension Program	175,310	170,806	171,480	169,502
W80 Life Extension Program	0	0	0	0
Subtotal, Life Extension Programs	**177,923**	**170,806**	**171,480**	**169,502**
Stockpile Systems				
B61 Stockpile Systems	104,499	124,743	141,291	154,859
W62 Stockpile Systems	1,685	0	0	0
W76 Stockpile Systems	64,876	66,941	64,496	55,639
W78 Stockpile Systems	40,130	36,293	30,025	30,386
W80 Stockpile Systems	39,915	41,141	35,261	39,248
B83 Stockpile Systems	28,065	32,329	32,652	38,093
W84 Stockpile Systems	0	0	0	0
W87 Stockpile Systems	39,812	37,680	29,139	27,112
W88 Stockpile Systems	48,120	29,746	27,723	26,974
Subtotal, Stockpile Systems.	**367,102**	**368,873**	**360,587**	**372,311**
Reliable Replacement Warhead	99,787	109,240	167,358	179,933
Subtotal, Reliable Replacement Warhead	**99,787**	**109,240**	**167,358**	**179,933**
Weapons Dismantlement and Disposition	49,888	51,264	51,131	68,244
Subtotal, Weapons Dismantlement and Disposition	**49,888**	**51,264**	**51,131**	**68,244**
Stockpile Services				
Production Support	300,376	307,787	301,170	305,346
Research & Development Support	28,627	32,364	33,019	28,800
Research & Development Certification and Safety	211,753	213,099	205,825	213,067
Management, Technology, and Production	207,346	212,224	214,184	217,838
Responsive Infrastructure	40,615	54,845	53,761	42,437
Subtotal, Stockpile Services	**788,717**	**820,319**	**807,959**	**807,488**
Total, Directed Stockpile Work	**1,483,417**	**1,520,502**	**1,558,515**	**1,597,478**

Mission

The goal of Directed Stockpile Work (DSW) is to provide the Nation with a credible nuclear deterrent by ensuring that the nuclear warheads and bombs in the United States (U.S.) nuclear weapons stockpile are safe, secure, and reliable.

Historically, the flexibility and reliability of deterrent force was ensured by a large variety of weapons, a large quantity of weapons, and frequent replacement of aging designs. But the global strategic environment changed, the mission changed, and so the strategy to support that mission changed. In place of quantity, we enhanced reliability, and in place of frequent replacement, we enhanced longevity. While several legacy warheads and bombs will need to be maintained well beyond their intended life, the Nuclear Weapons Council has determined that the Departments of Energy and Defense will shift to a Reliable Replacement Warhead (RRW) program as the strategy for maintaining a long term nuclear deterrent capability. The RRW strategy will enable a major transformation in the nuclear policy and infrastructure. From a National Security vantage, safe, secure, reliable, and sustainable nuclear weapons directly support deterrence and reduce reliance on a large stockpile of augmentation weapons. For the NNSA, RRW will allow reduced investment in legacy weapons, outdated equipment, obsolete technology, and storage of spare components. Fewer hazardous materials will enhance safety, reduce facility Environment, Safety, and Health cost, and increase producability of components. Furthermore, RRW has the potential to replace entire legacy systems. In contrast, simply reducing the quantities of a weapon yields only marginal savings due to fewer limited life component replacements because NNSA must continue to meet the safety, security, reliability, training, testing, engineering, weapons response analysis, shipping, documentation, and procedural requirements of a weapon system as long as any remain in the stockpile.

To meet the enduring needs of strategic deterrence, the nuclear weapons complex must meet national security requirements at a pace that matches the pace of evolving world events. This requires a more responsive infrastructure and a fundamental change in the culture of NNSA. The business practices and culture of NNSA must transform concurrently with facilities and equipment.

To meet this challenge, NNSA must demonstrate that we can safely improve production throughput while maintaining nuclear capabilities essential to our nuclear deterrent. As a result, our vision for the future nuclear weapons complex known as Complex 2030 is focused on production. Four key strategies will enable the transformation to Complex 2030: (1) transform the nuclear stockpile in partnership with the Department of Defense (DoD); (2) transform to a modernized, cost effective complex; (3) create a fully integrated and interdependent complex; and, (4) drive the science and technology base essential for long-term National Security.

Specifically, DSW will, in coordination with the DoD: (1) develop transition plans to shift from a Life Extension Program to a RRW program strategy; (2) while transitioning, continue to efficiently refurbish warheads/bombs to install the life extension solutions and other authorized modifications to correct technical issues or to enhance safety, security, and reliability; (3) conduct evaluations to assess warhead/bomb reliability and to detect/anticipate potential weapon issues, mainly from aging; (4) conduct scheduled warhead/bomb maintenance; (5) produce and replace components that have a limited life; (6) dismantle warheads/bombs retired from the stockpile; (7) develop concepts and programs which fulfill requirements for the Reliable Replacement Warhead (RRW); and, (8) provide the unique people skills, equipment, testers and logistics support to perform nuclear weapons operations.

DSW sets the pace and scope for critical activities to revitalize NNSA infrastructure supporting the U.S. nuclear weapons stockpile. As indicated in the Nuclear Posture Review provided to Congress in January 2002, a responsive infrastructure is a cornerstone of the nuclear triad and an important part of planning for Complex 2030. A responsive NNSA infrastructure – people, facilities, equipment, business practices, and technical processes – includes innovative science and technology research and development at the national laboratories and agile production facilities that are able to sustain the nuclear weapons stockpile and guarantee the nation's nuclear security in a dynamic and uncertain threat environment. DSW requirements drive the timing and scope for responsive infrastructure projects that focus on achieving responsiveness for selected warhead issues and assist in moving the current complex into Complex 2030. The mission is to achieve a nuclear weapons enterprise that is more cost-effective and sustainable, more responsive to stockpile uncertainties and adverse geopolitical change, discourages adversaries from pursuing threatening activities, and enables increased reliance on deterrence through capability rather than numbers of weapons.

Benefits

Within DSW, each of five major activities makes unique contributions to GPRA Unit Program Goal 2.1.26. In Life Extension Programs (LEPs), activities are working to extend the life of two nuclear weapon types (B61 and W76). (Note: The W80 LEP was terminated in FY 2006 with closeout activities completed in FY 2007). In Stockpile Systems, activities are conducted to ensure the weapon types in the enduring stockpile are safe and reliable. Work scope included in these activities are ongoing assessment and certification activities, limited life component exchange activities, surveillance activities, required maintenance, safety studies, and military liaison work for the B61, W62, W76, W78, W80, B83, W87, and W88 systems. For the Reliable Replacement Warhead, DSW activities will support design, development and project planning for the down-select option approved by the Nuclear Weapons Council (NWC) and conduct a conceptual study for additional RRW options. In Weapons Dismantlement and Disposition, activities contribute to the goal by retiring and dismantling/disposing of retired weapons and weapon components. In Stockpile Services, activities provide research, development and production support base capabilities for multiple warheads – e.g., certification and safety efforts; performing quality engineering and plant management, technology and production services; and, investigating options for meeting DoD requirements – in addition to support for responsive infrastructure implementation actions.

Background Information

In June 2004, the NNSA submitted the revised stockpile plan to Congress showing a significant reduction in the nation's deployed strategic nuclear weapons stockpile by 2012. Additionally, in March 2006, the NNSA submitted the Dismantlement Report to Congress showing a renewed effort in reducing the number of weapons awaiting dismantlement. These reductions are reflected in the quantities for the LEPs, with an increase in weapon dismantlements.

Planning and Scheduling

The DSW Program and Implementation Plans contain cost, scope, and schedule for work accomplishment. More detailed classified schedules are contained in the site Research & Development (R&D) and production documents. Stockpile maintenance, refurbishment, and life extension efforts are currently delineated in the Production and Planning Directive (P&PD) and the stockpile Life Extension Options Component Description Document. These requirements are further promulgated to the Nuclear Weapons Complex (hereafter referred to as "the Complex") through individual weapon Program Control Documents (PCDs) and the Master Nuclear Schedule (MNS). Refurbishment activities in FY 2008 will focus on accomplishing refurbishment of bomb and warhead components to extend the life of the stockpile under approved programs. Critical to the stockpile maintenance program is the ability of the Complex to meet new delivery schedules and to mitigate or prevent through continuous monitoring and feedback any issue that could impede progress in meeting these aggressive schedules.

Weapons Systems Cost Data

The Weapons Activities portion of the budget is supplemented with a classified annex, which contains the Selected Acquisition Reports (SARs) for the two LEPs consistent in format with those submitted by the DoD. A close-out SAR will be submitted for the W80 LEP due to the termination of the W80 LEP activities.

Successful transformation to a responsive nuclear weapons complex must reach beyond physical changes to facilities; it must also embody a transformation in the business practices and culture of NNSA. As part of the effort to streamline and enhance the management of the complex, in FY 2008 DSW implemented a Work Breakdown Structure (WBS) which included sections for the Stockpile Services budget categories of: Production Support; Research & Development Support; Research & Development Certification and Safety; Management, Technology and Production; and, Responsive Infrastructure (RI). This will result in a more consistent funding and costing scheme throughout the nuclear weapons complex and allow NNSA to more effectively and efficiently manage the Stockpile Services activities. Stockpile Services captures the work activities that provide multi-weapon system support or complex-wide support that cannot be directly tied to a weapon system. NNSA found that not all sites consistently costed the funds provided within Stockpile Services causing potential overlap or important programs not being funded. By using this detailed work breakdown structure, NNSA will sufficiently capture funding and costing at each site and have better fidelity and cost tracking within this budget category. Significant changes in the Stockpile Services budget category occurred due to realignment of work scope to be consistent with the new WBS. This effort will continue as a revised work breakdown structure for the LEPs, Stockpile Systems, Weapons Dismantlement & Disposition, and Reliable Replacement Warhead budget categories is developed and fully implemented in FY 2009.

To enhance flexibility and responsiveness to opportunities, Life Extension Programs, Stockpile Systems, or Weapons Dismantlement and Disposition may support container work. The RTBF Container Subprogram provides the base capability for container refurbishments. Due to the dynamic nature of production schedules and our desire to seize opportunities to increase production when possible, the needs of DSW may exceed that base rate planned for by RTBF. In such cases, weapon-specific activities pertaining to the production of new containers, the repair or modification of existing containers, or container needs beyond the rate of the RTBF base program may use DSW subprogram funds. In addition, in situations where secure communication with closed networks or secure databases is essential to meet program requirements, program funds may be used to provide connectivity between federal and non-federal sites within the nuclear weapons complex.

Major FY 2006 DSW Achievements

Life Extension Programs

- The B61 Mod 7 Alt 357 First Production Unit (FPU) was completed on schedule.

- For the W76-1/Mk4A LEP in accordance with the approved baseline schedule, the NNSA completed Production Readiness and Producibility Reviews, approved the baseline schedule, issued Sub-System Engineering Releases to production plants, began the 2X Acorn initial shelf-life storage program, completed certification and qualification activities required to certify with margins and uncertainties required for FPU, completed Preliminary Peer Review of Phase 6.4, and completed the dismantlement and production activities to fill the refurbishment pipeline. NNSA also provided hardware for the flight testing that met design definition and delivered flight test units to DoD, provided hardware that met design definition and completed the joint ground tests required to certify the warhead design, and provided hardware and components that met design definition and completed the hydrodynamic tests required to certify the warhead design.

- For the W80 LEP, the NNSA accomplished Phase 6.4 activities including finalization of all design releases and start of Process Prove-In (PPI) activities. The Congressional funding decrease in FY 2006 required the program to be rebaselined; however, a May 2006 Nuclear Weapons Council (NWC) decision to cancel the LEP caused a large portion of the FY 2006 workload to be directed toward bringing the program to an orderly suspension.

Stockpile Systems

- Reestablished approved nuclear operations at Pantex under Seamless Safety for the 21st Century (SS-21) for the B61 program.

- Completed final design review and production readiness review for the B61 spin rocket motor Alts 356/358/359 to support FPUs in early FY 2007 and delivered trainers to support the Pantex retrofit.

- Completed program lab/flight surveillance requirements for the W62. GT-191 was the final flight test for the W62 and was successfully conducted in June 2006.

- For the W76-0/Mk4, the NNSA completed stockpile surveillance including eliminating the backlog of disassemblies and inspections (D&I) work at the Pantex Plant and providing input to improve safety basis documentation, and building and delivering components to support performance of flight and laboratory testing. The NNSA also completed the manufacturing and shipment of limited life components for the W76-0/Mk4 in support of DoD requirements.

- Built and delivered High Fidelity Joint Test Assemblies (JTAs) to support an Extended Range Flight Test in April 2006 for the W78. The mission was a success. Completed Stockpile Evaluation Transformation Leadership Team review in December 2005.

- Met all site-specific requirements to perform surveillance for the W80-0/1 including input to the Weapons Reliability Report (WRR), built and delivered components, and performed flight and lab tests. This work included 3 JTA builds, 15 JTA Post Mortems, 10 Test Bed assemblies, completion of all manufacturing, and shipment of Limited Life Components for W80-0/1 in support of directive schedule MNS Vol. 3.

- Completed SS-21 in June 2006 for the W87. Restarted all W87 operations at Pantex.
Alt 363 full production unit was completed in June 2006, with delivery of kits to

Air Force. Issued a Conditional Major Assembly Release (MAR) for deployment of the W87 on the MM-III in July 2006.

- For the W88/Mk5, the NNSA completed stockpile surveillance mechanical D&I work at the Pantex Plant and provided revisions to the planning for safety basis of operations, and built and delivered components to support performance of flight and laboratory testing. The NNSA also completed the manufacturing of components for W88/Mk5 in support of DoD requirements; conducted design manufacturing, test fire, and shipment of primary detonators; and, completed loading of 4T life storage units.

Reliable Replacement Warhead

- Submitted design data packages for the RRW 18 month feasibility study to NNSA for review.

Weapons Dismantlement and Disposition

- Began SS-21 in April 2006 for the B53.

- Completed dismantlement of the last retired W56 at Pantex Plant in June 2006.

- Initiated dismantlement of the B61-3/4 in the fourth quarter of 2006.

- Began dismantlement of the W62 in the first quarter of 2006.

- Completed W70 component processing at Pantex.

Stockpile Services

- Completed 100 percent of Annual Stockpile Certification and Surety Assessment Activities.

- Completed 100 percent of the FY 2006 scheduled Stockpile Maintenance activities and 84 percent of the FY 2006 Stockpile Evaluation activities. These activities include the following:

  - Maintenance/Logistics Deliverables met by accomplishing the following: 681 reservoirs produced, 1,179 reservoirs filled, 236 neutron generators produced, 14 gas generators shipped, and 220 Alt 900 series kits shipped to DoD.

  - Supported 450 requisitions (5,351 parts) for the base and military spares program.

  - Surveillance Support accomplished the following: completed 67 surveillance D&I's, completed 23 flight tests with DoD, completed 57 JTA post-mortem flight test evaluations, completed 40 test bed builds, and conducted 49 laboratory system tests.

  - Accomplished reassembly and qualification of hardware at Sandia National Laboratories for Neutron Generator Target Loading Mission transfer from Los Alamos National Laboratory to Sandia.

Major Outyear Priorities and Assumptions
The outyear projections for DSW total $6,159,912,000 from FY 2009 through FY 2012. The trend throughout the five-year period is relatively level. During this period, DSW, in coordination with the DoD, will initiate RRW activities while producing required warhead life extensions and alterations. DSW will continue to provide a safe, secure, and reliable stockpile by supporting major deliverables to include: continued support of the W76 LEP full-rate production; completion of the B61-7/11 ALT 357 LEP; completion of the B61 spin rocket motor refurbishment program; initiation of the B61 radar/programmer ALT; completion of the B53 and W84 SS-21 projects; and, stockpile evaluation activities. DSW will also continue to support the reduction of the nation's deployed strategic nuclear weapons stockpile by 2012 and the increased dismantlement rates required to disposition retired weapons.

During the FY 2009 – FY 2012 period, DSW will play a critical role in supporting several significant initiatives within the Defense Programs Complex 2030 Vision that may affect the prioritization of the budget. DSW support of these initiatives will include: transforming from an LEP to an RRW stockpile strategy with an objective for RRW First Production Unit of 2012 but no later than 2014; follow-on RRW programs that will eventually replace enduring stockpile systems; and, implementing and executing an RI program that increases productivity and efficiencies. As much as possible, Defense Programs will rebalance resources within the Stockpile Stewardship program to support RRW. As RRW matures, greater opportunity to reduce investment in legacy systems will become available.

Program Assessment Rating Tool (PART)
The Department implemented a PART tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The DSW program has incorporated feedback from the OMB into the FY 2008 Budget Request and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2006 Budget Request. The OMB gave DSW scores of 100 percent on the Program Purpose and Design and Strategic Planning Sections; 88 percent on the Program Management Section; and 74 percent on the Program Results and Accountability Section. Overall, the OMB rated the DSW program 84 percent, its second highest category of "Moderately Effective." The OMB assessment found that the program appears to be well managed, with a clear and unique purpose and clear, meaningful, and measurable performance metrics that the program was demonstrating good progress in meeting. Additionally, the OMB assessment found that, because a contractor base in Government-owned facilities uniquely executes the program's nuclear weapons activities, the program lacks the capability to use competitive sourcing/cost comparisons for prime procurements. The OMB encouraged efforts to be cost-effective. In response to the OMB findings, the NNSA is continuing to improve contractor evaluation processes and weapon performance metrics, and monitor the new DSW efficiency measure to determine if it provides insight into additional cost-effective opportunities.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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%	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 Enduring Stockpile Maintenance completed (Annual percentage of prior-year non-completed items completed) (Annual Output)	R: 85% (77%) T: 95% (100%)	R: 44% (85%) T: 95% (100%)	R: 84% (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: 24%	R: 29% T 29%	R: 34% T: 34%	T: 39%	T: 44%	T: 49%	T: 54%	T: 59%	T: 64%	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: 20%	R: 27% T: 30%	R: 37% T: 40%	T: 70%	T: 90%	T: 100%	N/A	N/A	N/A	By 2009, complete NWC-approved B61-7/11 LEP.
Cumulative percentage of progress in completing NWC-approved W87 LEP (Long-term Output)	R: 100% T: 100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	By 2004, complete NWC-approved W87 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	N/A	R : Baseline T: Baseline	T: 0.5%	T: 1.0%	T: 1.5%	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% (interim target).

* New measure to replace the W80 LEP efficiency measure due to Nuclear Weapons Council (NWC) cancellation of the program.

** Outyear (FY 2009 – FY 2012) targets may change based on NWC decisions to move from LEP to RRW strategy.

Detailed Justification

	(Dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Life Extension Program	**317,731**	**312,662**	**238,686**

NNSA developed the LEP to extend the stockpile lifetime of a warhead or warhead components at least 20 years with a goal of 30 years. NNSA, in conjunction with the applicable Service from the DoD, executes an LEP following the procedural guidelines of the Phase 6.x process. The activities below describe what research, development, and production work that current LEPs require to meet the necessary weapon military characteristics throughout the Stockpile-to-Target Sequence.

▪ **B61 Life Extension Program**	**51,045**	**58,934**	**63,115**

The B61 LEP will extend the life of the B61 for an additional 20 years. The B61 Life Extension Program includes refurbishment of the canned subassembly; and replacement of associated seals, foam supports, cables and connectors, the group X kit (e.g., washers, o-rings), and limited life components on the B61 Mods 7 and 11.

In FY 2008, programmatic activities will focus on meeting production quantities to meet DoD delivery requirements. More specifically, the laboratories will provide production liaison support at Pantex and Y-12; this will include systems design support for the production of the piece parts and initiating necessary production definition changes to improve manufacturability and disposition instructions for production issues. The production plants will continue production rates that meet DoD requirements and the procurement and production of the foam supports, cushions, cables, refurbished cases, and nitrogen cartridges.

▪ **W76 Life Extension Program**	**181,942**	**151,684**	**175,571**

The W76 LEP will extend the life of the W76 for an additional 30 years with the FPU in FY 2007. Activities include design, qualification, certification, production plant PPI, and Pilot Production. The pre-production activities will ensure the design of refurbished warheads meets all required military characteristics. Additional activities include work associated with the manufacturability of the components including the nuclear explosive package; the Arming, Firing, and Fuzing (AF&F) system; gas transfer system; and associated cables, elastomers, valves, pads, cushions, foam supports, telemetries, and miscellaneous parts.

In FY 2008, programmatic production activities will significantly ramp up to support DoD delivery requirements. More specifically, laboratories will provide production liaison support at the plants, this will include systems design support for the production of the piece parts to the production plants and initiating necessary production definition changes to improve manufacturability and disposition instructions for production issues, and completing qualifications to support Design Review and Acceptance Group (DRAAG) and MAR. In addition, the program will work to recover the baseline plan for purchase of materials with sufficient lead time for the material and economical purchasing strategy, fabrication of required subassembly at the Y-12 facility, and purchase of critical tooling for production capacity at Pantex. Aggressive cost control measures in FY 2007 and FY 2008 will be used as Defense Programs endeavors to meet the required delivery to the DoD in support of their Initial Operational Capability (IOC) requirements and achieve production rates consistent with the Production and Planning Directive.

	(Dollars in thousands)		
	FY 2006	FY 2007	FY 2008
▪ **W80 Life Extension Program**	**84,744**	**102,044**	**0**

The W80 LEP was to extend the life of the W80 for an additional 20 years. Previous activities included qualification and certification activities to ensure refurbished warheads meet all required military characteristics; replacing the neutron generator, trajectory sensing signal generator, gas transfer system, and other associated components.

Based on a decision by the DoD to reduce the number of W80 weapons, the technical drivers for conducting the LEP are relieved. Therefore, work on the W80 LEP will be terminated by the end of FY 2007.

Stockpile Systems	**300,718**	**325,545**	**346,717**

Each weapon-type in the stockpile requires routine maintenance; periodic repair; replacement of limited life components; surveillance to assure continued safety, security, and reliability; and other support activities. The activities below describe those specific activities by weapon-type.

▪ **B61 Stockpile Systems**	**64,374**	**63,782**	**75,091**

Enduring stockpile workload efforts on all modifications of the B61 will include ongoing assessment and certification activities; cyclical limited life component exchange activities; surveillance activities; and any required alterations, modifications, repairs, and safety studies.

Funding in FY 2008 encompasses new activities supporting the study for replacement of aging radar, programmer, and use control components and production of 1E34 detonators. Ongoing activities include: supporting production quantities per DoD requirements for the spin rocket motor, Alts 356/358/359; supporting the annual assessment process; providing laboratory and management support to the Project Officers Group (POG) and DoD Safety Studies; supporting resolution of Significant Finding Investigations (SFIs); submission of data for surveillance cycle reports; conducting integrated experiments per current approved baseline plan; producing the 1M and 2M gas reservoirs; continuing surveillance tests for the B61-3/4/10 and the B61-7/11; disassembling and inspecting the stockpile laboratory tests units; conducting component laboratory tests and stockpile flight tests for stockpile evaluation.

▪ **W62 Stockpile Systems**	**7,421**	**3,738**	**2,153**

Enduring stockpile workload efforts on the W62 will include ongoing assessment and certification activities, limited life component exchange activities, surveillance activities, and required alterations, repairs, and safety studies.

In FY 2008, activities include: supporting the annual assessment process; providing laboratory and management support to any POG and DoD Safety Studies; and supporting resolution of SFIs. This limited activity will continue until all W62 have been retired. Reduced funding reflects a reduction of full-scale surveillance activities that are taking place in advance of retirement.

	(Dollars in thousands)		
	FY 2006	FY 2007	FY 2008
▪ **W76 Stockpile Systems**	**65,451**	**56,174**	**69,238**

Enduring stockpile workload efforts on the W76 will include ongoing assessment and certification activities, limited life component exchange activities, surveillance activities, required alterations, modifications and safety studies.

In FY 2008, programmatic activities include significant ramp up of production quantities to meet DoD limited life component requirements. In addition, work scope for W76 disassemblies transferred from the Weapons Dismantlement and Disposition category to more accurately align the type of work with the definitions of the funding categories. Ongoing activities include supporting the annual assessment process; providing laboratory and management support to the POG and DoD Safety Studies; supporting resolution of SFIs; submission of data for surveillance cycle reports; disassembling and inspecting the stockpile laboratory tests units; conducting component laboratory tests and stockpile flight tests for stockpile evaluation; and producing 1E33 detonators.

▪ **W78 Stockpile Systems**	**27,331**	**50,662**	**38,991**

Enduring stockpile workload efforts on the W78 will include ongoing assessment and certification activities, limited life component exchange activities, surveillance activities, and required alterations, modifications, repairs, and safety studies.

In FY 2008, programmatic activities reflect completion of design work and FPU of limited life components and reduced production requirements for detonator cables. Ongoing activities include production of the MC 4381 Neutron Generator and the LF7A Gas Transfer System Reservoir, supporting the annual assessment process; providing laboratory and management support to the POG and DoD Safety Studies; supporting resolution of SFIs; submission of data for surveillance cycle reports; disassembling and inspecting the stockpile laboratory and flight test units; and conducting component laboratory tests and stockpile flight tests for stockpile evaluation.

▪ **W80 Stockpile Systems**	**24,326**	**27,230**	**32,372**

Enduring stockpile workload efforts on all modifications of the W80 include ongoing assessment and certification activities, limited life component exchange activities, surveillance activities, and required alterations, modifications, repairs, and safety studies.

In FY 2008, programmatic activities include completion of the remaining SS-21 integrated activities and procurement of tools developed through this process for the W80-0/1 in FY 2007. The work level will increase with the reinstatement of warhead D&I activities and a ramp up of surveillance to support elimination of surveillance backlog. Ongoing activities include supporting the annual assessment process; providing laboratory and management support to the POG and DoD Safety Studies; and supporting resolution of SFIs; submitting data for surveillance cycle reports and conducting integrated experiments per current approved baseline plan; the steady state production of the 1K Reservoir; producing telemetry units, neutron generator monitors, cables, and other joint test assembly hardware for support of stockpile flight tests; continuing polymeric evaluation testing; building joint test assemblies; and conducting the disassembly and inspection of stockpile laboratory units, flight tests units, and test beds; and, achieving the initial operational capability of the updated code management system at selected sites.

	FY 2006	FY 2007	FY 2008
	(Dollars in thousands)		
▪ **B83 Stockpile Systems**	**22,936**	**23,365**	**25,012**

Enduring stockpile workload efforts on all modifications of the B83 include ongoing assessment and certification activities; limited life component exchange activities; surveillance activities; and required alterations, modifications, repairs, and safety studies.

In FY 2008, increased programmatic activities reflect gas transfer and neutron generator replacement initiatives ramping up to support retrofit planning. Ongoing activities include supporting the annual assessment process; providing laboratory and management support to the POG and DoD Safety Studies; and supporting resolution of SFIs; conducting material, component, and system level testing and evaluating performance and safety characteristics; surveillance of B83 detonators and pits in support of the annual assessment effort; accomplishing stockpile laboratory and flight tests; and completing the disassembly and inspection of stockpile laboratory and flight test units.

▪ **W84 Stockpile Systems**	**3,972**	**1,465**	**0**

No workload planned for FY 2008.

▪ **W87 Stockpile Systems**	**54,833**	**59,333**	**57,147**

Enduring stockpile workload efforts on the W87 include ongoing assessment and certification activities, limited life component exchange activities; surveillance activities; and required alterations, modifications, repairs, and safety studies.

In FY 2008, programmatic activities include support of the ongoing Alt 363 field retrofit, supporting the annual assessment process; providing laboratory and management support to the POG and DoD Safety Studies; and supporting resolution of SFIs; conducting material, component, and system level testing; and evaluating performance and safety characteristics; producing environmental sensing devices, firing sets, and lightning arrestor connectors in support of surveillance rebuilds; restarting production of other cables, valves, and mechanical piece parts; developing a new W87 stockpile flight test vehicle; conducting disassemblies and inspections of stockpile laboratory test units and stockpile flight test units; production of joint test assemblies and test beds; providing range support and data collection of W87 stockpile flights.

▪ **W88 Stockpile Systems**	**30,074**	**39,796**	**46,713**

Enduring stockpile workload efforts on the W88 include ongoing assessment and certification activities, limited life component exchange activities, surveillance activities, and required alterations, modifications, repairs, and safety studies.

In FY 2008, increased programmatic activities reflect restart of full-scale surveillance activities, completion of SS-21 activities including new tooling, the Hazard Analysis Report, and Nuclear Explosive Operating Procedures; engineering development and production start-up activities for the 4T reservoir; and forging procurements. Ongoing activities include providing laboratory and management support to the POG and DoD Safety Studies; supporting resolution of SFIs; submitting data for surveillance cycle reports; conducting integrated experiments per current approved baseline plan; supporting the annual assessment process; and certification of the stockpile

	FY 2006	FY 2007	FY 2008

(Dollars in thousands)

disassembling and inspection of stockpile laboratory test units and stockpile flight test units; and production of joint test assemblies and test beds.

Reliable Replacement Warhead	**24,750**	**27,707**	**88,769**

The NWC approved the RRW Feasibility Study that began in May 2005 and completed in November 2006. The goal of the RRW study was to identify designs that will sustain long term confidence in a safe, secure and reliable stockpile and enable transformation to a responsive nuclear weapon infrastructure. The joint DOE/DoD RRW POG was tasked to oversee a laboratory design competition for a RRW warhead with FPU goal of FY 2012. The POG assessed the technical feasibility including certification without nuclear testing, design definition, manufacturing, and an initial cost assessment to determine whether the proposed candidates met the RRW study objectives and requirements. The POG presented the RRW study results to the NWC in November 2006 and the NWC decided that the RRW for submarine launched ballistic missiles is feasible and should proceed to complete a Phase 2A design definition and cost study. In addition, the NWC determined that the RRW is to be adopted as the strategy for maintaining a long term safe, secure and reliable nuclear deterrent and as such also directed the initiation of a conceptual study for an additional RRW design. The next steps include detailed design and preliminary cost estimates of the RRW to confirm that the RRW design provides surety enhancements, can be certified without nuclear testing, is cost-effective, and will support both stockpile and infrastructure transformation. Once this acquisition planning is completed and if the NWC decides to proceed to engineering and production development, outyear funding (FY 2009 - FY 2012) to support an executable program will be submitted.

Weapons Dismantlement and Disposition	**59,400**	**75,000**	**52,250**

Weapons Dismantlement and Disposition (WD&D) is a critical element of NNSA's integrated effort to transform the complex and the stockpile. Reducing the total number of U.S. nuclear weapons sends a clear message to the world that critical modernization programs such as RRW do not signal a return to the arms race of the Cold War. WD&D includes all activities that support or perform tasks to reduce the quantity of retired weapons or retired weapon components in the inventories, to include the interim storage, surveillance, and complete disposition of retired weapons and weapon components. In FY 2006 and FY 2007, NNSA invested in expanding the dismantlement infrastructure. In FY 2008, increased dismantlement throughput is anticipated because of this investment. Specific activities include weapon dismantlement, characterization of components, disposal of retired warhead system components, and surveillance of selected components from retired warheads. Other supporting activities specific for retired warheads include: conducting facility hazard assessments including studies of lightning, environmental sensing devices, and fire protection; issuing safety analysis reports; conducting laboratory and production plant safety studies in implementation of SS-21; procuring shipping and storage equipment; providing oversight of testers; and supporting the Tri-lab office efforts on dismantlement activities. In FY 2008, specific dismantlement activities take advantage of increased prior year work that developed and funded dismantlement processes, tooling and logistics equipment. The program includes a continued focus on increasing the throughput of weapon dismantlements at the Pantex Plant. Dismantlement and SS-21 programs planned for FY 2008 include portions of the W62, B61, B83 and B53. Pantex activities include efficiency measures such as Value Streaming Analysis to remove non-value-added steps in the dismantlement process. Other continued activities include the use of multi-shift operations to ensure the maximum throughput and utilization of resources.

	(Dollars in thousands)	
FY 2006	FY 2007	FY 2008

Activities at the Y-12 Plant include continued increases in efficiency to reduce the footprint for Highly Enriched Uranium storage and processing. Canned Sub-Assembly dismantlement programs planned at the Y-12 Plant in FY 2008 include portions of the W62, B61 and the B53.

The Y-12 Plant will also continue to pursue efficiency measures that include the purchase of additional tooling and dismantlement processing fixtures to maximize throughput. As part of the FY 2006 dismantlement activities, the NNSA has instituted processes and procured hardware to ensure the availability of shipping and storage containers to meet projected outyear dismantlement rates at both the Pantex and Y-12 Plants.

The funding requested for FY 2008 reflects resources required to complete the dismantlement workload consistent with the accelerated dismantlement schedule submitted to Congress in March 2006.

	FY 2006	FY 2007	FY 2008
Stockpile Services	**669,728**	**669,354**	**720,814**

Stockpile Services provides the foundation for the production capability and capacity within the nuclear weapons complex to meet today's DoD requirements and will allow us to sustain delivery of our products as we transform to Complex 2030. Stockpile Services covers research, development and production work that supports two or more weapon-types, are the same for each weapon-type, are not identified or allocated to a specific weapon-type, or are those activities where an association of the cost would otherwise be made by an allocation. In addition, this major category includes R&D and Production Support which have been removed from other DSW categories and established as separate subcategories in order to better clarify the differences between direct warhead workload and long-term sustainable Stockpile Services activities needed both for today's workload and for nuclear weapons complex transformation. Within Stockpile Services, most adjustments reflect transfers of scope to

better manage the program and to promote consistency and efficiencies within the newly established DSW work breakdown structure. The net increase in the Stockpile Services category is within Production Support. Primarily, this increase is linked to the increased workload associated with the production of components for two simultaneous LEPs.

	FY 2006	FY 2007	FY 2008
▪ **Production Support**	**232,200**	**236,115**	**284,979**

Production Support includes those activities that directly support internal site-specific production missions only. In this context, the term "support" refers to the site-specific personnel and routine functional costs associated with keeping the basic capability and capacity of the site at a sufficient level to meet current production requirements while transforming the production capabilities at each site to meet Complex 2030 goals. The production mission is defined as weapon assembly, weapon disassembly, component production, and weapon safety and reliability testing. Production Support does not pay for actual production workload, which is funded by the other DSW categories.

In FY 2008, production work activities will increase in direct proportion to the increased work associated with running two LEPs simultaneously. Additionally, new work scope includes the completion of deferred repairs of broken tooling and test equipment that occurred within the last

	(Dollars in thousands)		
	FY 2006	FY 2007	FY 2008

two years. Completion of these repairs is vital to maintaining the throughput of the production sites in order to meet DoD commitments. Another area of new work is the modernization of the production plant capabilities to achieve more agile manufacturing that is consistent with the Complex 2030 goals. Moreover, activities formerly within LEPs and Stockpile Systems that are more appropriately associated with internal site-specific production missions have been transferred into the Production Support category. Ongoing activities will be focused on: sustaining and modernizing engineering and manufacturing operations; quality supervision and control; tool, gage, and test equipment procurement, maintenance, and inspection; purchasing, shipping, and material support; increasing production efficiency; developing and maintaining electronic product-flow information systems; and program integration support. These activities will directly support implementation of the concepts of systems engineering and production integration in support of more cost-effective plant manufacturing and improved activity-based costing in preparation for approved increases in LEP and RRW production activities.

	FY 2006	FY 2007	FY 2008
▪ **Research & Development Support**	**60,958**	**63,948**	**33,329**

Research and Development (R&D) Support includes ongoing activities that directly support the internal design laboratory site-specific R&D mission. 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. The neutron generator and gas transfer research is typically beyond the basic research of a Campaign and is the first stage of technology weaponization.

In FY 2008, activities include: continue to support neutron generator development (electronic and small generator types); designing gas transfer systems, conducting qualification/certification and computer modeling and simulation activities that are required; conducting system/component surveillance evaluations to analyze results obtained from component and flight testing and preparing and providing the infrastructure for conducting hydrodynamic tests in support of enduring stockpile systems and life extension programs. Also, will support military liaison for trainers and hardware; aircraft compatibility activities, including providing avionics and interface control documentation; and studying permissive action link equipment for use control.

	FY 2006	FY 2007	FY 2008
▪ **Research & Development Certification and Safety**	**215,081**	**194,199**	**181,984**

R&D Certification and Safety activities provide underlying capabilities for R&D efforts at design laboratories and the Nevada Test Site (NTS). It includes stockpile studies and programmatic work that provide the necessary administrative or organizational infrastructure to support R&D activities. It also includes the experimental base program for plutonium and sub-critical experiments.

In FY 2008, activities include: performing surety studies to support NNSA/DoD safety assessments, which include providing technical advice/analyses and support to the Nuclear Weapons Safety Study Groups of the military services; providing the technical information and oversight for sub-critical experiments conducted at NTS; conducting plutonium experiments; providing the understanding and integration of DSW, Campaigns, and RTBF requirements are understood and integrated; supporting information technology development for archiving, data

	(Dollars in thousands)		
	FY 2006	FY 2007	FY 2008

management, and code management systems; conducting research on selected topics involving collateral effects that would result from the use of nuclear weapons; participating in cooperative research activities such as the joint munitions research program in accordance with DoD agreements; and supporting infrastructure activities that involve landlord responsibilities or capital equipment for R&D.

Congressionally Directed Activity	**[6,000]**	**[0]**	**[0]**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), provided $6,000,000 from within available funds in DSW Stockpile Services for LANL to conduct hydrodynamic testing to support the stockpile [non-add].

Congressionally Directed Activity	**[40,000]**	**[0]**	**[0]**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), provided $40,000,000 from within the funds provided in DSW Stockpile Services for the Nevada Test Site to maintain the subcritical experiment program including the Phoenix Explosive Pulse Program [non-add].

▪ **Management, Technology, and Production**	**158,489**	**159,662**	**205,576**

Management, Technology, and Production (MTP) activities are those activities that sustain and improve general stockpile management, develop and deliver weapon use control technologies for today's stockpile and for future RRW designs, and provide multi-use weapon component production. Additionally, MTP includes those activities that benefit the weapons complex mission as a whole, as opposed to Production Support activities that support internal site-specific production missions only.

In FY 2008, with the implementation of the revised work breakdown structure for Stockpile Services, MTP now includes most of those activities that were funded by R&D Support in FY 2007. Additionally, MTP will continue to implement new and improved 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: 1) implement the stockpile surveillance transformation program to identify and resolve surveillance issues; 2) implement and maintain Complex-wide integrated product-realization digital information systems for DSW through an Integrated Digital Enterprise (IDE) for design, engineering, manufacturing and quality control releases; 3) deploy new proven imbedded core surveillance diagnostics emerging from the Enhanced Surveillance Campaign; 4) maintain access to and archive technical knowledge, engineering practices, weapon design, safety, and operating procedure information; and, 5) support and conduct activities that deploy, maintain, and evaluate stockpile multi-use components, instrumentation, and ancillary equipment.

	FY 2006	FY 2007	FY 2008
Congressionally Directed Activity	**3,000**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), provided $3,000,000 above the request to conduct independent assessments of the safety of the stockpile and secure information exchange within the Complex.

▪ **Responsive Infrastructure**	**0**	**15,430**	**14,946**

Infrastructure is broadly defined to include the people, business practices, technical processes, equipment and facilities required to support the nuclear weapons stockpile. A responsive infrastructure supports stockpile objectives in a timely and sustainable manner. Since activities to achieve a more responsive infrastructure are cross-cutting, responsive infrastructure implementation is a strategy to be managed with detail tasks completed in existing line programs. The objective of strategy implementation activities is to ensure the NNSA infrastructure is responsive to the needs of the future nuclear weapons stockpile.

Responsive infrastructure implementation activities include planning, performance data collection, enterprise model development, and alternative business case evaluations to support major decisions affecting the nuclear weapons complex infrastructure. National Environmental Policy Act compliance processes are completed, as necessary, to support Complex 2030 decisions.

In FY 2008 activities include improving governance and business practices of an integrated/interdependent enterprise, supporting decision processes to right size the complex, and completing actions outlined in the Transformation Strategy Implementation Plan.

Total, Directed Stockpile Work	**1,372,327**	**1,410,268**	**1,447,236**

(Dollars in thousands)

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Life Extension Programs	
▪ **B61 Life Extension Program** This increase will support full-scale production in FY 2008. Production in FY 2007 did not reach maximum rates until January 2007, thus FY 2008 will be the first complete year of production at full rate.	+4,181
▪ **W76 Life Extension Program** This increase results in higher levels for production of refurbished W76s, which includes Kansas City Plant procured vendor supplied components, Kansas City Plant, Pantex and Y-12 production of capacity tooling, and all site production support to produce refurbishment components.	+23,887
▪ **W80 Life Extension Program** This decrease is a result of a coordinated DoD and NNSA stockpile requirements and workload prioritization decision to increase focus on Nuclear Weapons Complex and Stockpile Transformation. The LEP was terminated beginning in FY 2006 and program close-out activities completed in FY 2007.	-102,044
Total, Life Extension Programs	**-73,967**
Stockpile Systems	
▪ **B61 Stockpile Systems** This increase supports production of 1E34 detonators and initiation of design development efforts, which focus on use control, the radar fuse, and programmer replacement, to include digital system architecture for all mods of the B61.	+11,309
▪ **W62 Stockpile Systems** This decrease is the result of conducting only limited stockpile system activities to support annual assessment and SFI resolution.	-1,585
▪ **W76 Stockpile Systems** This increase is a result of an increase in the number of limited life component exchanges that occur in FY 2008 versus FY 2007. In addition, work scope and associated funding for W76 disassemblies transferred from the Weapons Dismantlement and Disposition category to more accurately align the type of work with the definitions of the funding categories.	+13,064

	FY 2008 vs. FY 2007 ($000)
▪ **W78 Stockpile Systems**	
This decrease is due to the completion of design work and FPU in FY 2007 of the LF7A and the MC4381 Neutron Generator. Additionally, there is a peak in the production requirement for detonator cables in FY 2007, falling off significantly in FY 2008.	-11,671
▪ **W80 Stockpile Systems**	
This increase supports the reinstatement of warhead D&I activities and a ramp up of surveillance to support elimination of backlog.	+5,142
▪ **B83 Stockpile Systems**	
This increase is the result of gas transfer and neutron generator replacement initiatives ramping up to support retrofit planning.	+1,647
▪ **W84 Stockpile Systems**	
This decrease reflects the completion of programmatic activities in FY 2007.	-1,465
▪ **W87 Stockpile Systems**	
This decrease reflects a reduction in component production and warheads rebuild activities.	-2,186
▪ **W88 Stockpile Systems**	
This increase supports restart of full-scale surveillance and certification activities; production and deployment of the 4T Reservoir; resolution of SFIs; and completion of SS-21 activities including new tooling, the Hazard Analysis Report, Nuclear Explosive Operating Procedures and safety studies.	+6,917
Total, Stockpile Systems	**+21,172**
Reliable Replacement Warhead	
The increase funds the startup of activities in support of a NWC decision to have RRW proceed to engineering and production development. Activities include design, engineering and certification work such as finalization of requirements, material studies, technology demonstrations, detailed design and concurrent engineering with the production plants, and modeling, simulation and analysis in support of certification without additional nuclear testing.	+61,062
Total, Reliable Replacement Warhead	**+61,062**

	FY 2008 vs. FY 2007 ($000)
Weapons Dismantlement and Disposition	
A decrease in the FY 2008 budget of $22,750,000 from the FY 2007 budget occurred because upfront costs associated with tooling procurement, procedures, Authorization Basis (AB) work, hiring of production technicians, and equipment purchases were initiated and/or completed. Examples include drum type refurbishments in support of increased dismantlements; horizontal shipping container support for the B83; equipment for Y-12's can and shearing operation; W80 AB documentation; B53 planning and, W62 tooling. In addition, work scope and associated funding for W76 disassemblies transferred to the stockpile systems category to more accurately align the type of work with the definitions of the funding categories.	**-22,750**
Stockpile Services	
▪ **Production Support**	
Within Stockpile Services, most adjustments reflect transfers of scope to better manage the program and to promote consistency and efficiencies within the newly established DSW work breakdown structure.	
The net increase in the Stockpile Services category is within Production Support. This increase is critical to meeting the increased workload associated with the production of components for two simultaneous LEPs. Moreover, this increase supports the realignment into Stockpile Services Production Support of those activities formerly within LEPs and Stockpile Systems that are more appropriately associated with internal site-specific production missions. Additionally, the increase allows for the completion of deferred repairs of broken tooling and test equipment that occurred within the last two years. Completion of these repairs is vital to maintaining the throughput of the production sites in order to meet DoD commitments. Another area supported by increased funding is associated with the modernization of the production plant capabilities to achieve more agile manufacturing that is consistent with the Complex 2030 goals.	+48,864
▪ **Research & Development Support**	
This decrease supports the realignment of Stockpile Services activities to be more consistent with the newly established WBS. The majority of the scope and funding now resides in the MTP category. Additional adjustments include archiving; realigning baseline funding to the specific Stockpile Systems; and realigning specific warhead Hydrodynamic testing to the specific Stockpile System or LEP. Funding from R&D Certification and Safety for Hydrodynamic test program infrastructure offset these reductions.	-30,619

	FY 2008 vs. FY 2007 ($000)
▪ **Research & Development Certification and Safety**	
This decrease supports the realignment of Stockpile Services activities to be more consistent with the newly established WBS. This included realigning Hydrodynamic test program infrastructure into R&D Support.	-12,215
▪ **Management, Technology, and Production**	
This increase supports the realignment of most of the activities previously funded under R&D Support into this category. With this rearrangement, the MTP planning, budgeting and execution approach among all sites is consistent with the newly established FY 2008 DSW Work Breakdown Structure and activities are organized and managed according to accepted Complex-wide project management principles.	+45,914
▪ **Responsive Infrastructure (RI)**	
This decrease is manageable within the program, and the activity is essentially level.	-484
Total, Stockpile Services	**+51,460**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	6,475	6,669	6,869
Capital Equipment	18,816	19,380	19,961
Total, Capital Operating Expenses	**25,291**	**26,049**	**26,830**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	7,075	7,287	7,506	7,731
Capital Equipment	20,560	21,177	21,812	22,466
Total, Capital Operating Expenses	**27,635**	**28,464**	**29,318**	**30,197**

[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 2007 and FY 2008 funding shown reflects estimates based on projected FY 2006 obligations.

Science Campaign

Funding Schedule by Activity

(dollars in thousands)	FY 2006	FY 2007	FY 2008
Science Campaign			
Primary Assessment Technologies	49,221	50,527	63,527
Test Readiness	19,800	14,757	0
Dynamic Materials Properties	83,055	80,727	98,014
Advanced Radiography	49,025	36,745	30,995
Secondary Assessment Technologies	75,569	81,006	80,539
Total, Science Campaign	**276,670**	**263,762**	**273,075**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)	FY 2009	FY 2010	FY 2011	FY 2012
Science Campaign				
Primary Assessment Technologies	59,496	55,884	57,228	58,284
Test Readiness	11,066	11,066	11,066	11,066
Dynamic Materials Properties	93,496	91,754	89,362	91,139
Advanced Radiography	32,311	33,728	32,414	32,968
Secondary Assessment Technologies	86,372	83,190	80,320	82,169
Total, Science Campaign	**282,741**	**275,622**	**270,390**	**275,626**

Mission

The goal of the Science Campaign is to develop improved capabilities to assess the safety, reliability, and performance of the nuclear package portion of weapons without further underground testing; retain readiness to conduct underground nuclear testing if directed by the President; and develop essential scientific capabilities and infrastructure.

This includes providing capabilities to support annual assessment and certification of Life Extension Programs, to support planned Reliable Replacement Warhead (RRW) designs, to improve response times for resolving significant findings, and for certifying warhead replacement components that meet the goals of responsive infrastructure. The Campaign is focused on delivering significantly improved predictive capability and tools to allow the nuclear weapons complex to increase our confidence in the assessment of the safety, security, reliability, and performance of the evolving U.S. stockpile. As a part of this, the Science Campaign is principally responsible for the development of Quantification of Margins and Uncertainties (QMU), which is the methodology that applies scientific capabilities to stockpile assessment issues, and to communicate assessments in a common framework. The Campaign focuses efforts around the development of knowledge and capabilities needed to assess the age-aware behavior of the primary and secondary components of the nuclear explosives package. The development of a more responsive infrastructure of the nuclear weapons complex in 2030 must be driven by improvement of the science and technology base to continually address and reduce the uncertainties and provide an objective quantitative measure of confidence. As the U. S. stockpile continues to evolve due to aging, modifications from lifetime extensions, and the development of the RRW, the assessment of these weapon systems increasingly relies on our ability to assess the weapon performance using predictive capabilities that are developed and validated by the Science Campaign. The responsive infrastructure of Complex 2030 requires an agile workforce knowledgeable enough to avoid technological surprise, and to quickly understand and respond to new threats, an agility only allowed by continued support of weapons science. The transformation of the nuclear weapons complex to a highly responsive infrastructure can only be successful with continual improvements in predictive capability, and support for greater science-based understanding as done in the Science Campaign.

The advent of new Stewardship capabilities and processes provides opportunity to improve predictions of nuclear warhead performance. A new basis for planning and expected resolution of stockpile issues are a consequence of the following recent progress: application of Quantification of Margins and Uncertainty (QMU) in warhead assessments, the plutonium aging study (including extensive reanalysis of selected underground tests), delivery of greater than 100 teraflop computing power and its application in the Thermonuclear Burn Initiative, certification work for the W88 with replacement pit, more advanced radiography (DARHT), advances in high energy density physics (Omega, Z, petawatt lasers, and NIF) with expectation of fusion ignition, subcritical experiments on dynamic plutonium behavior, and design of Reliable Replacement Warheads. An important new round of experiments and computational simulations can now be planned with the Predictive Capability Framework. Particular focus will be given to the boost process and improving confidence in certification without nuclear tests. The plutonium dynamic experiments and boost emphasis will be integrated within the Science campaign while continuing to use information from all of the sources mentioned above.

The Science Campaign provides experimental data to validate the models in the simulation codes, and methodologies to apply the codes. These data and methodologies lend confidence to calculations performed to meet Directed Stockpile Work (DSW) commitments to understand the impact of aging on weapon systems, close Significant Finding Investigations (SFIs), and certify refurbished devices.
The pace of work under the Science Campaign is timed to support an Advanced Simulation and Computing (ASC) Campaign milestone in FY 2010 to release substantially improved simulation codes for primaries and secondaries in support of the RRW and other certification requirements in the 2012 time frame. This shared code release will require the incorporation of improved physics models, which must be provided by FY 2009, including validated models for plutonium equation of state (EOS) and constitutive properties, improved boost physics models, completion of the Dual Axis Radiographic Hydrodynamic Test (DARHT) Facility 2nd axis as a validation tool, and the use of the High Energy Density Physics (HEDP) facilities.

The scientific advisory group, the JASONs, recently concluded a review of the progress on the second axis of the DARHT facility at Los Alamos National Laboratory. They concluded there are sound technical bases for the approaches being taken by the project. "The DARHT group is pursuing a well thought out program of fixes and testing." They have "high confidence" that the current baseline approach ... will deliver two x-ray pulses, but lower confidence that all four x-ray pulses will meet requirements. Promising approaches exist for a more capable target design, but will require further experimentation and development.

NNSA and the Office of Science plan to establish a joint program in high energy density laboratory plasmas (HEDLP), a major sub-area within the discipline of high energy density physics (HEDP), by the spring of 2007. The purpose of the joint program is to steward effectively HEDLP within the DOE while maintaining the interdisciplinary nature of this area of science. The HEDLP program will be jointly funded by the Office of Science and NNSA. The Science Campaign will be responsible for part of this funding through the high energy density physics parts of the Academic alliance program supported from the Dynamic Material Properties

Four important budgetary changes should be noted. First, as the Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign is being restructured to focus on FY 2010 ignition goals, and as a result of this joint program, the FY 2008 budget for the Science Campaign reflects the shift of important HEDP workscope out of the ICF Campaign to the Science Campaign, particularly for Primary Assessment Technologies, Secondary Assessment Technologies and Dynamic Materials Properties. NNSA's planned contribution for FY 2008 totals $12,356,000 and is included in the ICF and Science Campaigns. The FY 2008 budget further extends this increase to include funding supporting experiments on the refurbished Z (ZR) facility at Sandia National Laboratory to support dynamic materials and secondary assessment technologies. Second, the funding for the Pulse Power Technologies Program, previously provided under Secondary Assessment Technologies, was shifted in the FY 2007 budget to the Transformational Assessment Technologies activity within the Advanced Radiography subprogram, reflecting how the capability is employed for transforming the way we address stockpile certification issues to be responsive to the NNSA vision for the 2030 complex. Among other things, the Pulsed Power Technologies Program supports the optimization of the performance of the new ZR. Third, as the DARHT 2nd axis project is completed, resources within the Science Campaign are redirected to experimental programs under the Transformational Assessment Technologies subprogram to make use of new capabilities that are coming on line, including DARHT, proton radiography (PRad) at LANSCE, ZR, OMEGA Extended Performance (EP) Facility, and, ultimately, the National Ignition Facility (NIF). Fourth, Test Readiness, having achieved a 24-month goal, will be studied in FY 2007 to define a sustainable posture that enables the Nevada Test Site to field a nuclear test, if directed by the President. Current diagnostic capabilities will be maintained through efforts in the Science Campaign as well as other portions of the budget. As a result, no funds specifically for Test Readiness are requested for FY 2008, while a more forward looking program is planned.

The Science Campaign is the principal mechanism for supporting the science required to maintain the technical vitality of the national nuclear weapons laboratories, to enable them to respond to emerging national security needs, and to maintain a technological edge to prevent a national security surprise. As such, the campaign also develops and maintains the scientific infrastructure of the three national nuclear weapons laboratories and maintains a set of academic alliances to help ensure scientific vitality in important and unique fields of research. The Science Campaign also is contributing to readiness to conduct underground nuclear testing as directed by the President through the fielding of experiments and diagnostics at Nevada and at the laboratories.

The Science Campaign integrates budget and performance by setting Campaign performance targets and Level 1 (national level) milestones for primary and secondary certification that reflect national program priorities. As experience is gained in the application of the QMU methodology and as QMU is further refined, the results are increasingly being used to identify technical areas requiring improvement and to develop Level 2 (program) milestones to prioritize resources. Program success is determined by the extent to which improved understanding of important phenomena provides confidence that failure modes and margins are properly identified and the extent to which uncertainties are understood and reduced in predictive capabilities.

The Science Campaign supports activities related to science endeavors by other national and international sponsors; including for example, materials science at LANSCE and high energy density physics. During FY 2008, the Science Campaign will examine enhanced and additional collaborations that can provide improved capability to analyze and resolve stockpile issues in the future. As an example, application of the Lineral Coherent Light Source (Office of Science) for stockpile relevant science will be studied. This approach can extend responsive science capability without major new facilities.

Benefits

Within the Science Campaign, the Primary Assessment Technologies, Dynamic Material Properties, Advanced Radiography, and Secondary Assessment Technologies subprograms each make unique contributions to GPRA Unit Program Goal 2.1.27. In conjunction with the Advanced Simulations & Computing (ASC) Campaign, the Primary Assessment Technologies subprogram 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. It also funds university programs that support science fundamental to stockpile stewardship and develops potential future laboratory employees. The Advanced Radiography subprogram develops technologies for three-dimensional imagery of imploding mock primaries with sufficient spatial and temporal resolution to experimentally validate computer simulations of the implosion process as well 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.

Major FY 2006 Achievements

Primary and Secondary Physics

- Completed the joint Primary Assessment Plan in November 2005; this plan integrates aspects that relate to understanding primary physics issues out to FY2020.
- Successfully executed Phoenix experiments EMPT-1 and FFT-1, providing data on the generator and load in support of technology development for planned FY 2007 experiments.
- Completed an assessment of plutonium aging in pits.
- Delivered a summary report of Underground Test (UGT) data analyses and system specific pit lifetime estimates.
- Provided initial data set from mix experiments on the proton radiography (PRad) facility at LANSCE.
- Produced a report containing data for development of physical model of ejecta formation and transport.
- Demonstrated use of probabilistic tools and methods to combine sources of uncertainty for primary performance assessment.
- Delivered a complex-wide (LLNL, LANL, Nevada, SNL, and UR/LLE) National Calibration Plan focusing on a coordinated diagnostics calibration plan in support of HEDP aboveground experiments (AGEX).
- Completed reanalysis of multiple underground tests with good quantitative data relevant to weapons output.

- Conducted over 200 HEDP AGEX experiments on OMEGA and Z to address materials properties, energy balance, complex hydrodynamics, diagnostics and experimental platform development, and other relevant weapons physics topics.
- Applied the QMU methodology to quantify the performance of several weapons systems.

Advanced Radiography and Test Readiness
- Provided suite of polymer and foam data.
- Qualified replacement PBX 9501 explosive; will be used for W76 LEP.
- Provided new Pu data supporting lifetime assessments and multi-phase Equation-of-State (EOS).
- Completed Damaged Surface Hydro experiment series on Atlas.
- Completed first LANL Joint Actinide Shock Physics Experimental Research (JASPER) experiment with Pu.
- Conducted First tests of Plutonium on the SNL Z Facility.
- Completed high explosive (HE) pre-shock experiments on U.
- Demonstrated utility of the Z Facility for off -Hugoniot and dynamic phase measurements.
- Completed 1% accurate density measurement and first damage measurement on PRad powder gun.
- Measured the age-dependent compressibility changes in Pu using JASPER and Diamond Anvil Cell (DAC) experiments data.
- Developed a test-bed for absolute EOS experiments at the OMEGA laser facility using radiography and measured the EOS of plastic.
- Measured the beryllium melt and phase diagram to a pressure of 70 gigapascals.
- Characterized damaged stockpile explosives for hazards response modeling- gas permeation, surface area changes, and high-pressure deflagration behavior.
- Completed a milestone on the measurement of strength using isentropic compression loading and unloading in high impedance materials.
- Brought a small cost effective isentropic compression pulser facility online at the few hundred kilobars, and developed uniform drive sources with it.
- Validated two-dimensional Magneto hydrodynamic (MHD) modeling for isentropic compression and magnetic flyers and have developed the initial pulse shapes for ZR using the latest circuit models provided by the pulsed power technology program.
- Supported 43 stockpile stewardship academic alliance grants, three congressionally mandated cooperative agreements, and five university centers of excellence nationwide, training post-doctoral fellows and graduate students in technical areas of relevance to stockpile stewardship.
- Continued DARHT second axis recovery on-schedule and on budget.
- Completed preliminary LLNL hardware testing and training of LANL personnel and helped to install all downstream beamline hardware on DARHT second axis.
- Developed a Solid State Pulsed Light Source for PRad at LANSCE.
- Completed Annual Assessment Report on Underground Nuclear Test Readiness.
- Declared achievement of the goal of 24-month test readiness.

Major Outyear Priorities and Assumptions

The outyear projections for Science Campaign total $1,104,379,000 for FY 2009 through FY 2012, which reflects an increase in FY 2009 due to the resumption of funding to maintain Test Readiness. During the period FY 2009-2012, the Science Campaign will endeavor to make significant progress toward providing the experimental data and certification methodologies necessary to support the current stockpile workload and future requirements that will include the Reliable Replacement Warhead. The science campaign is a major contributor to the physical understanding necessary for QMU. In order to achieve this challenging goal, a balanced weapon science program is necessary that integrates the products of the Science Campaign with the simulation capabilities developed in the Advanced Simulation and Computing Campaign and the experimental tools developed in the NIF and ICF campaign. The advanced radiography sub-campaign will complete DARHT in FY 2008. Subsequent diagnostic and radiographic development will be conducted across the science campaign as necessary and appropriate.

The science campaign is planning future integrated activities to answer key questions on time scales consistent with complex transformation. In the 2009-2012 period in addition to the normal operations we expect to have to address the following high-level issues that may affect the prioritization of the budget: LANSCE refurbishment, DYNEX (scheduled for 2010), subcritical experiments at U1A (schedule and planning in development), JASPER and other operations at NTS, maintenance of test readiness as directed by Congress, and activities subject to the Complex 2030 planning and execution such as: high explosives research across the complex, Pu activities in Superblock at LLNL, and the balance of research and manufacturing activities at TA-55.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The Science Campaign program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2007 Budget Request. The OMB gave the Science Campaign scores of 100 percent on the Program Purpose and Design Section, 91 percent on the Strategic Planning Section, 83 percent on the Program Management Section, and 72 percent on the Program Results and Accountability Section. Overall, the OMB rated the Science Campaign 82 percent, its second highest rating of "Moderately Effective." The OMB assessment found that the program appears to be well managed, with a clear and unique purpose and clear, meaningful, and measurable performance metrics that the program was demonstrating good progress in meeting. Additionally, the OMB assessment found that the program needs to continue to strengthen procedures to hold its contractors accountable for cost, schedule, and results. The OMB also found that NNSA should improve coordination of activities across multiple programs aimed at nuclear weapons activities—especially the six campaigns. In response to the OMB findings, the NNSA is continuing to improve contractor accountability by expanding the linkage of contractor awards to performance results/evaluation and improving communication and coordination of work across all Weapons Activities programs.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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: 10% T: 10%	R: 25% T: 25%	R: 40% T: 40%	T: 55%	T: 70%	T: 85%	T: 100%	N/A	N/A	By 2010, complete development of QMU methodology to apply quantitative measures of confidence in the performance, safety, and reliability of the nuclear weapons stockpile.
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: 16% T: 16%	R: 25% T: 25%	R: 70% T: 60%	T: 80%	T: 100%	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: 30 T: 30	R: 24 T: 24	R: 24 T: 24	T: 24	T: 24	T: 24	T: 24	T: 24	T: 24	By 2005, achieve a 24-month underground nuclear test readiness (2003 baseline of 36-month).
Annual percentage of hydrodynamic tests completed in accordance with the National Hydrodynamics Plan, to support the assessment of nuclear performance (Annual Output)	R: 60% T: Baseline	R: 75% T: 75%	R: 75% T: 75%	T: 75%	T: 75%	T: 75%	T: 75%	T: 75%	T: 75%	Annually, complete at least 75% of all scheduled hydrodynamic tests in accordance with the National Hydrodynamics Plan.

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Cumulative percentage of progress towards creating and measuring extreme temperature and pressure conditions for the 2013 stockpile stewardship requirement (Long-term Outcome)*	R: 62% T: 63%	R: 68% T: 68%	R: 70% T: 70%	T: 70%	T: 75%	T: 80%	T: 85%	T: 90%	T: 95%	By 2013, create and measure extreme conditions so High Energy Density Physics facilities can be used to provide stockpile stewardship data.
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)	R: Baseline T: Baseline	R: $405K T: $405K	R: $380K T: $380K	T: $360K	T: $340K	T: $340K	T: $340K	T: $340K	T: $340K	By 2008, reduce the annual average cost of obtaining plutonium experimental data on JASPER to $340K (80% of the 2004 baseline cost of $425K).

* Indicator and targets transferred from ICF Campaign in 2005, effective in 2006.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Primary Assessment Technologies	**49,221**	**50,527**	**63,527**

The Primary Assessment Technologies subprogram is responsible for the development and implementation of the QMU methodology for primaries and provides the experimental capabilities to support, along with ASC, the development of analytic tools and methodologies required to certify the nuclear safety and performance of current as well as any aged or rebuilt primary without nuclear testing. Key milestones include the release of validated models to support an FY 2010 ASC code release for future certification including support of RRW activities, and subsequent assessment of the ability of that code release to predict integrated behavior of nuclear primaries. Improved materials and high explosives burn models are being integrated into codes in FY 2007 and feedback from this effort will be used to design new experiments in FY 2008. The increase in FY 2008 reflects the funding and responsibility shift in High Energy Density (HED) Experiments in support of primary certification from the Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign to this subprogram. A principal source of uncertainty in current codes is the modeling of boost physics. Approximately one half of the effort of this campaign is devoted to experimental efforts to improve these models. These experimental efforts include efforts to establish initial conditions for boost through integrated experiments including sub-critical experiments and hydrotests, as well as experiments to investigate the boosting process itself. The HED facilities will continue to be used in FY 2008 to measure weapon-relevant material properties, including equation-of-state (EOS). Ultimately this effort will depend critically upon NIF experiments as the only way, without nuclear testing, to gain access to conditions relevant to thermonuclear ignition important for understanding the boost process. This subprogram will develop methods to use ignition to evaluate specific primary physics phenomena and to apply conditions achievable only at NIF for assessing related primary materials behavior. Establishing the predictive uncertainties of improved ASC codes will also rely upon the re-analysis of historical nuclear test data and development of an accessible archive of information relevant to the certification of primaries. While this is an invaluable source of information, recent experience has demonstrated that thorough re-analysis of archived raw data, using modern interpretive models, codes and methods, is often required to extract the best value from this data. This work will be essential for the validation of new ASC codes in the FY 2011- 2012 time frame to support RRW certification. This work also supports the FY 2007 milestones for assessment of the W76 and W88. Experimental work in this campaign will continue to address areas such as plutonium behavior in integrated experiments under extreme conditions, interface physics, and transport models. This will require intermediate scale and large-scale sub-critical experiments, hydrotests, proton radiography experiments and sub-critical experiments at U1A. Work will also be done using gas gun experiments executed at the JASPER as well as development of the Phoenix experiment to be fielded at the Nevada Test Site (NTS) in FY 2008 to provide high-pressure plutonium data.

Test Readiness	**19,800**	**14,757**	**0**

Test Readiness maintains underground nuclear test unique capabilities that are not supported in other stockpile stewardship programs. Funds in test readiness support and train critical personnel, acquire and maintain test-specific equipment, and maintain critical infrastructure in a state of readiness adequate to prepare and execute an underground nuclear test on a timescale established by national policy, which under current law (P.L. 107-314) is 18 months but which has thus far been limited to 24 months by Congressional appropriation. In FY 2007, the Test Readiness program will be reviewed,

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

and new approaches to test readiness will be examined. Test Readiness has been zeroed in FY 2008 and funding will resume in FY 2009.

Dynamic Materials Properties	**76,055**	**74,727**	**98,014**

Models of materials behavior under the extreme conditions of implosion and nuclear explosion of a weapon are a principal source of uncertainty in simulations of nuclear weapon performance and safety. Therefore, a principal goal of this subprogram is, in coordination with ASC, to provide experimental data to support the development of improved models of materials for nuclear weapons primaries and secondaries. This effort is critical to meeting the FY 2009 and beyond requirement for improved materials models for incorporation into ASC codes. The largest component of this effort is the execution of the dynamic plutonium strategy to provide improved models for EOS and constitutive properties. This involves experiments on plutonium and surrogates at the JASPER and TA-55 gas guns, refurbished Z Facility (ZR), Los Alamos Neutron Science Center (LANSCE) and sub-critical experiments at U1A. The subprogram also supports high-pressure material property experiments at synchrotron light sources. Ongoing EOS work will also continue for uranium, plutonium surrogates, polymers and foams. In FY 2007 this subprogram will deliver a preliminary set of experimental data for plutonium, within defined pressure/temperature regimes and with quantified uncertainties, required for the development and validation of, static and dynamic multiphase EOS as the basis for certification. It will also provide experimental data to support the development of a validated 3D description of the constitutive properties of plutonium and it will contribute fundamental data to the integrated effort to help understand the effect of aging on the EOS of plutonium. In addition, large-scale lasers will continue to enable investigations of the dynamic response of materials under ultra-high-pressure conditions and shock loading. In support of responsive infrastructure goals, the campaign will continue work designing and performing dynamic testing of new candidate case materials that will reduce costs and be more easily and rapidly manufactured than current materials.

Another focus of responsive infrastructure is to move toward the use of insensitive high explosives, requiring more detailed understanding of its properties and response. The Dynamic Materials Properties subprogram will increase the emphasis on experiments to provide data on the properties of insensitive high explosive including equation of state and constitutive properties.

In FY 2008, Dynamic Materials Properties will be picking up $5 million in scope from ICF (support of stockpile programs in the ICF campaign) to support operations on ZR. This is driven by recognition of the valuable high strain rate experiments that can now be conducted on ZR.

The Dynamic Materials Properties subprogram is, with ICF, the source of support for the Stockpile Stewardship Academic Alliances program to fund academic centers of excellence in materials, low-energy nuclear science and high-energy density physics as well as providing competitively awarded individual investigator grants in scientific disciplines of benefit to the long term health of stockpile stewardship. In FY 2007, a new program solicitation and selection process will be completed to complement and/or continue the present agreements and the selected proposals will be funded in FY 2008. This program helps ensure the scientific vitality of our laboratories in the future across the spectrum of scientific and national security missions. In FY 2008 and beyond, the high energy density physics portion of the Stockpile Stewardship Academic Alliances Program will be coordinated via the new NNSA/Office of Science Joint Program in Laboratory High Energy Density Plasmas.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Congressionally Directed Activity	**3,000**	**3,000**	**0**

The Conference earmarked $3 million for the University of Nevada Las Vegas for Cooperative Agreements funded within Dynamic Materials Properties Program.

Congressionally Directed Activity	**3,000**	**3,000**	**0**

The Conference earmarked $3 million for the University of Nevada Reno for Cooperative Agreements funded within Dynamic Materials Properties Program.

Congressionally Directed Activity	**1,000**	**0**	**0**

The Conference added funds for Dynamic Materials for laser upgrade at the Idaho Accelerator Center funded within Dynamic Materials Properties Program.

Advanced Radiography	**49,025**	**36,745**	**30,995**

The goal of the Advanced Radiography subprogram is to develop improved hydrotest and radiographic capabilities to infer the integral performance of a nuclear weapon during the primary implosion phase in order to assure the continuing reliability and safety of the stockpile. These facilities will be key to analyzing system modifications to improve safety and surety upgrades to weapons systems and to ensuring the nuclear performance of aged, modified or replacement systems.

DARHT subprogram is focused on completing the recovery and commissioning of the 2nd axis of the DARHT facility at Los Alamos National Laboratory by mid 2008. By the end of FY 2007, all cell refurbishment and installation work will have been completed and commissioning activities will be well underway. The project expects to complete final commissioning and demonstration of 2-axis multi-time hydrotesting in FY 2008, at which time the project will be closed out. Hence, after the completion of the 2nd axis of DARHT, the effort in this subprogram will end.

Funding for other activities at NTS, LANL, and LLNL (Site 300) will be managed under the Transformational Assessment Technologies activity.

In FY 2008, this activity will include development of new innovative-pulsed power technology, which enables smaller, more efficient x-ray sources, and unique diagnostics for radiography. Advances in capabilities and diagnostics at the Nevada Test Site to support sub-critical experiments are also being conducted within this activity. While the DARHT facility is, and will remain, the nation’s premier radiographic hydrotest facility for the future, in FY 2008, the LLNL Contained Firing Facility (CFF)/Flash X-ray Accelerator will be used to provide needed hydrotest capacity in supporting the requirements of the national hydrotest plan.

Secondary Assessment Technologies	**75,569**	**81,006**	**80,539**

The goal of the Secondary Assessment Technologies subprogram is to advance secondary assessment through development and implementation of QMU. LANL and LLNL will develop modern tools and analysis needed to identify and delineate failure modes, performance gates, and margins that are relevant to stockpile systems. This subprogram takes advantage of the past UGT data, and conducts and utilizes a variety of above ground experiments to develop new data and physical models needed to increase and ensure the accuracy of the simulations. The key elements in this subprogram are: primary output, initial case dynamics, radiation flow, hydrodynamics, and overall weapon outputs and effectiveness. Specific research directions are based on highest impact to bounding the uncertainties in

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

current and emerging stockpile issues. The approach is to focus efforts on physics and computational issues relevant to each uncertainty to the accuracy required for the stockpile weapon systems. The subprogram performs and analyzes explosively-driven hydrodynamic, and HED above ground experiments on ICF facilities, in addition to using nuclear test data to validate and improve the models and processes used in modern 2 and 3-dimensional design codes. Increasingly, experiments on HED facilities, including the Z Facility at SNL, the OMEGA laser at the University of Rochester, and the NIF at LLNL are used to obtain the data needed at the extreme conditions relevant to the goals of the subprogram. In FY 2008, this subprogram will fund work that was formerly funded under the ICF Campaign, to perform experiments on the Z facility to develop capability and to explore high energy density conditions relevant to secondary physics uncertainties. FY 2008 specific work will include completion of calculations relevant to energy balance uncertainties and increase emphasis on examination of secondary implosion uncertainties using HED facilities. In FY 2008, this subprogram will also develop the capabilities to field specific experimental platforms on Inertial Confinement Fusion facilities for stockpile stewardship. In FY 2008, the funding for the Pulse Power Technologies Program is moved from this subprogram to the Transformational Assessment Technologies activity within the Advanced Radiography subprogram.

Congressionally Directed Activity	**[15,000]**	**[0]**	**[0]**

The Conference added funds for Secondary Assessment Technologies for LANL to restore high-energy density experimental capabilities funded within Dynamic Materials Properties Program [non-add].

Total, Science Campaign	**276,670**	**263,762**	**273,075**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Primary Assessment Technologies	
This increase reflects the funding and responsibility shift in HED Experiments in support of primary certification from ICF to this subprogram due to the focus on ignition within ICF. Also, we will be further leveraging this subprogram to maintain some of the Test Readiness activities.	**+13,000**
Test Readiness	
Funding for Test Readiness has been included in other Science Campaign efforts in FY 2008 pending an FY 2007 study to define a sustainable posture that enables the Nevada Test Site to field a nuclear test within 24 months or less if directed by the President.	**-14,757**
Dynamic Materials Properties	
This increase reflects the incorporation of SNL Z facility experiments, and Advanced Radiography objectives funding into this subprogram. Additional resources are being applied to accelerate plutonium science as an outcome of the predictive capabilities framework, the JASON pit lifetime review, and the boost initiative.	**+17,287**
Advanced Radiography	
This decrease reflects a drawdown in effort as DARHT 2nd axis project activities approach completion. Resources were added as pulsed power research was moved from Secondary Assessment Technologies to the program element for better alignment.	**-5,750**
Secondary Assessment Technologies	
This decrease reflects the shift of funding for advanced pulsed power technologies is transferred to the Transformational Assessment Technologies activity within the Advanced Radiography subprogram.	**-467**
Total Funding Change, Science Campaign	**+9,313**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
General Plant Projects	1,307	1,346	1,386
Capital Equipment	15,333	15,793	16,267
Total, Capital Operating Expenses	**16,640**	**17,139**	**17,653**

Outyear Capital Operating Expenses

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	1,428	1,471	1,515	1,560
Capital Equipment	16,755	17,258	17,776	18,309
Capital Operating Expenses	**18,183**	**18,729**	**19,291**	**19,869**

[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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

Dual-Axis Radiographic Hydrotest (DARHT) Second (2nd) Axis Recovery and Commissioning Project, Los Alamos National Laboratory (LANL)[a]

1. Significant Changes

- None.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start (Cell Redesign Initiated)	Final Design Complete (Cell Redesign Completed)	Physical Construction Start (Cell Refurbishment Start)	Physical Construction Complete (Commissioning Complete)	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2006	2QFY2004	3QFY2005	3QFY2005	2QFY2008	N/A	N/A
FY 2007	2QFY2004	3QFY2005	3QFY2005	2QFY2008	N/A	N/A
FY 2008	2QFY2004	3QFY2005	3QFY2005	2QFY2008	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2006	59,050	28,400	N/A	87,450	89,800[b]	87,450
FY 2007	60,953	28,847	N/A	89,800	89,800	N/A
FY 2008	60,953	28,847	N/A	89,800	89,800	N/A

4. Project Description, Justification, and Scope

Project Description

The DARHT 2nd Axis Refurbishment and Commissioning Project is an expense-funded project within the Advanced Radiography subprogram of the Science Campaign. This project will re-design and refurbish the DARHT II accelerator and injector cells to correct high-voltage breakdown problems that prevent proper operation of the accelerator and will further complete accelerator commissioning activities required to bring DARHT II on-line to support the National Hydrotest Program. The commissioning activities that had already been budgeted within the Advanced Radiography subprogram as part of ongoing programmatic work are re-integrated into the scope of this project.

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this on-going construction project may be impacted. Cost and schedule impacts to this project will be determine after passage of an appropriation.

[b] The project performance baseline was validated in 1Q FY 2006.

Justification

DARHT was a line item construction project that was closed out in FY 2003 after completing the established acceptance criteria in December 2002 to meet the Critical Decision CD-4 (Project Completion) requirement. The National Nuclear Security Agency (NNSA) received authorization and appropriations to complete the commissioning of the accelerator within the Advanced Radiography subprogram of the Science Campaign. In April 2003, during the commissioning of the DARHT 2 axis accelerator (DARHT II), LANL observed high voltage breakdown in several of the accelerator cells while attempting to raise the cell operating voltages to attain beam energy of 18.1 MeV. LANL spent the remainder of FY 2003 investigating the sources of the breakdowns and establishing a preliminary proposal for technical solutions to correct the problems. NNSA conducted an external review of the DARHT 2nd axis status in December 2003, which established that the most feasible technical path was a proposal to modify each of the individual cells so that the accelerator would achieve as nearly as possible the original design specifications. Given the nature of the problem and the requirements of the Hydrotest Program, no lower cost options were found to be feasible. This project is funded from Operating and Maintenance funds instead of Capital funds due to the research and development (R&D) component required to complete this refurbishment and commissioning effort.

NNSA has continued to review the requirements for hydrotesting both as a whole and for individual weapons systems and has reaffirmed the requirement for a 2-axis multi-time radiographic capability for weapons certification, and as a technique to reduce risks and uncertainties in the understanding of the performance of weapons systems in the stockpile.

Scope

The project consists of a focused accelerator research and development project OPC performed in parallel with a capital improvement project TEC to refurbish the cells. The research and development (R&D) effort has been focused on the re-design and testing of proposed modifications to the DARHT II accelerator and injector cells to correct the high-voltage breakdown problems.

After the cell redesign was completed and certified by an external review, NNSA commenced a formal improvement project (upon approval of Critical Decision 1/2a/3a) to refurbish and reinstall the accelerator and injector cells.

In order to assure successful commissioning, the project will perform additional R&D work on beam transport modeling as well as modeling of the accelerator and downstream transport systems, which included tests on the Experimental Test Accelerator (ETA-II) at Lawrence Livermore National Laboratory (LLNL) in preparation for the scaled-accelerator validation tests. These efforts are budgeted as other project costs.. In parallel with the refurbishment effort, the project conducted beam stability and scaled accelerator testing at DARHT II, initially with un-refurbished cells and later with refurbished cells. This testing along with the full energy commissioning effort is budgeted as TEC.

Once the cell refurbishment has been completed, the project will conduct a DARHT accelerator Management Self Assessment (MSA), perform an Accelerator Readiness Review, and perform full scale accelerator commissioning. At project completion, the DARHT 2^{d} axis will be ready for integration into the DARHT facility to support the National Hydrotest Program.

The Total Project Costs include the R&D and commissioning efforts as well as the cell refurbishment effort.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Project Management for the Acquisition of Capital Assets.

Compliance with Project Management Order:

- Critical Decision–0: Approve Mission Need – 1Q FY 2005
- Critical Decision–1: Approve Baseline Range – 3Q FY 2005
- Critical Decision–2A/3A: Equipment procurement, begin refurbishment of 26 – 3Q FY 2005
- Accelerator cells in support of the scaled accelerator testing
- Critical Decision–2/3: Approve Performance Baseline, start refurbishment of the remainder of the cells – 1Q FY 2006
- Critical Decision–4A: Beam accelerated to shuttle dump – 4Q FY 2007
- Critical Decision–4B: Multi-pulse capability – 3Q FY 2008

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Operating Expense Funded by Fiscal Year			
Cell Refurbishment/Commissioning			
2004	21,400	21,400	21,400
2005	19,975	19,975	19,975
2006	26,250	26,250	22,907
2007	17,670	17,670	21,013
2008	4,505	4,505	4,505
Total TEC	89,800	89,800	89,800

6. Details of Project Cost Estimate
Total Estimated Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Preliminary and Final Design	0	0
Construction Phase		
Site Preparation	0	0
Equipment	51,653	51,653
All other construction	0	0
Contingency	9,300	9,300
Total, Construction	60,953	60,953
Total, TEC	60,953	60,953

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	0	0
R&D Related to Cell Refurbishment	21,765	21,765
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with “one-for-one” requirements	0	0
D&D contingency	0	0
Total, D&D	0	0
Contingency for OPC other than D&D	7,082	7,082
Total, OPC	28,847	28,847

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design)	0	0	0	0	0	0	0	0
TEC (Cell Refurbishment Commissioning)	57,328	3,625	0	0	0	0	0	60,953
OPC Other than D&D	27,967	880	0	0	0	0	0	28,847
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	85,295	4,505	0	0	0	0	0	89,800

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	3Q FY 2008
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)......	4Q FY 2038

(Related Funding requirements)*

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

* Annual facility operating costs associated with this project are funded in RTBF Operations of Facilities.

9. Required D&D Information

N/A

10. Acquisition Approach

NNSA is managing the DARHT II Refurbishment and Commissioning Project as a formal project under DOE O 413.3. LANL will be responsible for the management and the execution of the project in collaboration with LLNL, and Lawrence Berkeley National Laboratory (LBNL). NNSA has established its own external review committee, which will review the project prior to approving critical decisions. Particular emphasis is being placed on establishing formal acceptance criteria and establishing a rigorous Quality Assurance Program prior to commencement of cell refurbishment. LANL and LBNL staff performed cell acceptance and component testing to confirm the performance of the redesigned cells. LANL technical staff and on-site contractors will perform the actual modifications to the DARHT accelerator and injector cells including the removal and re-installation of the cells from/to the DARHT accelerator hall. LANL, LBNL, and LLNL physicists will conduct the modeling and experiments associated with beam transport and the performance of the down stream electron-beam transport. LANL performed the long pulse beam stability tests, and will perform scaled accelerator validation tests and the accelerator commissioning, supported by LLNL and LBNL staff as appropriate. The requirement for the accelerator performance as set forth in the CD-0 document is at 16.6 MeV and the technical goal is at 18.1 MeV.

Engineering Campaign

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Engineering Campaign			
Enhanced Surety	39,600	26,731	24,803
Weapons Systems Engineering Assessment Technology	17,365	21,156	19,691
Nuclear Survivability	22,162	14,973	8,813
Enhanced Surveillance	99,205	86,526	80,614
Microsystems and Engineering Sciences Applications (MESA) Other Project Costs (OPC)	4,667	4,613	7,630
01-D-108, Microsystems and Engineering Sciences Applications (MESA) Construction	64,908	6,920	11,198
Total, Engineering Campaign	**247,907**	**160,919**	**152,749**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Engineering Campaign				
Enhanced Surety	26,480	26,020	25,692	26,206
Weapons Systems Engineering Assessment Technology	21,072	20,737	20,523	20,934
Nuclear Survivability	8,729	8,530	8,361	8,878
Enhanced Surveillance	86,264	84,723	83,734	85,359
MESA OPCs	4,545	4,438	4,304	4,040
MESA Construction	0	0	0	0
Total, Engineering Campaign	**147,090**	**144,448**	**142,614**	**145,417**

Mission

The goal of 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 supports Complex 2030. It supports transformation activities such as the Reliable Replacement Warhead (RRW) initiative. The Engineering Campaign is providing the development of modern tools and capabilities essential for the success of RRW.

In response to the Complex 2030 need to consolidate Category I/II Special Nuclear Material, the Campaign is supporting the Qualification Alternatives to the Sandia Pulse Reactor project. This transformational project also promotes the modeling of radiation effects so that threats or vulnerabilities of warheads can be evaluated more responsively than traditional radiation testing.

In addition, the advances that are realized through the Engineering Campaign help drive the technology base essential for long-term National Security, consistent with Complex 2030.

The focus of the Campaign is on assessment tools for new engineering phenomena introduced by changes to weapons; system-level assessment tools that leave large uncertainties or are no longer available (e.g., loss of underground testing or key experimental facilities); and advanced engineering assessment methodology that can be applied throughout the lifecycle of the weapon to improve responsiveness and effectiveness. Basic research and concept development are conducted in the Engineering Campaign, which includes scientific discovery, and understanding the underlying engineering phenomena that control performance. The best available scientific understanding is then used to develop and demonstrate for a weapons-relevant environment the experimental tools, validated modeling capability, analysis methodology, and engineering designs needed by the Directed Stockpile Work (DSW) program in meeting certification requirements for specific weapon tail numbers, including future weapon systems, such as the RRW or multiple weapon systems.

The focused subprograms of the Engineering Campaign are:

Enhanced Surety - Provides validated surety (safety, security, and control) technology as options for the stockpile refurbishment/replacement program to ensure that modern nuclear surety standards are fully met and a new level of use-denial performance is achieved, and security for nuclear weapons remains effective against ever-changing threats.

Weapons 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 needed by the DSW Research and Development (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 environments (e.g., intrinsic radiation or radiation from production and surveillance radiography), space environments, and hostile environments; develops radiation-hardening approaches and hardened components; and modernizes tools for weapon outputs. This subprogram is integrated with the weapon-specific work within DSW to provide validated tools and technologies for the entire stockpile, including current Life Extension Programs and other replacement systems such as RRW.

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

Microsystems and Engineering Sciences Applications (MESA) construction project – Provides the integrated facilities necessary to develop and incorporate state-of-the-art, survivable, electrical, optical, and mechanical control systems into the stockpile where required. These control systems are critical for improving the safety, security, and reliability of the stockpile during stockpile alterations, modifications, and transformation activities. The MESA facility also allows the development and refinement of responsive processes that efficiently address engineering functions for the entire lifecycle of a weapon by bringing together designers, analysts, experimentalists, and theoreticians in the same workspace.

The R&D activities in the Engineering Campaign enable transformation and functionality of the current stockpile and complex by maintaining the technical foundations of nuclear weapons engineering and developing fundamental engineering processes. The work is scheduled to be on pace with the needs of the stockpile, ensuring that the phased deployment of Campaign-developed technology to qualified applications and products, is done in a timeframe consistent with DSW needs and NNSA priorities.

Benefits

Within the Engineering Campaign program, the four focused subprograms and MESA Project each make unique contributions to GPRA Unit Program Goal 2.1.28 and provide modern safety, surety, and surveillance technology for application in RRW.

Major FY 2006 Achievements

Enhanced Surety

- Created a Mechanical Safing Compatibility Document that describes the functional and safety requirements the device must meet and the normal and abnormal environments in which device performance must be evaluated.
- Demonstrated an integrated strong link, such as a low mass mechanism, and an advanced insensitive high explosive (IHE) booster pellet for possible stockpile use.
- Demonstrated integrated multi-state surety response.

Weapons Systems Engineering Assessment Technology

- Revitalized the Aerial Cable Facility & Thermal Test Complex.
- Documented experiments for predicting shock response of the W76-1 Arming, Fuzing, and Firing (AF&F) components.
- Completed validation experiments for assessing braze model performance for a neutron generator(s).
- Assessed the response of a conventional high explosive (CHE) weapon system to a near-by explosion of another CHE weapon system and completed one system-level validation test.

Nuclear Survivability

- Completed a Qualification Alternative to the Sandia Pulse Reactor customer requirements review.
- Completed output analysis for National Missile Defense assets and threats.
- Provided peer-reviewed weapon output data necessary for vulnerability assessment of the W76-1 Nuclear Explosives Package.
- Provided data sufficient to validate models of cavity source generated Electro Magnetic Pulse in the vacuum and high-pressure regimes needed for the first application on the W76-1 Life Extension Program (LEP).
- Functionally characterized Gallium Arsenide hetero-junction bipolar transistors.

Enhanced Surveillance

- Completed pit lifetime estimates for predominant pit types based on accelerated aging alloys and stockpile pit examinations.

- Completed ductility model on U6Nb.
- Provided aging assessment for a set of non-nuclear components for the B61.
- Completed quantification of margins and uncertainties (QMU) for design sensitivity and source/sink models for Canned Sub Assemblies.
- Improved component-aging models for polymers, high explosive, and initiation systems to support lifetime assessments.
- Provided evaluation for annual assessment on component and material aging for each weapon system.
- Delivered resolution upgrade for pit-computed tomography, ultrasonic inspection on B61 reservoir, and hydro burst testing of W88 reservoir for core surveillance.
- Developed neutron imaging hardware.

MESA

- War Reserve (WR)-qualified radiation hardened Application-Specific Integrated Circuits were produced at Sandia for both the W76-1 and W80-3 LEPs (11 different designs) using the Microelectronics Development Laboratory, which was retooled as part of the MESA project.

Major Outyear Priorities and Assumptions

The outyear projections for Engineering Campaign total $579,569,000 for FY 2009 through FY 2012, decreasing slowly over time. This is due to the completion of the MESA construction project in FY 2009 and the detailed development of various technologies, including Enhanced Surety that will be migrated to RRW in development within the DSW budget.

The outyear funding profile for the Engineering Campaign is structured to enable multi-year engineering R&D efforts and to provide a consistent level of support to DSW for the current stockpile, the refurbished portion of the stockpile, RRW, and the transformed, responsive complex envisioned for the future. The major funding change is a decrease in FY 2009 after completion of the MESA construction project.

Within the FY 2008 – FY 2012 timeframe, the four subprograms will focus on the following:

Enhanced Surety

This subprogram will provide the engineering technology development for improved surety systems for replacement systems, such as RRW, with engineering development activities beginning in the FY 2010 or shortly thereafter. The improved surety options developed by this subprogram include advanced initiation systems with improved safety and the next-generation initiation system. Technology for integrated surety options is expected to be matured by this subprogram in this timeframe.

Weapons Systems Engineering Assessment Technology

This subprogram will complete the data sets required to validate thermal and structural engineering models being developed for use in stockpile certification and assessment by FY 2012. Advances in engineering science and continued development of experimental assessment techniques, advanced instrumentation, and related diagnostics is also expected in this timeframe to support the goal of reducing large uncertainties in weapon assessments for current and future stockpile systems.

Nuclear Survivability
Key deliverables include engineering design and assessment tools to meet nuclear survivability requirements without test facilities that use Category I/II special nuclear material, (e.g., the Sandia Pulse Reactor) and development of computational tools to evaluate or re-evaluate the weapon output and effectiveness of stockpile weapons, life extension warheads, or weapons such as RRW.

Enhanced Surveillance
The Enhanced Surveillance deliverables are planned to support RRW component assessments, embedded stockpile evaluation technology deployment, predictive modeling and experimental capability development, reduced uncertainties in pit lifetime assessment, and cost-effective surveillance transformation implementation.

Program Assessment Rating Tool (PART)
The Department has implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budgets (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The Engineering Campaign program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2008 Budget Request. The OMB gave the Engineering Campaign scores of 100 percent on the Program Purpose and Design, and Strategic Planning Sections; 88 percent on the Program Management Section, and 73 percent on the Program Results and Accountability Section. Overall, the OMB rated the Engineering Campaign 84 percent, its second highest rating of "Moderately Effective." The OMB assessment found that the program has a clear and unique purpose; has demonstrated progress in achieving annual and long-term goals; is well managed; and has clear and measurable performance metrics to cover a portion of the program. The OMB also noted that since the majority of the campaign's work is executed by a contractor base in Government-owned facilities, the program cannot use competitive sourcing/cost comparisons for prime procurements. In response to the OMB findings, the NNSA is improving the coordination of NNSA program-related nuclear weapon activities, expanding the linkage of contractor performance awards to performance evaluation, and strengthening procedures to hold contractors accountable for cost, schedule, and results.

Annual Performance Results and Targets
(R = Results; T = Target)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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: 45% T: 35%	R: 65% T: 50%	R: 88% T: 65%	T: 75%	T: 90%	T: 100%	N/A	N/A	N/A	By 2008, complete the major facilities of the MESA project (within the total project cost) while maintaining a Cost Performance Index of 0.9-1.15, and by 2009, complete all of the activities for project closeout.
Cumulative percentage of progress towards an improved initiation system to meet nuclear detonation safety requirements for the Reliable Replacement Warhead (RRW) and any future alterations or modifications to stockpiled weapons, measured by the number of milestones, in the implementation plan, completed (Long-term Output)*	R: 50% T: 50%	R: 60% T: 60%	R: 70% T : 65%	T: 70%	T: 75%	T: 85%	T: 90%	T: 95%	T: 100%	By 2012, complete the development of the next-generation initiation system to meet nuclear detonation safety requirements for the RRW and any future alterations (alts) or modifications (mods) to stockpiled weapons.
Cumulative percentage progress toward completion of aging models and assessments, diagnostics, and tools needed for science-based lifetime predictions of specific weapon components and for transforming to more predictive stockpile surveillance, measured by the number of milestones, in the implementation plans completed (Long-term Output)	R: 14% T: 14%	R: 24% T: 24%	R: 32% T: 32%	T: 40%	T: 47%	T: 54%	T: 61%	T: 71%	T: 79%	By 2016, complete the aging models and assessments, diagnostics, and tools to stockpile surveillance needed to achieve science-based lifetime predictions and stockpile surveillance transformation.
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 the RRW and any future alts or mods, measured by the number of experimental data sets, in the implementation plan, completed (Long-term Output)*	R: 18% T: 27%	R: 26% T: 55%	R: 37% T: 37%	T: 45%	T: 53%	T: 67%	T: 79%	T: 90%	T: 100%	By 2012, complete the development of system engineering methodology for assessing and predicting the effects of large thermal, mechanical, and combined forces on nuclear weapons for the RRW and any future alts or mods to stockpiled weapons. *

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Cumulative percentage completion of design and qualification tools for meeting requirements for survivability in intense radiation environments needed by RRW and any future alts or mods 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: 20% T: 20%	R: 24% T: 24%	R: 27% T: 27%	T: 40%	T: 48%	T: 56%	T: 65%	T: 76%	T: 84%	By 2014, complete the replacement of the relevant design and assessment technologies for weapon components allowing RRW and any future alts or mods to meet requirements for survivability in intense radiation environments.

*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 2004-2006 results are recomputed against new baseline targets.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Enhanced Surety	**39,600**	**26,731**	**24,803**

A multi-technology approach is pursued by the Enhanced Surety subprogram to develop options for weapon system designers during stockpile alterations, modifications, and transformations. This approach will also address other refurbishments and stockpile improvement projects needed to meet future Department of Defense (DoD) requirements and will support studies such as RRW. Multi-technology development and integration opens the design space and offers opportunity for synergistic improvements in other weapon components.

In FY 2008, the resulting advanced initiation system will offer significant improvements in nuclear detonation safety by eliminating the possibility of any naturally occurring stimuli, such as electrostatic discharge and lightning, from causing the weapon to initiate. Other advanced initiation work includes the development of high performance strong links, an insensitive high explosive booster for miniature high energy density components, and a replacement for sunset material used in thermal weak link. Approaches to integrated safety, security, and control will continue to be developed to provide enhanced area denial and to better address the design basis threat requirements and will include demonstration of the effectiveness of the technology in a realistic environment. Advances in the ability to synthesize responses from networks of security sensors and in the technology readiness of use control technologies such as advanced imbedded sensors and power management will also be pursued.

Weapons Systems Engineering Assessment Technology	**17,365**	**21,156**	**19,691**

The Weapons 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 2008, the subprogram will focus on producing data sets for code validation in support of current weapon alterations and modifications, RRW, and legacy stockpile support. Combined effort between the ASC Verification & Validation and Physics & Engineering Models programs remains 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 telemetry systems development of the next-generation High Explosive Radio Telemetry (HERT III) package, the design and construction of a Phase I Fiber Optic Velocity Sensors Instrument and performance of a planar explosive test to characterize the instrument, development of other fiber optic instrumentation, validation of diagnostics for fragmentation of thin shells, and high explosive structural properties measurements supporting model development for improved assessments of structural response, and margins for insensitive high explosive main charge materials.

Nuclear Survivability	**22,162**	**14,973**	**8,813**

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 to meet weapon requirements. The scope of the activity includes developing scientific models for understanding radiation effects phenomenology; generating experimental data to validate computational tools; developing 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. Stockpile deliverables for qualifying specific components and systems to nuclear survivability requirements are funded under the DSW weapon category requiring the deliverable. In the absence of underground testing, and with the closure of specialized research reactors, the DSW activity relies increasingly on complex models and calculations supported by limited experimental evidence obtained on above ground radiation simulators and new analysis methodology, which are all provided by this subprogram. The subprogram also develops, in conjunction with the DoD, the tools to calculate the output and performance of modern weapons, which are needed to define some of the most stressing prompt nuclear environments. This computational capability is critical to the DoD threat assessments as well as 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 2008, planned activities include: tools and technologies to support a Qualification Alternative to the Sandia Pulsed Reactor (QASPR), which supports future strategic systems such as an RRW or alterations/modifications to the enduring stockpile; and continuing to develop and validate computational tools to evaluate or re-evaluate the weapon output and effectiveness of stockpile weapons, life extension warheads, or weapons such as RRW.

Enhanced Surveillance	**99,205**	**86,526**	**80,614**

The Enhanced Surveillance subprogram develops the aging models and technologies needed for early identification and assessment of stockpile aging concerns. The subprogram provides assessments on the new materials to be used in refurbished or replacement weapons to support age-aware design and increase longevity for a more sustainable stockpile. Enhanced Surveillance develops new diagnostics and methods, including non-destructive techniques, for the DSW program to transform surveillance to be more predictive in finding defects in weapons sampled from the stockpile. The subprogram develops embedded sensor and communication architectures for the stockpile of the future to achieve timely, less invasive, and less costly surveillance. Finally, the subprogram contributes current weapon aging information for

(dollars in thousands)		
FY 2006	FY 2007	FY 2008

completing the Annual Assessment Reports, which apprise the President of the safety and reliability of the stockpile.

In FY 2008, the subprogram will support the Annual Assessment Report process; conduct component and material lifetime assessments in support of the enduring stockpile and RRW; develop and deploy an embedded stockpile evaluation prototype for field testing; develop modeling and analysis capabilities to interpret embedded sensor data and predict component level performance; conduct preliminary evaluation of non-plutonium aging phenomena in the nuclear explosives package (NEP) primary assembly; continue to modernize system testers at the Weapon Evaluations Testing Laboratory at Pantex; improve surveillance techniques for gas transfer systems; complete initial characterization for longevity of newly manufactured pits; continue Pu aging studies to support improved pit lifetime estimates; continue research on aging mechanisms and develop predictive models and diagnostics for the earliest possible detection of aging changes that could impact weapon performance, reliability, and safety.

	FY 2006	FY 2007	FY 2008
Congressionally Directed Activity	**[4,420]**	**[4,311]**	**[4,237]**

The University Research Program in Robotics (URPR) is an investment in fundamental research conducted at five (5) Universities that focuses on broad-based robotics and automation requirements for the Stockpile Stewardship Program (SSP). In FY 2008, the participating universities (the University of Florida, University of Michigan, University of New Mexico, University of Texas at Austin, and University of Tennessee, Knoxville) will continue established partnerships with LANL, LLNL, SNL, INEL, PNNL, Pantex, Y-12, KCP, and SRS to develop robotics technologies in the following specific areas: 1) nano-scale sensing and manufacturing techniques (directly relevant to SSP); 2) small devices for security and surveillance; 3) personnel tracking devices that operate indoors and without external beacons; 4) radiation imaging cameras for inspection of facilities; 5) cargo container inspection techniques; 6) radiation hardening of electronics used in DOE facilities; 7) rapidly reconfigurable manufacturing simulation and control algorithms; and 8) highly modular actuators for robot arms. The program will continue work towards demonstration of an agile serpentine robot for inspection and repair, and testing of vehicle surveillance platforms that can inspect underneath trucks and automobiles [non-add].

	FY 2006	FY 2007	FY 2008
Microsystems and Engineering Sciences Applications (MESA) Other Project Costs	**4,667**	**4,613**	**7,630**

The MESA Project is being developed to incorporate modern, survivable, electrical, optical and mechanical control systems into the stockpile where required. These control systems are critical for improving the safety, security, and reliability of the stockpile during the life extension program refurbishment activities and for replacement weapon system, such as RRW, in a transformed stockpile. FY 2008 OPCs will include Decontamination and Demolition (D&D) of the Compound Semiconductor Research Lab, environmental, safety and health (ES&H) activities, and the safety assessment and operational support costs during construction.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Microsystems and Engineering Sciences Applications (MESA) Construction (01-D-108)	**64,908**	**6,920**	**11,198**

The MESA Complex will provide for the design, integration, prototyping and fabrication, and qualification of microsystems into weapon components, subsystems and systems within the stockpile as well as the integrated facility for the development and use of responsive engineering processes. The performance baseline for MESA was established on October 8, 2002. Additional appropriations from Congress in previous years have allowed the project closeout in FY 2009. Additional information is provided in the MESA Construction Project Data Sheet.

Total, Engineering Campaign	**247,907**	**160,919**	**152,749**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Enhanced Surety	
The decrease in program funding is required to balance overall weapon activity priorities. The revised scope of enhanced surety technology development for stockpile activities focuses on the RRW and closes work on the W80-3 LEP.	**-1,928**
Weapons Systems Engineering Assessment Technology	
The decrease is consistent with the close out of work for the W80-3 LEP which is slightly offset by the continuation of activities required to understand and assess engineering phenomena associated with new technologies, such as Microsystems, targeted for use in future LEPs or systems such as RRW, while continuing high explosive structural property, system safety, and hostile response assessments.	**-1,465**
Nuclear Survivability	
The decrease reflects completion of some analysis timed to benefit the W76-1 LEP. Funding will be used to develop the required nuclear survivability engineering tools for first use by Directed Stockpile Work, including major deliverables to provide the ability to assess the affects of radiation on nuclear weapons and components without underground testing or test facilities using Category I or II Special Nuclear Material, continues.	**-6,160**
Enhanced Surveillance	
A portion of the decrease in funding is consistent with the reduction of work for the W76-1 and W80-3 LEPs which is partially offset by an increase of the highest priority longevity assessments of materials chosen for RRW. The decrease in funding additionally reflects efforts focused to address the most critical lifetime uncertainties in pits and other components, as well as to develop the highest priority capabilities for embedded evaluation and predictive surveillance to meet the needs of stockpile transformation and continued confidence in stockpile assessments.	**-5,912**
Microsystems and Engineering Sciences Application (MESA) Other Project Costs	
Increase is consistent with planned appropriation schedule as shown in the Future-Years Nuclear Security Program and Construction Project Data Sheet 01-D-108.	**+3,017**
Microsystems and Engineering Sciences Application (MESA) Construction	
Increase is consistent with planned appropriation schedule as shown in the Future-Years Nuclear Security Program and Construction Project Data Sheet 01-D-108.	**+4,278**
Total Funding Change, Engineering Campaign	**-8,170**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

	FY 2006	FY 2007	FY 2008
General Plant Projects	0	0	0
Capital Equipment	2,076	2,138	1,607
Total, Capital Operating Expenses	**2,076**	**2,138**	**1,607**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	0	0	0	0
Capital Equipment	1,655	1,705	1,756	1,809
Total, Capital Operating Expenses	**1,655**	**1,705**	**1,756**	**1,809**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
Engineering Campaign: Microsystems and Engineering Sciences Application (MESA) Construction	455,536	372,510	64,908	6,920	11,198	0
Total, Construction			**64,908**	**6,920**	**11,198**	

[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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

01-D-108 Microsystems and Engineering Sciences Applications Sandia National Laboratories, New Mexico[a]

1. Significant Changes

- The decommissioning and demolition (D&D) of the Compound Semi-conductor Research Laboratory will be completed by the 4th quarter of Fiscal Year 2008 and will be accomplished by reallocating $5,000,000 of the FY 2008 request for the project from the capital to operating.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Existing Facilities Start	D&D Existing Facilities Complete
FY 2006	2Q FY 2001	1Q FY 2003	3Q FY 2003	3Q FY 2010	N/A	N/A
FY 2007	2Q FY 2001	1Q FY 2003	3Q FY 2003	2Q FY 2008	N/A	N/A
FY2008	2Q FY 2001	1Q FY 2003	3Q FY 2003	2Q FY 2008	N/A	N/A

3. Baseline and Validation Status (dollars in thousands)

(dollars in thousands)

	TEC [b]	OPC, except D&D Costs	D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2005	462,469	56,000	N/A	518,469	518,500	N/A
FY 2006	461,272[c]	56,000	N/A	517,272	518,500	N/A
FY 2007	460,616	56,000	N/A	516,616	518,500	N/A
FY 2008	455,536	61,000	N/A	516,536	518,500	N/A

4. Project Description, Justification, and Scope

Project Description:

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

The cost, schedule and scope identified in this report are dependent on the funding profile included in the Integrated Construction Program Plan. Changes to annual appropriations will impact the project's scope, cost and or schedule contained in this report

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] The PED portion of the project, which was funded under 01-D-103, was completed under budget by $30,827. The TEC and TPC for the project were reduced by this amount.

[c] The FY 2006 Appropriation of $65,564,000 was reduced by a government-wide mandatory rescission of 1.0 percent Consolidated Appropriations Act, (P.L. 109-148), which reduced the TEC and TPC by $656,000.

Project Justification:

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

- Enable integrated teams of weapon system designers, subsystem designers, analysts, and microsystems scientists and technologists to work effectively and efficiently to design, integrate, and qualify for weapon use microsystems-based components and weapons subsystems and ensure their incorporation into weapon systems assemblies;

- Provide facilities and tooling to support radiation-hardened integrated circuit production and qualification in the event the United States loses the last remaining vendor;

- Conduct Research and Development (R&D), rapid prototyping, pre-production fabrication and analysis, and a war reserve microsystem production capability "of last resort" for Department of Energy (DOE)/National Nuclear Security Administration (NNSA) and the Nuclear Weapons Complex;

- Develop and use predictive codes (characterized by high-performance, nonlinear, full-system, multi-physics models) for microscale physics and for the necessary integration with macroscale codes;

- Develop and use computational tools and capabilities (including visualization-design labs) to support microsystems design, simulation, and manufacturing; weapons performance assessments; renewal process analyses; and qualification of microsystems components, integrated subsystems, and the certification of the overall weapon system;

- Allow technology developers to contribute to both classified stewardship problems and unclassified R&D collaborations with partners in industry and academia; and

- Result in other secondary benefits including reduced utility costs

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

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

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

Existing SNL facilities are not adequate in size or function to support the development, prototyping, and use of advanced technologies. Such technologies are critical to support microsystems design, simulation, performance assessments; renewal process analyses; and qualification of microsystems components, integrated subsystems, and the certification of the overall weapon system. MESA will employ state-of-the-art visualization technologies in support of stockpile stewardship activities. In addition, the retooled, silicon-based production capability (currently located in the existing MDL) and the new compound semiconductor cleanroom, in combination with required new light laboratory and work spaces to replace the Compound Semiconductor Research Laboratory (CSRL), will allow MESA to conduct R&D, rapid prototyping, and analysis.

Project Scope:

Infrastructure Upgrades

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

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

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

Microelectronics Development Laboratory (MDL) Rad-hard Integrated Circuit (IC) Retooling & Critical Microsystems Tooling

This portion of the project supports the costs of partially retooling the Microelectronics Development Laboratory with the equipment that is required in order to produce radiation hardened integrated circuits as required in the event the US would loose commercial suppliers. As such, the MDL would be the “supplier of last resort” for silicon-based radiation-hardened integrated circuits. The MDL did not have the complete tool set needed to produce qualified war reserve products. The previous existing tool set was developmental in nature, was missing some key tools, and included critical one-of-a-kind tools with no backup. Many of MDL's fabrication tools were more than 10 years old and had exceeded their useful lives. Downtime was increasing, supplier support for tool maintenance was unavailable and spare parts were increasingly unavailable. More importantly, commercial vendors for radiation hardened integrated circuits may soon cease to exist, leaving SNL as the only supplier for these key weapons components. Therefore, refurbishment of the MDL fabrication toolset is a critical capability that the Department must have. The parts of the MESA project involving retooling of the MDL will play a substantial role in developing weapon refurbishment options. The MDL will be an enduring, critical part of the MESA Complex.

Remaining scope - MESA

- A new cleanroom facility, light laboratories, and work spaces for personnel replacing the existing, but antiquated, CSRL;
- New capital equipment associated with the cleanroom facility and light labs;
- Light laboratories and work group and support spaces for researchers, scientists, and technology developers involved in computation, engineering sciences, microsystems, and weapons design who are focused on incorporating microsystems into planned weapon refurbishments;
- Special visualization facilities to enable full deployment of ASC and ADaPT modeling and simulation tools for application to microsystems and full weapon development;
- Advanced communications cabling and network electronics to support unclassified and classified ultra-high speed local computing and inter-connectivity to supercomputing resources; and
- Decontamination and decommissioning of the CSRL once vacated.

Specifically, the MESA facilities comprise approximately 391,000 gross square feet and will include:

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

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

Weapons Integration Facility

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

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

Fiscal Year 2008 funding will be used to continue construction activities.

The project has been and will be conducted in accordance with the project management requirements in DOE Order 413.3 “Program and Project Management for the Acquisition of Capital Assets” and DOE Manual 413.3-1, “Project Management for the Acquisition of Capital Assets.”

<u>Compliance with Project Management Order:</u>

- Critical Decision – 0: Approve Mission Need – 4Q FY 1999
- Critical Decision – 1: Approve Preliminary Baseline Range – 1QFY 2001
- Critical Decision – 2: Approve Performance Baseline – 1Q FY 2003
- External Independent Review Final Report – 1Q FY 2002 (Validate Performance Baseline)
- External Independent Review Final Report – 2Q FY 2003 (Approve Start of Construction)
- Critical Decision – 3: Approve Start of Construction – 3Q FY 2003
- Critical Decision – 4: Approve Start of Operations for WIF – 3Q FY 2008 – Occupancy of MESA facilities will be completed in 3Q FY 2008 was reported in the FY 2007 budget to Congress.
- Decontamination and Demolition of the CSRL Building– 4Q FY 2008

5. Financial Schedule (dollars in thousands)

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design[a]			
2001	10,456	10,456	6,673
2002	4,469	4,469	7,426
2003	0	0	826
Construction			
2001	9,500	9,500	0
2002	63,500[b]	63,500	32,798
2003	112,282[c]	112,282	48,564
2004	86,487[d]	86,487	79,439
2005	85,816[e]	85,816	103,561
2006	64,908[f]	64,908	96,566
2007	6,920	6,920	48,763
2008	11,198[g]	11,198	30,920
2009	0	0	0
Total, TEC	455,536	455,536	455,536

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

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

[c] Original appropriation was $113,000,000. This was reduced by $718,000 for a rescission and by $2,562,000 for the Weapons Activities general reduction enacted by P.L. 108-7, FY 2003 Omnibus Appropriations Act, Title VI. The appropriation was increased by $2,562,000 by a reprogramming.

[d] Original appropriation was $87,000,000. This was reduced by $513,328 for a government-wide mandatory rescission of 0.59 percent enacted by P.L. 108-199.

[e] Original appropriation was $86,500,000. This was reduced by $683,912 for the rescission of 0.80 percent included in the Consolidated Appropriation Act, 2005 (P.L. 108-477)

[f] The original appropriation was $65,564,000. This was reduced by $656,000 by a government-wide mandatory rescission of 1.0 percent under the Consolidated Appropriations Act (P.L. 109-148), which reduced the TEC and TPC.

[g] $5,000,000 from capital funds were transferred to operating funds to complete the D&D of the CSRL in 4Q FY 2008.

6. Details of Project Cost Estimate[a]

Total Estimated Costs

	(dollars in thousands)	
	Current Costs	Previous Costs
Preliminary and Final Design	14,925	14,925
Construction Phase		
Buildings	170,000	170,000
Special Equipment	140,000	140,000
Utilities	4,300	4,300
Standard Equipment	7,600	7,600
Major Computer Items	16,900	16,900
Inspection, Design and project liaison, testing, checkout and acceptance	21,700	21,700
Construction Management	21,400	21,400
Project Management	12,700	12,700
Contingency	46,011[ab]	51,091
Total, Construction	440,611	445,691
Total, TEC[bc]	455,536	460,616

[a] The shift in the funding profile and the increased FY 2004 appropriation, results in two-year schedule savings for the Weapons Integration Facility construction completion. The baseline of the project has been changed, the project anticipates an early completion in FY 2008. The increased FY 2005 funding was used to support the schedule by purchasing the Microsystems Fabrication Facility Tools.

[b] The FY 2004 appropriated amount of $87,000,000 was reduced by a government-wide mandatory rescission of 0.59 percent (P.L. 108-199). The rescission lowered the MESA TEC and TPC by $513,328. The FY 2005 appropriation of $86,500,000 was reduced by a rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L.108-447), which reduced the TEC and TPC by an additional $683,912.

[c] The original appropriation was $65,564,000. This was reduced by $656,000 by a government-wide mandatory rescission of 1.0 percent (P.L. 109-148), which reduced the TEC and TPC.

Other Project Costs

	(dollars in thousands) Current Costs	Previous Costs
Conceptual Planning	61,000[a]	56,000
Start-up	N/A	N/A
D&D Phase		
D&D for removal of the existing facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	61,000	56,000

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC(Design)	14,925	0	0	0	0	0	0	14,925
TEC (Construction)	360,928	48,763	30,920	0	0	0	0	440,611
OPC Other than D&D	31,282	4,751	7,640	4,545	4,438	4,304	4,040	61,000
D&D Costs								
Total Project Costs	407,135	53,514	38,560	4,545	4,438	4,304	4,040	516,536

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	4Q FY 2008
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	2,900	2,900	87,000	87,000
Maintenance	1,700	1,700	51,000	51,000
Total Related funding	4,600	4,600	138,000	138,000

[a] This includes the cost for Conceptual design costs, Decontamination & Decommissioning costs of CSRL Building, NEPA documentation costs, Other ES&H costs, and Other project-related costs.

9. Required D&D Information

N/A

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

N/A

D&D Information Being Requested	Square Feet
Area of new construction	N/A
Area of existing facility(ies) being replaced	N/A
Area of any additional space that will require D&D to meet the "one-for-one" requirement	N/A

10. Acquisition Approach

Not applicable.

Inertial Confinement Fusion Ignition and High Yield Campaign

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Inertial Confinement Fusion Ignition and High Yield Campaign			
Ignition	74,859	79,763	97,537
Support of Other Stockpile Programs	19,673	5,872	0
NIF Diagnostics, Cryogenics, and Experimental Support	42,578	45,959	67,935
Pulsed Power Inertial Confinement Fusion	10,902	10,603	10,440
University Grants/Other ICF Support	7,623	8,903	0
Joint Program in High Energy Density Laboratory Plasmas	0	0	3,213
Facility Operations and Target Production	63,977	43,021	86,083
Inertial Fusion Technology	47,520	0	0
NIF Assembly and Installation Program	101,306	143,438	136,912
High-Energy Petawatt Laser Development	34,650	2,213	0
96-D-111, National Ignition Facility	140,494	111,419	10,139
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	**543,582**	**451,191**	**412,259**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Inertial Confinement Fusion Ignition and High Yield Campaign				
Ignition	103,644	103,457	102,632	94,154
Support of Other Stockpile Programs	1,083	6,761	6,523	13,845
NIF Diagnostics, Cryogenics, and Experimental Support	68,248	74,041	73,902	73,119
Pulsed Power Inertial Confinement Fusion	10,953	12,056	12,122	11,994
University Grants/Other ICF Support	0	0	0	0
Joint Program in High Energy Density Laboratory Plasmas	3,161	3,193	3,226	3,259
Facility Operations and Target Production	164,728	213,678	213,446	211,116
Inertial Fusion Technology	0	0	0	0
NIF Assembly and Installation Program	54,281	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	**406,098**	**413,186**	**411,851**	**407,487**

Mission

The goal of the Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign is to develop laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation, including thermonuclear burn conditions; approaching those in a nuclear explosion, and conduct weapons-related research in these environments.

The NNSA Complex 2030 vision includes an integrated set of laboratory and production facilities that apply leading edge science and technology to nuclear weapon design and production and other national security problems. The ICF Campaign is the leading high energy density physics program in the world and a central piece of the National Nuclear Security Administration's (NNSA) advanced science and technology portfolio. In particular, the ICF Campaign supports the Stockpile Stewardship Program (SSP) by executing experiments (at physical conditions approaching those in a nuclear weapon) that develop and validate the advanced physical models and computational capabilities required to support the nuclear weapon stockpile. The ICF Campaign's experimental capabilities are thus an essential component of the overall NNSA plan to manage the assessment of nuclear performance issues via the Quantification of Margins and Uncertainties (QMU) methodology. In support of this effort, the Campaign has four strategic objectives: (1) achieve thermonuclear ignition in the laboratory and develop it as a scientific tool for stockpile stewardship; (2) develop, design, and participate in high energy density physics (HEDP) experiments necessary to provide advanced assessment capabilities for stockpile stewardship; (3) develop advanced HEDP-based technology capabilities that support the long-term needs of the SSP; and (4) maintain a robust national program infrastructure and scientific talent in HEDP.

The ICF and High Yield Campaign shares major interfaces and technical objectives with three of the four SSP Science Campaign subprograms (Primary Assessment Technologies, Dynamic Materials Properties, and Secondary Assessment Technologies), one Engineering Campaign subprogram (Nuclear Survivability), the Advanced Simulation and Computing (ASC) Campaign, the Readiness in Technical Base and Facilities (RTBF) Program, and the Directed Stockpile Work (DSW) Program.

The NNSA Office of Inertial Confinement Fusion and the National Ignition Facility NIF Project manage the national-level ICF Campaign. The Campaign has been executed by the three national nuclear weapons laboratories: Lawrence Livermore National Laboratory (LLNL), Los Alamos National Laboratory (LANL), and Sandia National Laboratories (SNL), as well as the Laboratory for Laser Energetics at the University of Rochester (LLE) and General Atomics, Inc. The ICF Campaign in conjunction with the Science Campaign also supports university activities in high energy density physics.

The demonstration of thermonuclear ignition in the laboratory is the highest priority goal of the ICF Campaign and a major goal for NNSA and the Department of Energy. Ignition provides a unique capability to access burning plasma conditions in the laboratory. Ignition will thus allow the SSP to effectively address many weapon performance issues related to thermonuclear burn. Ignition experiments will also serve as stringent integrated tests of advanced simulation codes and attract top quality scientific talent to the national laboratories. The Defense Science Board reviewed the NIF technical program in FY 2004 and strongly endorsed the value of ignition to the weapons program and the value of a balanced national risk reduction effort executed at the NIF, OMEGA, Z, and other facilities.

The ICF Campaign enables the implementation of the Complex 2030 vision, as it provides a major piece of the scientific and technological base necessary to respond quickly to stockpile changes or evolving national requirements, such as the Reliable Replacement Warhead (RRW). The ignition campaigns planned for 2010 and beyond are particularly important examples of experiments that will be used for integrated tests of the advanced simulation tools used in stockpile assessment and certification.

Consistent with the 2030 vision, the major facilities in the ICF Campaign will be run as national user facilities and shared national resources.

The National Ignition Campaign (NIC), an integrated national effort to demonstrate ignition at the NIF, was formed in FY 2005. The strong value of ignition within the SSP context was emphasized by the FY 2005 JASON review of the NIC. First ignition experiments at the NIF are planned for FY 2010. The NIC is managed as an "enhanced management" activity within the NNSA. Enhanced management is applied to a complex activity or effort that involves an NNSA commitment to complete the effort by a specific date and/or at a specific cost, and requires additional management rigor to ensure these requirements are met. Enhanced management activities perform to a multi-year (beginning-to-end) cost and schedule baseline under formal change control, and are documented in a formal execution plan. The National Ignition Campaign Execution Plan was signed by all participating sites (LLNL, LANL, SNL, the University of Rochester LLE, and General Atomics, Inc.) in June 2005. Earned value reporting for the National Ignition Campaign began in FY 2006.

The budget has been carefully balanced to support execution of initial NIF ignition experiments in 2010 as well as OMEGA and ZR experiments in support of near term stewardship program deliverables. To achieve this balance risk mitigation activities for NIF ignition are reduced compared to the National Ignition Campaign Execution Plan signed in June 2005. The NIF Project remains on track for completion per the current baseline implemented in FY 2005; the cost for the NIF line item (Total Estimated Cost) and the NIF Project Completion Criteria remained unchanged. With respect to ZR, the budget provides $63,900,000 for operation and utilization of the ZR facility at SNL, supporting single shift operation for near-term Stockpile Stewardship deliverables. This includes $10,400,000 in pulsed power fusion, $11,500,000 in facility operations, and $1,200,000 in National Ignition Campaign activities within the ICF and High Yield Campaign, as well as $12,800,000 in the Science Campaign and $28,000,000 in the RTBF account. The budget also provides for initial operations of the OMEGA EP facility, which will be completed in FY 2008.

High energy density physics (HEDP) has also been recognized as an important and emerging scientific field. NNSA and the DOE Office of Science will establish 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 joint program will ensure effective federal stewardship of the field of laboratory high energy density laboratory plasma physics. Further discussion of this joint program can be found at the end of the ICF Campaign budget narrative.

Benefits of Subprograms (Major Technical Efforts)

Within the ICF Campaign, there are 10 subprograms, each of which makes a unique contribution to GPRA Unit Program Goal 2.1.29.

The Ignition subprogram includes advanced theoretical modeling, target design, and experimental activities on ICF facilities aimed at initiating thermonuclear fusion ignition experiments in the laboratory in FY 2010 and assessing weapon performance issues related to thermonuclear burn. The Ignition subprogram relies on advanced computer simulations to design experiments and also utilizes experimental results to validate computational capabilities that subsequently will be applied to weapons assessment and analysis.

The Support of Other Stockpile Programs subprogram focuses on the application of ignition and other high energy density methods to meet stockpile stewardship needs. The programmatic responsibility for work other than ignition has been shifted to the Science Campaign; the ICF and High Yield Campaign will continue to fund experimental activities in this area.

The NIF Diagnostics, Cryogenics, and Experimental Support subprogram provides operational capabilities to the NIF experimental user community, including the Personnel and Environmental Protection Systems, target diagnostic engineering and construction, the systems for cryogenic targets, and beam conditioning optics that provide the specific focusing conditions required for various experiments.

The Pulsed Power Inertial Confinement Fusion subprogram supports the assessment of Z-pinches for demonstrating ignition and high yield.

The University Grants/Other ICF Support subprogram funds three major activities: high energy density activities within the Stockpile Stewardship Academic Alliances Program, the National Laser User Facility program at the University of Rochester, and direct technical support for the ICF Campaign. Beginning in FY 2008, the university grants and research programs in the high-energy-density science portion of the Stockpile Stewardship Academic Alliances Program will be transferred to the Science Campaign; high energy density physics activities within the Stockpile Stewardship Academic Alliances will be solicited via the Joint Program in High Energy Density Laboratory Plasmas (see below). The National Laser User Facility program will be funded within the Joint Program in High Energy Density Laboratory Plasmas. Direct technical support for the Campaign will be funded within the Facility Operations and Target Production subprogram.

The Joint Program in High Energy Density Laboratory Plasmas (HEDLP) supports joint activities with the Office of Science required to steward the study of laboratory high energy density plasma physics within DOE. This includes funds to support external user programs at the University of Rochester and other facilities. It also includes a concept development solicitation to support utilization of the NIF and other facilities for basic high energy density science, university grants, and other activities. NNSA's portion of the joint program is funded via both the ICF Campaign and the Science Campaign. Establishment of the joint program in HEDLP is expected by spring of 2007. The total FY 2008 NNSA contribution from the ICF and Science Campaign to the joint program is $12,356,000.

The Facility Operations subprogram supports operations of OMEGA, OMEGA EP, ZR, and other facilities, as well as activities at the target fabrication subcontractor. This also supports outside reviews and other support for the Campaign.

The subprogram for Inertial Fusion Technology has supported the development of high repetition rate laser and pulsed power devices and associated technologies required to conduct experiments with these drivers.

Assembly, activation, and initial operational qualification of the NIF are funded within the NIF Assembly and Installation Program (formerly the NIF Demonstration Program) budget category.

The subprogram for High-Energy Petawatt Laser Development covers activities related to petawatt lasers, such as construction of OMEGA EP at the University of Rochester.

Major FY 2006 Achievements

- **NIF Project:** In FY 2006, the NIF Project completed major change control actions (BCP 06-001) re-sequencing the NIF Project in response to a directed change in the FY 2006 funding profile, all with no change to cost, schedule, or technical scope. The project successfully maintained project cost and schedule performance consistent with the established baseline. At the NIF, an excellent overall project safety record was maintained, achieving a 12-month average Total Recordable Rate (TRR) of 0.7.

- Technical progress on installation and testing of optical systems for the 192-beam laser continued. The first multi-bundle system shot, comprising a simultaneous firing of two full bundles in Laser Bay 2, was performed at the National Ignition Facility and the controls architecture for the NIF was demonstrated. Installation of approximately 44% of the total number of line replaceable units for the NIF (the basic optical building blocks of the laser system) was completed as planned. The infrared (fundamental frequency) section of a full bundle of beams (8 beams total) was successfully operated, delivering high quality beams with the desired pulse shape and energy to the energy calorimeters and the precision laser diagnostic system. Installation of electrical and mechanical utilities in both laser bays and assembly, testing, and installation of twelve Preamplifier Modules (PAMs) were completed, and flash lamp amplifiers in one of four clusters obtained firing Operation Qualification. The coated deformable mirrors needed to complete three clusters were received, and all the third harmonic generator crystals were grown.

- **National Ignition Campaign:** Important progress was achieved in several areas of target physics research that represent specific program milestones, and significant contributions were made to technical risk reduction. The viability of a novel experimental platform was demonstrated which can measure the shock timing for tuning and optimizing the first three of the four shocks needed for indirect-drive ignition. Laser-plasma instability mitigation experiments were begun using phase plate created smooth laser beams on OMEGA, as were experiments testing aspects of the energetics or conversion efficiency from laser light to x-ray drive in hohlraums. A significant theoretical advance was the implementation and testing of the first non-linear model of electron wave (Raman) scattering of the laser light put into a major plasma simulation code. This important new model is now being used to estimate plasma instability levels in ignition hohlraums.

- Good progress was made in demonstrating the fabrication of scientific prototype ignition capsules with both beryllium (Be) and plastic material, including the completion of the Be ignition shell capsule characterization capability. This included production of a prototype Be machined ignition capsule that meets most of the required ignition specifications. Thorough characterization of Be as an ablator material was performed, through shock-melting and microstructure experiments on Z, OMEGA, and Trident. The results were compared with predictions from advanced dynamic materials models. In addition, on Z, the pressure at which high density carbon melts was also determined, providing information on this material as a capsule design alternative.

- In other ignition experiment infrastructure efforts, the cryogenic target system Title I design was completed. A free-standing, NIF-scale depleted uranium and gold cocktail hohlraum was produced, meeting the NIF ignition design specifications – a crucial component for the success of ignition.

- The first ever laser-driven implosions of a cryogenic target, with deuterium and tritium and smoothly-layered using the natural heat of the tritium beta decay, were performed at OMEGA. These implosions were successfully demonstrated using a target with an average roughness of ~2 microns on the surface of the frozen deuterium and tritium layer. Further work on OMEGA studying ignition physics saw experiments that validated simulations of direct drive. For the NIF, sufficient direct-drive symmetry is predicted to be achievable using the laser beams in the indirect-drive configuration with the beams near the poles. This is known as "polar direct drive."

- **Other ICF Accomplishments:** The OMEGA EP beamline and target chamber construction phase was completed for 4 beams, including all beamline structures, grating compressor chamber, target area structure, and target chamber installation.

- In the high average power laser (HAPL) program, both the Electra krypton fluoride laser and the Mercury diode-pumped solid state laser have made significant progress in increasing simultaneously their energy, power, and durability. For the krypton fluoride laser, a new type of all carbon cathode was developed and used to conduct almost 25,000 continuous shots. For the solid state laser program, crystals of laser light amplifying media have been grown to the size needed to meet fusion energy applications.

- A record neutron yield of 3.5×10^{11} was obtained on Z from an x-ray-driven capsule implosion, using a target with a 2 millimeter diameter beryllium shell. Time-and space-resolved data on temperature and density of the imploded deuterium fuel were measured. The overall shot rate on Z was increased by 45% compared to previous years; one hundred ninety-nine (199) shots were completed in one-hundred fifteen (115) operational days by July 2006. The Z facility was shutdown in July 2006 for nine months to undergo refurbishment (ZR facility).

- The technique of pulse shaping for isentropic compression experiments was demonstrated on Z, and utilized to produce tungsten and tantalum data up to 3 million bars (approximately 4,000 atmospheres) of pressure. The first series of isentropic compression experiments using plutonium on the Z facility was successfully performed.

- A series of experiments on secondary physics was completed using the Z-Beamlet laser as a backlighter to provide exceptionally high quality radiographs. The capability on a single Z shot to obtain two backlit images using the Z-Beamlet laser as the backlighter source was implemented. This new capability will be used to measure dynamics of ICF capsules, secondary features, and Z-pinches.

- Advanced radiographic diagnostic techniques for high energy density applications, involving both one-dimensional and two-dimensional radiography sources, were demonstrated. Specifically, a one-dimensional radiography source has been developed that scales to a high photon energy source for NIF material dynamics experiments; a two-dimensional radiography source was also characterized.

- On OMEGA, initial tests of an experimental platform for burn physics for the NIF were performed. Updated plans were developed for future high energy density physics experiments, including experiments at the National Ignition Facility.

Major Outyear Priorities and Assumptions

The outyear projections for the ICF Campaign total $1,638,622,000 for FY 2009 through FY 2012. The trend through the four-year period is relatively flat reflecting decreased spending due to completion of construction on the National Ignition Facility and increased spending on high energy density physics research in order to meet the schedule of requirements of the Stockpile Stewardship Program.

In the longer term, the ICF Campaign will support high energy density experimental science, including examination and application of the ignition regime, in support of stockpile stewardship. In order to meet the highest priority programmatic requirements within the scope of planned funding, NNSA will need to consider reducing the scope of activities within the ICF Campaign for FY 2009 and beyond.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The ICF Campaign has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take all necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2005 Budget Request. The OMB gave the ICF Campaign scores of 100 percent on the Program Purpose and Design Section, 90 percent on the Strategic Planning Section, 89 percent on the Program Management Section, and 60 percent on the Program Results and Accountability Section. Overall, the OMB rated the ICF Campaign 77 percent, its second highest category of “Moderately Effective.” The OMB assessment found that the program appears to be better managed than it was several years ago. Additionally, the OMB assessment found that clear and succinct performance measures were difficult to articulate for the program. In addition, the OMB encouraged frequent monitoring by independent evaluators, to include those retained by the Department of Defense (DoD). In response to the OMB findings and Congressional direction, the NNSA arranged for and conducted a Defense Science Board review of the NIF in FY 2004 and a JASON Committee Review and an Independent Review of the NIF Project by the DOE Office of Science in FY 2005. An independent review of both the NIC and the NIF together was conducted in the last quarter of FY 2006. The NNSA will continue to refine these performance measures, and continue frequent monitoring by independent evaluators, including the DoD.

Annual Performance Results and Targets
(R = Results; T = Target)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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: 62% T: 63%	R: 65% T: 67%	R: 71% T: 73%	T: 80%	T: 86%	T: 93%	T: 100%	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: 76% T: 74%	R: 81% T: 81%[a]	R: 88% T: 87%	T: 94%	T: 98%	T: 100%	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: 12% T: 16%	R: 21% T: 26%	R : 45% T: 45%	T: 63%	T: 82%	T: 95%	100%	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)*	R: 700 T: 500	R: 700 T: 500	R: 691 T: 400	T: 270	T : 240	T: 200	T: 260	T: 290	T: 290	By 2011, increase ICF facility availability to 290 total days per year.
Annual average hours per experiment required by the operational crew to prepare the Z facility for an experiment (Efficiency)**	R: 9	R: 10.8 T: 9	R: 10.3[b] T: 11	T: 11	T: 11	T: 9	T: 9	T: 9	T: 9	By 2009, reduce the operational crew preparation time per Z facility experiment to 9 hours. (2004 Baseline equivalent of 11 hours/experiment)

*Fluctuations in numbers result termination of Nike Operations at NRL in 2008, commissioning of ZR at SNL in 2007 with limited operations, and availability of NIF beginning in 2010.

**Additional radiation safety procedures required revision of annual and endpoint targets by +2 hours in 2006.

[a] Reported as 81% in FY 2005 PART; subsequently re-baselined to 79%.

[b] Additional radiation safety procedures required revision of annual and endpoint targets by +2 hours in FY 2006.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Ignition	**74,859**	**79,763**	**97,537**

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

This budget supports execution of the first NIF ignition experiment in FY 2010. In FY 2008, emphasis will continue on critical path activities required to achieve indirect-drive ignition and defining the physics basis for direct-drive ignition on the NIF. Experiments in support of the ignition goal will be carried out at a variety of facilities, including OMEGA, OMEGA EP, and ZR. In FY 2008, there will be continued refinement of requirements for the first ignition experiments. Engineering prototypes of the ignition target design and engineering prototype target nuclear fuel layering will be demonstrated. Experiments will specify diagnostic techniques required for measurements of capsule symmetry, shock timing, and hohlraum radiation drive. Experiments will continue to investigate the hydrodynamic performance of targets. The point design for the polar direct drive option will be placed under configuration control.

Support of Other Stockpile Programs	**9,673**	**5,872**	**0**

This effort supports planned uses of ignition for Stockpile Stewardship applications. While funding is not requested in the ICF Campaign in FY 2008, activities will be continued at a modest level in the Science Campaign.

Congressionally Directed Activity	**10,000**	**0**	**0**

An increase of $10,000,000 over the budget request was provided to perform experiments on the Z-machine to validate computer models as well as experiments on OMEGA at the University of Rochester.

NIF Diagnostics, Cryogenics and Experimental Support	**42,578**	**45,959**	**67,935**

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. During FY 2008, the major emphasis will be placed on preparation for the NIF ignition experiments, including completion of initial target illumination characterization diagnostics,

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		

beginning disposable debris shield production, and completing personnel and environmental protection systems Title II designs.

Pulsed Power Inertial Confinement Fusion	**10,001**	**10,603**	**10,440**

Funds computational target design, experiments, and experimental infrastructure to assess z-pinches as a driver for ignition and high yield fusion. The focus of experiments on ZR (the refurbished Z) in FY 2008 will be to obtain a detailed comparison of x-ray power, energy, and spectrum with the past performance of Z, in order to develop two- and three-dimensional calculations for z-pinch-driven hohlraums and advanced concepts.

Congressionally Directed Activity	**901**	**0**	**0**

A $901,000 increase over the budget request was provided for pulsed power ICF to assess Z pinches as drivers for ignition and high yield fusion.

University Grants/Other ICF Support	**7,623**	**8,903**	**0**

The University Grants/Other ICF Support subprogram funds three major activities: high energy density activities within the Stockpile Stewardship Academic Alliances Program, the National Laser User Facility program at the University of Rochester, and direct technical support for the ICF Campaign. Beginning in FY 2008, the university grants and research programs in the high-energy-density science portion of the Stockpile Stewardship Academic Alliances Program will be transferred to the Science Campaign; high energy density physics activities within the Stockpile Stewardship Academic Alliances will be solicited via the Joint Program in High Energy Density Laboratory Plasmas. The National Laser User Facility program will be funded within the Joint Program in High Energy Density Laboratory Plasmas. Direct technical support for the Campaign will be funded within the Facility Operations and Target Production subprogram.

Congressionally Directed Activity	**[5,000]**	**[0]**	**[0]**

Within the funds provided, $3,000,000 is for research into strongly magnetized high energy density matter and $2,000,000 is for construction of the high energy short pulse laser system [non-add].

Joint Program in High Energy Density Laboratory Plasmas	**0**	**0**	**3,213**

The Joint Program in High Energy Density Laboratory Plasmas (HEDLP) supports joint activities with the Office of Science required to steward the study of laboratory high energy density plasma physics within DOE. This includes funds to support external user programs at the University of Rochester and other facilities. It also includes a concept development solicitation to support utilization of the NIF and other facilities for basic high energy density science, university grants, and other activities. NNSA's portion of the joint program is funded via both the ICF Campaign and the Science Campaign. Establishment of the joint program in HEDLP is expected by spring of 2007. The total FY2008 NNSA contribution from the ICF and Science Campaign to the joint program is $12,356,000.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Facility Operations and Target Production	**53,977**	**43,021**	**86,083**

Supports operations of ICF facilities, including OMEGA, OMEGA EP, and some activities on ZR, in a safe, secure manner. Includes funding for ICF target development, production, and delivery at the target fabrication support contractor, data collection and archiving, routine facility maintenance and engineering support, support for facility-supplied diagnostics, and miscellaneous HQ support for the campaign, including external reviews. Activities of major emphasis in FY 2008 include target development activities for the National Ignition Campaign (including the demonstration of an engineering prototype ignition target), beginning procurement of long-lead time operational inventories for NIF operations, and execution of the first stockpile stewardship experiment on ZR, a Level-1 milestone.

Congressionally Directed Activity	**10,000**	**0**	**0**

An additional $10,000,000 was provided to accelerate target fabrication.

Inertial Fusion Technology	**0**	**0**	**0**

This is a Congressionally directed area that supports the development of high repetition rate laser and pulsed-power devices and associated technologies required to conduct experiments with these drivers.

Congressionally Directed Activity	**47,520**	**0**	**0**

The Congress provided additional funding for continued development of High Average Power Lasers ($24,750,000); the Naval Research Laboratory ($14,850,000); extended operations of the Z facility ($5,940,000) and for Ohio State University for the high density matter laser ($1,980,000).

NIF Assembly and Installation Program	**101,306**	**143,438**	**136,912**

This funding element supports the activities associated with integration, planning, assembly, installation, and activation of the NIF. The NIF Assembly and Installation Program provides the staffing, training, and procedures for the NIF operations. This category of work is especially important for the transition of the NIF from construction to experimental operation (largely within the NIC), which begins in FY 2008.

The NIF Project is 94 percent complete, and NIF Construction (the combined NIF Project and NIF Assembly and Installation Program) is 88 percent complete as of September, 2006. The remaining effort on the project (FY 2007 – mid-FY 2009) will focus on assembly, installation, and activation of the remaining beamlines, with all 192 beamlines installed and activated in FY 2009.

The majority of work remaining to complete the NIF involves the assembly, installation, and activation of line replaceable units (LRUs). LRUs are the modular assemblies containing the optics that are inserted into the NIF beamlines. Rigorous production planning and coordination will continue to ensure a high-level of production and installation is maintained as planned through the end of the project.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
High-Energy Petawatt Laser Development	**2,650**	**2,213**	**0**

This subprogram supports construction of the OMEGA EP facility consistent with the current approved baseline. OMEGA EP will be completed in FY 2008 contingent upon receiving the FY 2007 Congressional Budget Request.

	FY 2006	FY 2007	FY 2008
Congressionally Directed Activity	**32,000**	**0**	**0**

The conference recommendation includes an additional $4,000,000 for OMEGA operations to provide additional shots to support ignition demonstration in 2011 and an additional $22,000,000 to accelerate the OMEGA Extended Performance capability project, a four beam super-high-intensity, high-energy laser facility. Within the available funds, $2,000,000 is provided for continued development of petawatt laser at the University of Texas at Austin; $2,000,000 is provided to the University of Nevada, Reno to continue its collaboration with Sandia National Laboratories on highly diagnosed studies of exploding wire arrays and implosion dynamics. The conferees provide $2,000,000 to Sandia National Laboratories for Z-Petawatt Consortium experiments using the Sandia Z-Beamlet and Z petawatt lasers.

	FY 2006	FY 2007	FY 2008
NIF Construction	**140,494**	**111,419**	**10,139**

96-D-111, National Ignition Facility, LLNL. Supports construction of the NIF per the baseline schedule approved in June 2005. A separate data sheet for the NIF Project is included with this submission.

	FY 2006	FY 2007	FY 2008
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	**543,582**	**451,191**	**412,259**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Ignition	
Funding increase supports required effort for the execution of the first ignition experiments in FY 2010. This includes increases in the target physics experimental and design effort to a level required to execute the National Ignition Campaign (NIC) and the OMEGA experimental program needed to execute FY 2010- FY 2011 ignition campaigns on the NIF. Funds will also be applied to increased effort in the following areas: target fabrication and metrology, fundamental materials research for target fabrication, user optics for ignition experiments, design development and other diagnostic activities in support of the National Ignition Campaign, and work at OMEGA involving direct drive target physics at development of improved NIF beam smoothing techniques. Increase also supports diagnostic installation and initial experiments at OMEGA EP.	**+17,774**
Support of Other Stockpile Programs	
Decrease reflects transfer to the Science Campaign of responsibility for funding most HEDP experiments on the ZR facility.	**-5,872**
NIF Diagnostics, Cryogenics, and Experimental Support	
Funding increase supports required effort for the execution of first ignition experiments in FY 2010. Increased funding will be applied to the following: fabrication, installation, and activation of ignition diagnostics; procurement and assembly of cryogenic target system equipment; and design and procurement of personnel and environmental protection systems, including tritium processing equipment in support of experiments. FY 2008 is the key year in procuring and assembling the key elements of experimental infrastructure that are central to performing the first ignition experiment in FY 2010.	**+21,976**
Pulsed Power Inertial Confinement Fusion	
Represents continuation of existing program at slightly reduced level.	**-163**
University Grants/Other ICF Support	
A portion of this program, high energy density physics portion of the Stewardship Sciences Academic Alliances (SSAA) , is transferred to the Science Campaignand is part of the new Joint Program in High Energy Density Laboratory Plasmas (HEDLP). The remaining functions will remain in the ICF Campaign, but are separately identified as the Joint Program in High Energy Density Laboratory Plasmas (HEDLP).	**-8,903**

	FY 2008 vs. FY 2007 ($000)
Joint Program in High Energy Density Laboratory Plasmas	
Reflects the establishment of the Joint Program in High Energy Density Laboratory Plasmas (HEDLP). Activities were previously part of the University Grants/Other ICF Support program. The request includes approximately $1,500,000 for new university activities.	**+3,213**
Facility Operations and Target Production	
Funding increase supports increased program effort required to support the execution of the first ignition experiments in FY 2010. Funds will be applied to the following: development of methods for the production of ignition capsules; procurement of optics operating inventory; sustaining engineering support to operation, maintenance, and management of the infrastructure and facility; and conducting both indirect- and direct-drive experiments on OMEGA. The FY 2008 funding request is consistent with the National Ignition Campaign execution plan baseline. Increase also supports initial operation of OMEGA EP after completion in April 2008, ZR operations, and miscellaneous HQ support for the Campaign, including external reviews. ZR will operate single shift to support near-term Stockpile Stewardship deliverables.	**+43,062**
NIF Assembly and Installation Program	
Decrease is in accordance with established project baseline planning. Requested budget supports assembly, installation, testing and commissioning required for project completion.	**-6,526**
High-Energy Petawatt Laser Development	
Decrease reflects planned profile to complete OMEGA EP construction in FY 2008 with funds provided in FY 2007.	**-2,213**
NIF Construction	
Funding decrease reflects ramp down of construction work as the project nears completion.	**-101,280**
Total Funding Change, Inertial Confinement Fusion Ignition and High Yield Campaign	**-38,932**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	0	0	0
Capital Equipment	35,210	36,266	37,354
Total, Capital Operating Expenses	**35,210**	**36,266**	**37,354**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	0	0	0	0
Capital Equipment	38,475	39,629	40,818	42,043
Total, Capital Operating Expenses	**38,475**	**39,629**	**40,818**	**42,043**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
96-D-111, National Ignition Facility	2,094,897	1,703,873	140,494	111,419	10,139	0
Total, Construction			**140,494**	**111,419**	**10,139**	

[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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

NIF Construction and the National Ignition Campaign Summary

The primary mission of the National Ignition Facility (NIF) is to provide high energy density physics (HEDP) in support of the Stockpile Stewardship Program (SSP), including demonstrating ignition and developing it as a tool for stewardship. The NIF will also provide a unique capability for research in a wide range of scientific areas of interest, including materials science and astrophysics. The National Ignition Campaign plan defines the activities to be undertaken on the NIF between FY 2005 and FY 2012, and is consistent with the Future-Years Nuclear Security Program (FYNSP) FY2007-FY2012.

Major components of the plan to complete and activate the NIF through FY 2012 include the following:

NIF Project Completion – The NIF Activation and Early Use Plan (AEUP) submitted to Congress on June 30, 2005, includes a summary of the plan to complete the NIF and the schedule by which the NIF components will be installed and activated. Key parameters include the balance of facility time available between laser activation and user experiments, and various facility specifications such as the available energy vs. time.

National Ignition Campaign – The NIC is a national effort that incorporates all effort required to execute initial ignition experiments in FY 2010 and follow-on ignition campaigns. The NIC also supports activities in the FY 2007 – FY 2012 timeframe required to facilitize the NIF for execution of high energy density weapon physics, basic sciences, and other experiments planned for 2010 and beyond. The National Ignition Campaign is completed in Q1 FY 2012. Subsequent high energy density experimental work at NIF in support of stockpile stewardship, including experiments to apply ignition, will be executed as normal program-fund.

Milestones

The National Ignition Campaign activities will be managed as an "Enhanced Management Program" as specified in the Defense Programs Management Manual. FY 2008 milestones for the NIF Project are contained in the NIF Project data sheet, attached separately to this submission. Major milestones regarding the NIF ignition and the NIF use are contained in the National Ignition Campaign Execution Plan. Completion of these milestones as scheduled is dependent on the final outcome of the FY 2007 budget process. Level-1 milestones and FY 2008 Level-2 milestones for the National Ignition Campaign are as follows:

NIC Milestones – Level-0, Level-1 and FY 2008 Level-2		
Level	**Milestone**	**Date**
1	Begin first integrated Ignition experiments	4Q FY 2010
1	Ready for 1 million joule operations	4Q FY 2009
1	Decision on NIF facilitization for polar direct drive (PDD)	4Q FY 2009
1	Begin FY 2010 target performance experiments	1Q FY 2010
1	Ready for 1.8 million joule operations	2Q FY 2011
2	Place baseline polar direct drive (PDD) point design under Configuration control	1Q FY 2008
2	Begin disposable debris shield (DDS) production	1Q FY 2008
2	Complete initial target illumination characterization diagnostics	1Q FY 2008
2	Demonstrate engineering prototype ignition target	2Q FY 2008
2	Complete Title II design review for FY 2010 ignition target design	2Q FY 2008
2	Demonstrate engineering prototype target layering	4Q FY 2008
2	Complete PEPS Title II design	4Q FY 2008

The table below summarizes the budget for NIF Construction and the National Ignition Campaign. NIF Construction remains on track for completion per the current baseline implemented in FY 2005. Risk mitigation activities for the National Ignition Campaign are reduced compared to the National Ignition Campaign Execution Plan signed in June, 2005. The accomplishment of the NIF and NIC milestones is contingent upon the FY 2007 Congressional Budget Request being provided.

National Ignition Campaign Funding Profile - Including The NIF Project						
		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
NIF Construction						
	NIF Total Project Costs	10,139				
	NIF Assembly and Installation Program	136,912	54,281			
	Total NIF Construction	147,051	54,281			
National Ignition Campaign						
	Ignition	97,537	103,644	103,457	102,632	25,658
	NIF Diagnostics, Cryogenics, and Experimental Support	67,935	68,248	74,041	73,902	18,476
	Facility Operations/Target Production	66,698	144,660	193,279	193,727	48,432
	Total National Ignition Campaign	232,170	316,552	370,777	370,261	92,566
NIF Activation and Early Use	**Grand Total**	379,221	370,833	370,777	370,261	92,566

Joint Program in High Energy Density Laboratory Plasmas Summary

Description

The National Nuclear Security Administration and the Office of Science have 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). HEDP is best advanced within the context of current agency missions. The purpose of the joint program is to steward effectively HEDLP within the DOE while maintaining the interdisciplinary nature of this area of science. Stewardship of HEDLP is needed to support accomplishment of the Department's programmatic goals in areas such as stockpile stewardship and inertial fusion energy. Other agencies may join the program in the future as dictated by agency needs and priorities. Funding for the program is shown below.

	(dollars in thousands)		
Budget Category	**FY 2006**	**FY 2007**	**FY 2008**
Office of Science- Office of Fusion Energy Sciences	**15,470**	**11,949**	**12,281**
NNSA- Office of Defense Programs	**12,086**	**10,000**	**12,356**
ICF Campaign- Joint Program in High Energy Density Laboratory Plasmas –	6,269	7,000	3,213
Science Campaign- Dynamic Materials Properties -	5,817	3,000	9,143
TOTAL	**27,556**	**21,949**	**24,637**

Note: Prior year funds for HEDLP-related activities are included for reference.

In FY 2008, the ICF subprogram Joint Program in High Energy Density Laboratory Plasmas subprogram is transferring $5,000,000 to the Science Campaign Dynamic Materials subprogram which is reflected in the $9,143,000 total in the table above.

Program Overview

The joint program in HEDLP includes individual investigator (grants) and research centers activities (cooperative agreements) in HEDP funded under the NNSA Stewardship Science Academic Alliances Program (SSAA), and also NNSA user programs such as the National Laser User Facility Program. Within the Office of Science's Fusion Energy Sciences (FES) Program, the joint program includes work in fast ignition, heavy ion fusion, high Mach number plasma jets and the study of materials under the influence of high magnetic fields. Further details are contained in the budget narrative for the NNSA's Inertial Confinement Fusion and High Yield Campaign, the NNSA's Science Campaign, and Office of Fusion Energy Sciences within the Office of Science.

In FY 2008, the joint program will issue a solicitation that supports academic research in HEDLP. Existing NNSA research centers and FES university activities in this area will be consolidated into this solicitation. Additional new activities funded by the joint program in FY 2008 include a concept development solicitation aimed at identifying new ideas for HEDLP experiments and expansion of NNSA facility user programs. Separate companion solicitations for the national laboratories may be considered by the Fusion Energy Science Program from time to time. The NNSA/FES joint program will be assessed frequently to determine its success in advancing HEDLP. Funding requests will be adjusted as appropriate in coming years depending on the success of the program and the budgetary environment.

96-D-111, National Ignition Facility (NIF), Lawrence Livermore National Laboratory, Livermore, California[a]

1. Significant Changes

None.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 1996 Budget Request *(Preliminary Request)*	1QFY1996	1QFY1998	3QFY1997	3QFY2002	N/A	N/A
FY 1998 Budget Request *(Title I Baseline)*	1QFY1996	1QFY1998	3QFY1997	3QFY2003	N/A	N/A
FY 2000 Budget Request	1QFY1996	2QFY1998	3QFY1997	3QFY2003	N/A	N/A
FY 2001 Budget Request	1QFY1996	2QFY1998	3QFY1997	3QFY2003	N/A	N/A
FY 2001 Amended Budget Request	1QFY1996	2QFY1998	3QFY1997	4QFY2008	N/A	N/A
FY 2006 Budget Request	1QFY1996	2QFY1998	3QFY1997	4QFY2008	N/A	N/A
FY 2005 Directed Change Re-baseline (BCP05-001) [b]	1QFY1996	2QFY1998	3QFY1997	2QFY2009	N/A	N/A
FY 2006 Directed Change Re-baseline (BCP06-001)	1QFY1996	2QFY1998	3QFY1997	2QFY2009	N/A	N/A

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] The FY 2005 Directed Change resulted in a Re-baseline (BCP05-001) that delayed Project Completion (Critical Decision 4) by six months. The FY 2006 Directed Change resulted in a Change Control Action (BCP06-001) that re-sequenced the NIF internal plan based on restoration of funding in FY 2007. The NIF baseline cost, schedule and technical scope were unchanged.

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Other Related[a] Costs, Except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 1996 Budget Request *(Preliminary Request)*	842,600	231,000	N/A	N/A	1,073,600		
FY 1998 Budget Request *(Title I Baseline)*	1,045,700	153,200	N/A	N/A	1,198,900		
FY 2000 Budget Request	1,045,700	153,200	N/A	N/A	1,198,900		
FY 2001 Budget Request	1,045,700	153,200	N/A	N/A	1,198,900		
FY 2001 Amended Budget Request	2,094,897	153,200	1,200,000	N/A	3,448,097		
FY 2006 Budget Request	2,094,897	153,200	1,200,000	N/A	3,448,097		
FY 2005 Directed Change Re-baseline (BCP05-001)	2,094,897	153,200	1,254,281	N/A	3,502,378		
FY 2006 Directed Change Re-baseline (BCP06-001)	2,094,897	153,200	1,254,281	N/A	3,502,378		

[a] Other Related Costs were funded in the ICF Program prior to FY 2001. Beginning in FY 2001, $1,198,900 for the NIF Demonstration Program was specifically identified within the ICF Campaign to maintain the Project Baseline. The FY 2005 Directed Change resulted in a Re-baseline (BCP05-001) that increased the NIF Demonstration Program Cost by $54,281,000. The DOE renamed the NIF Demonstration Program to be the NIF Assembly and Installation Program to clarify the nature of the activity in the FY 2008 Budget. The Program cost, schedule, and technical scope were unchanged.

4. Project Description, Justification, and Scope

The project provides for the design, procurement, construction, assembly, and acceptance of the NIF. The NIF is an experimental Inertial Confinement Fusion (ICF) facility intended to enable the ICF Program to achieve controlled thermonuclear fusion in the laboratory by using 192 laser beams to implode a small capsule containing a mixture of the hydrogen isotopes deuterium and tritium. The NIF will also create conditions of extreme energy density in materials using the lasers to drive materials to high temperatures, pressures, and densities. The NIF is being constructed at LLNL, Livermore, California, as determined by the Record of Decision made on December 19, 1996, as a part of the Stockpile Stewardship and Management Programmatic Environmental Impact Statement (SSM PEIS).

The National Nuclear Security Administration (NNSA) ICF and Science Campaigns carry out the high energy density physics (HEDP) experiments required for the success of the Stockpile Stewardship Program (SSP). The demonstration of fusion ignition in the laboratory is an important component of the SSP and a major goal of the NIF and ICF Campaign. The NIF is designed to provide the laser architecture and system capability required for the ICF Program to achieve propagating fusion burn and moderate (1–10) energy gain within 2–3 years of full operation, with the goal of the first ignition experiments in FY 2010, and to conduct a variety of high-energy-density experiments, both utilizing fusion ignition and through direct application of the high laser energy onto targets without ignition. Technical capabilities provided by the ICF program also contribute to other Department of Energy (DOE) and NNSA missions, including nuclear weapons effects testing and the investigation of inertial fusion energy for future power production. Ignition and other goals for NIF were identified in the NIF Justification of Mission Need, which was endorsed by the Secretary of Energy. Identification of target ignition as the next important step in ICF development for both defense and non-defense applications is consistent with the earlier (1990) recommendation of the DOE Fusion Policy Advisory Committee and the National Academy of Sciences Inertial Fusion Review Group. In 1995, the DOE Inertial Confinement Fusion Advisory Committee affirmed the program's readiness for an ignition experiment. Reviews by the JASONs in 1996 and 2004 affirmed the value of the NIF for stockpile stewardship.

The NIF Project supports the DOE and NNSA mandate to maintain nuclear weapons science expertise required for stewardship of the stockpile. After the United States announcement of a moratorium on underground nuclear tests in 1992, the Department established the SSP to ensure the preservation of the core intellectual and technical competencies in nuclear weapons. The NIF is one of the most vital facilities in that program. The NIF will provide a 192-beam laser system and a 10-meter diameter target chamber with a capacity to hold user-supplied diagnostics, along with target alignment and positioning systems and computer control systems. The SSP will provide support to the ICF and HEDP communities to utilize the NIF capability to conduct repeatable, controlled laboratory experiments. These experiments will address high energy density and fusion aspects of both primaries and secondaries in stockpile weapons.

Without the NIF, the nation's computational capabilities and scientific knowledge are inadequate to ascertain all of the performance and safety impacts from changes in the nuclear warhead physics packages due to aging, remanufacturing, or engineering and design alterations. Such changes are inevitable if the warheads in the stockpile are retained for the foreseeable future. In the past, the impacts of such changes were evaluated through underground nuclear weapon tests. Without full-scale underground testing, we will require better, more accurate computational capabilities to assure the reliability and safety of the nuclear weapons stockpile for the indefinite future.

To achieve the required level of confidence in our predictive capability, it is essential that we have access to conditions in laboratory experiments that approach those occurring in nuclear weapons. The importance of ensuring our nuclear weapons deterrent for national security requires such confidence. The NIF will be a principal laboratory experimental physics facility for secondaries and for some aspects of primary performance. The NIF remains the only currently planned stockpile stewardship facility that provides the experimental capability to achieve thermonuclear fusion burn – a key part of the operation of our nuclear weapons stockpile.

The most significant potential commercial application of ICF in the long term is the generation of electric power. Consistent with the recommendations of the Fusion Policy Advisory Committee, the unique NIF laser and its facility-based systems will be used by researchers supported by the DOE Office of Fusion Energy Sciences and other energy research programs to address critical elements of inertial fusion energy physics. The Inertial Fusion Energy Program will explore moderate (1-10) energy gain target designs, establishing requirements for driver energy and target illumination for high gain targets, and developing materials and technologies useful for civilian inertial fusion power reactors.

The ignition of an inertial fusion capsule in the laboratory will produce extremely high temperatures and densities in matter. Thus, the NIF will also become a unique and valuable laboratory for experiments relevant to a number of areas of basic science and technology (e.g., stellar phenomena). NNSA Defense Programs, DOE Office of Science, and other organizations are initiating programs to support the basic science use of NIF by universities, private industry, and other organizations.

The NIF Project will provide an experimental fusion facility consisting of a laser and target area building (LTAB), and associated assembly and refurbishment capability, control rooms, and a diagnostic building for housing experimenters and their equipment. The laser will be capable of providing laser pulses to targets with an energy of up to 1.8 megajoules (MJ) and an output pulse power of up to 500 terawatts (TW) at a wavelength of 0.35 micrometers (μm) and with specified symmetry, beam balance and pulse shape. The NIF experimental facility houses a 192-beam, flashlamp pumped neodymium (Nd) glass laser capable of generating and delivering the pulses to a 10-meter diameter target chamber. The NIF Project provides other supporting hardware in the target chamber, such as a positioning and alignment systems for precisely centering ICF and HEDP targets at the center of the target chamber.

The NIF LTAB provides an optically stable and clean environment. The LTAB was constructed to provide the structure for a shielded enclosure for radiation confinement around the target chamber and is designed as a radiological, low-hazard facility capable of withstanding the natural phenomena specified for the LLNL site. The baseline facility is for one target chamber, and the design shall not preclude future upgrade for additional target chambers. The facility is designed to allow both classified and unclassified experiments.

The NIF Project consists of both conventional and special facilities.

- Site and Conventional Facilities include the land improvements (e.g., grading, roads) and utilities (electricity, heating gas, water), as well as the laser building, which has an approximately 20,300 square meters footprint and 38,000 square meters in total area. It is a reinforced concrete and structural steel building that provides the vibration-free, shielded, and clean space for the installation of the laser, target area, and integrated control system. The laser building consists of two laser bays, each 31 meters (m) by 135 m long, and a central target area--a heavily shielded

(1.8 m thick concrete) cylinder 32 m in diameter and 32 m high. The laser bays, optical switchyards, target area and diagnostic building include security systems, control rooms, supporting utilities, fire protection, monitoring, and decontamination and waste handling areas. Optics assembly and refurbishment capability is provided for by incorporation of an Optics Assembly Building attached to the laser building and modifications of other existing site facilities.

Special facilities include the Laser System, Target Area, Integrated Computer Control System, and Optics.

- The laser system is designed to generate and deliver high energy and high power optical pulses to the target chamber. The system consists of 192 laser beams configured to illuminate the target surface with a specified symmetry, uniformity, and temporal pulse shape. The laser pulse originates in the injection laser system. This precisely formatted low energy pulse is amplified in the preamplifier and in the main laser system in the power amplifier and main amplifier sections. To minimize intensity fluctuation, each beam is passed through a pinhole in a spatial filter on each of the four passes through the amplifier and through a transport spatial filter. The beam transport directs each high power laser beam to an array of laser entry ports distributed around the target chamber where the wavelength of the laser light is converted to the higher harmonics of the primary laser wavelength, spatially modified and focused on the target. Systems are provided for control of alignment and characterization of laser beams and targets.

- The target area includes a 10m diameter, low-activation (i.e., activated from radiation) aluminum vacuum chamber located in the LTAB. Within this chamber, the user-provided target will be precisely located using target alignment and positioning systems. The chamber and building structure are designed to shield radiation and confine radioactivity with the addition of user-provided shielded entry and exit doors when programmatically necessary. Structural, utility and other support systems necessary for safe operation and maintenance will also be provided in the Target Area. The target chamber, the target diagnostics, and staging areas will be capable of conducting experiments with user-provided cryogenic targets and cryogenic target support systems. The Experimental Plan indicates that cryogenic target experiments for ignition will begin after Project completion with a goal of ignition in 2010. The baseline configuration for the NIF laser architecture on the target chamber is for indirectly driven ignition targets. An option for future modifications to permit directly driven targets is not precluded in the design.

- The integrated computer control system includes the computer systems (note: no individual computer will cost over $100,000) required to control the laser and target systems. The system will provide the hardware and software necessary to support initial NIF acceptance and operations checkout. Also included is an integrated timing system for experimental control of laser and diagnostic operations, safety interlocks, and personnel access control.

- Thousands of optical components are required for the 192-beam NIF. These components include laser glass, lenses, mirrors, polarizers, deuterated potassium dihydrogen phosphate crystals, potassium dihydrogen phosphate crystals, pulse generation optics, main debris shields and windows, and the required optics coatings. The optics portion of the Project includes quality control equipment to receive, inspect, characterize, and refurbish the optical elements. Other user-provided optics to support user experiments may include special use crystals for polarization smoothing, continuous phase plates for beam spot tailoring, focusing lenses for multiple color operation, and other laser front end modifications.

Project Milestones:

The Project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

Compliance with Project Management Order

- Critical Decision 0: Approve Mission Need – 2Q FY 1993
- Critical Decision 1: Approve Preliminary Baseline Range – N/A
- Critical Decision 2: Approve Performance Baseline – 1Q FY 1994
- External Independent Review Final Report: May 2000
- Critical Decision 3: Approve Start of Construction – 2Q FY 1997
- Critical Decision 4: Approve Start of Operations – 2Q FY 2009

Major Milestones

- Title I Initiated – 2Q FY 1996
- NEPA Record of Decision – 1Q FY 1997
- Optics Facilitization Complete – 4Q FY 1999
- End Conventional Construction – 4Q FY 2001
- First Light to Target Chamber Center – 2Q FY 2003
- Complete Performance Qualification[a] of a Single Bundle at TCC – 1Q FY 2009
- Complete Operational Qualification[b] of 96 Beams (Two Clusters) at TCC – 2Q FY 2009
- Complete Installation Qualification[c] of all LRUs – 2Q FY 2009

Project Milestones for FY 2006:

- Deliver 80 kJ to switchyard calorimeters (Single Bundle) – 1Q (Completed 4Q 2005)
- Deliver LB Multi-Bundle Controls – 4Q

Project Milestones for FY 2007:

- Complete Single Bundle Performance Qualification[a] in PDS – 2Q
- Complete LB1 Flashlamp Firing MPR – 2Q

[a] One bundle has been operated at energy and power levels consistent with the single bundle Project Completion Criteria. This bundle is referred to as being performance qualified (PQ'd).

[b] Twelve bundles have been operated at energy and power levels consistent with the 96 beam Project Completion Criteria. These bundles are referred to as being operationally qualified (OQ'd).

[c] Twenty four bundles are installed, aligned, and under ICCS control. These bundles are referred to as being installation qualified (IQ'd).

Project Milestones for FY 2008:

- First Cluster – Energy to Switchyard Calorimeters – 1Q
- Second Cluster – Energy to Switchyard Calorimeters – 3Q
- Complete LB LRU Installations – 4Q

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
1996	N/A	N/A	33,991
1997	N/A	N/A	62,208
1998	N/A	N/A	46,844
1999	N/A	N/A	29,755
2000	N/A	N/A	95,245
2001	N/A	N/A	35,128
2002	N/A	N/A	8,872
2003	N/A	N/A	13,434
2004	N/A	N/A	12,318
2005	N/A	N/A	1,576
2006	N/A	N/A	7,174
2007	N/A	N/A	500
2008	N/A	N/A	0
2009	N/A	N/A	0
Total Design	N/A	N/A	347,045
Construction			
1996	N/A	N/A	0
1997	N/A	N/A	12,085
1998	N/A	N/A	118,545
1999	N/A	N/A	221,721
2000	N/A	N/A	157,522
2001	N/A	N/A	219,597
2002	N/A	N/A	273,281
2003	N/A	N/A	201,626
2004	N/A	N/A	118,800
2005	N/A	N/A	126,172
2006	N/A	N/A	137,647
2007	N/A	N/A	132,980
2008	N/A	N/A	27,611
2009	N/A	N/A	265
Total Construction	N/A	N/A	1,747,852
Total Estimated Cost (TEC)			
1996	37,400	37,400	33,991
1997	131,900	131,900	74,293
1998	197,800	197,800	165,389
1999	284,200	284,200	251,476
2000	247,158	247,158	252,767
2001	197,255	197,255	254,725
2002	245,000	245,000	282,153
2003	214,045	214,045	215,060
2004	149,115	149,115	131,118
2005	128,972	128,972	127,748
2006	140,494	140,494	144,821
2007	111,419	111,419	133,480
2008	10,139	10,139	27,611
2009	0	0	265
Total TEC (96-D-111)	2,094,897	2,094,897	2,094,897

6. Details of Project Cost Estimate

Total Estimated Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Design Phase		
Preliminary and Final Design	346,545	346,545
Contingency	500	500
Total Design	347,045	347,045
Construction Phase		
Site Preparation	1,800	1,800
Equipment	1,305,198	1,305,198
All other construction	413,600	413,600
Contingency	27,254	27,254
Total, Construction	1,747,852	1,747,852
Total, TEC	2,094,897	2,094,897

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	12,300	12,300
Start-up	140,191	140,191
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with “one-for-one” requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D.	709	709
Total, OPC	153,200	153,200

Other Related Operations and Maintenance Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
NIF Assembly & Installation Program (formerly NIF Demonstration Program)	1,176,268	1,176,268
Contingency.	78,013	78,013
Total NIF Assembly & Installation Program	1,254,281	1,254,281

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design)	347,045	0	0	0	0	0	0	347,045
TEC (Construction)	1,719,976	27,611	265	0	0	0	0	1,747,852
OPC (Other than D&D)	149,398	2,159	1,643	0	0	0	0	153,200
TPC (Other than D&D)	2,216,419	29,770	1,908	0	0	0	0	2,248,097
NIF Assembly & Installation (Other than D&D) (formerly NIF Demonstration Program)	1,057,527	142,156	54,598	0	0	0	0	1,254,281
Offsetting D&D Costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total- Project and Related Costs	3,273,946	171,926	56,506	0	0	0	0	3,502,378

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	3Q 2009
Expected Useful Life (number of years)	30
Expected Future Start of D&D for New Construction (fiscal quarter)	N/A

(Related Funding Requirements)

	Annual Costs[a]		Life Cycle Costs	
	Current Estimate[b]	Prior Estimate[c]	Current Estimate	Prior Estimate
Operations[d]	61,913	60,521	1,857,390	1,815,630
Maintenance	79,273	77,491	2,378,199	2,324,730
Total Related Funding	141,186	138,012	4,235,589	4,140,360

[a] Annual costs are presented as an average value over the facility life cycle. Costs vary over time; for example they will be greater than the average during the early years when the facility is establishing its full operational capability.

[b] In FY 2008 dollars.

[c] In FY 2007 dollars.

[d] Programmatic operating expenses directly related to utilizing the facility (e.g. experiment design, data analysis) are not included here; refer to the specific Campaign budgets.

9. Required D&D Information

N/A

10. Acquisition Approach

The NIF Project has included participation from LLNL, Los Alamos National Laboratory (LANL), Sandia National Laboratories (SNL), Honeywell Kansas City, and the University of Rochester Laboratory for Laser Energetics (UR/LLE) and has been supported by competitively-selected contracts with Architect Engineering firms, an integration management and installation contractor, equipment and material vendors, and various construction firms. Participants prepare the design, procure equipment and materials, and perform conventional construction, equipment installation, safety, system analysis, and qualification tests. NNSA maintains oversight and coordination through the NNSA Office of the NIF Project. All activities are integrated through the guiding principles and five core functions of the DOE ISM System (DOE Policy 450.4).

10.1 NIF Execution

10.1.1 Conceptual and Advanced Conceptual Design

The conceptual design was completed in May 1994 by the staff of the participating laboratories. Keller and Gannon contractors provided designs of the conventional facilities and equipment.

Design requirements were developed through a Work Smart Standards (WSS)-Like Process approved by the Manager of the (then) DOE Oakland Operations Office. New requirements have been defined since the original WSS were placed in the DOE-University of California (UC) Contract ENG-48 in 1997. Prior to the completion of the NIF Project, the LLNL Work Smart Standards will be applied.

The Conceptual Design Report was subjected to an Independent Cost Estimate (ICE) Review by Foster Wheeler USA under contract to the DOE. The advanced conceptual design phase further developed the design, and is the phase in which all the criteria documents that govern Title I Design were reviewed and updated.

10.1.2 Title I Design

In FY 1996, Title I Design began with the contract award for the Architect/Engineers (RM Parsons and AC Martin) and a Construction Management firm (Sverdrup) for the design and the constructability reviews of the (1) NIF LTAB and (2) Optics Assembly Building. Title I Design included developing advanced design details to finalize the building and the equipment arrangements and the service and utility requirements, reviewing Project cost estimates and integrated schedule, preparing procurement plans, conducting design reviews, completing the Preliminary Safety Analysis Report and National Environmental Protection Act documentation, and planning for and conducting the constructability reviews.

Title I Design was completed in November 1996 and was followed by an Independent Cost Estimate Review.

10.1.3 Title II Design

The participants in Title II (final design) include LLNL, LANL, SNL, RM Parsons, AC Martin, and Jacobs/Sverdrup (constructability reviews). The Title II Design provides construction subcontract packages and equipment procurement packages, construction cost estimates and schedules, test procedures and the acceptability criteria for tested components (e.g., pumps, power conditioning, special equipment), and environmental permits and plans for construction (e.g., Storm Water Pollution Prevention Plan).

10.1.4 Title III Field Engineering

Title III engineering represents the engineering necessary to support the construction and equipment installation, including inspection and field engineering. The Title III engineering is conducted by all participants. The main activities are to perform the engineering necessary to resolve issues that may arise during construction (e.g., fit problems, interferences, etc.). Title III engineering will result in the as-built drawings that represent the NIF configuration.

10.1.5 Construction and Equipment Procurement, Installation, and Qualification

Based on the March 7, 1997, Critical Decision 3, construction began with site preparation and excavation of the LTAB forming the initial critical-path activities. The NIF Construction Safety Program, superseded by the NIF Project Basic Site Safety Program, was approved and sets forth the safety requirements at the construction site for all LLNL and non-LLNL (including contractor) personnel. There was sufficient Title II Design completed to support bid of the major construction and equipment procurements. The conventional facilities were designed as construction subcontract bid packages and competitively bid as firm fixed price procurements. The initial critical-path construction activities included both the LTAB and the Optics Assembly Building. In addition, the site support infrastructure needed to support construction of conventional facility, beampath infrastructure installation, and line replaceable equipment and optics staging were put in place. At the same time, procurements on the critical path (e.g., target chamber) began following the established NIF Project Acquisition Plan.

The next major critical path activity was the assembly and installation of the Beampath Infrastructure Systems. These are the structural systems required to support the line replaceable units. The management and installation of the Beampath Infrastructure System was contracted to an Integration Management and Installation Contractor. This was done to fully involve industry in the construction of NIF as directed in the Secretary of Energy's 6-Point Plan and recommended by the Secretary of Energy Advisory Board interim report in January 2000. During the period of Beampath Infrastructure System installation, line replaceable unit and optics procurements continued.

The line replaceable unit equipment will be delivered, staged, and installed consistent with the overall construction and installation schedule for the LTAB.

The construction, equipment installation, and qualification will be supported by Title III inspection and field engineering, which will include resolving construction and installation issues and preparing the final as-built drawings.

10.1.6 Operational Testing and Commissioning

After installation, the facility and equipment will be qualified prior to the phased turnover to the commissioning organization. The NIF Assembly & Installation Program (formerly the NIF Demonstration Program renamed by the DOE to clarify the activity in the FY 2008 Budget without changing its cost, schedule, or technical scope) funds all activities associated with installing and qualifying all 192 beams of the laser system. The NIF Assembly & Installation Program also funds the final optics assemblies on the target chamber, which are expected to become activated/contaminated during facility operation as well as the commissioning activities required for the Project to demonstrate it has met the Project completion criteria. As NIF systems are qualified, the Project will ensure, through appropriate testing and review, that systems meet their functional, operational, and safety requirements. Further, the NIF Assembly & Installation Program will provide the staff, staff training, and the procedural foundation for NIF operations after Project completion.

Management Prestart Reviews (MPRs) are performed when a significant new risk will be introduced. The MPR process employs an independent team to evaluate readiness and recommends proceeding with introduction of the new risk. Any transfer of responsibility for Integrated Safety Management Systems (ISMS) Work Authorization associated with transition of a system is approved by the NIF Project Manager. An MPR may be used as the independent review process prior to turnover of systems to operations.

The integrated system qualification will begin with the installation qualification of selected systems and components. In specific cases (Laser Bay 1 Flash Lamp Firing, Laser Bay 1 Laser Light, and 3ω Cluster 3 Operational Qualifications), an MPR will be conducted and the DOE/NNSA Federal Project Director will concur in the review. These reviews will culminate in a Readiness Assessment conducted prior to the initiation of NIF operation. The Readiness Assessment will be conducted by LLNL, and the results will be validated by the DOE/NNSA Office of the NIF. The Readiness Assessment results are a key input for Critical Decision 4 (Approve Start of Operations or Project Closeout) by the Acquisition Executive.

10.1.7 Project Completion

The NIF Project Completion Criteria included in the NIF Project Execution Plan represent the system status and performance required at Project completion for Critical Decision 4. The complete set of NIF Performance criteria is contained in the *NIF Functional Requirements and Primary Criteria* as part of the NIF Project Execution Plan. These are the criteria that NIF is required to meet when ramped up to full power operation following Project completion (Critical Decision 4).

10.1.8 NIF Diagnostics, Cryogenics, and Experimental Support and User-Supplied Systems

The NIF Project will provide a laser system, target area, and experimental support areas that can meet the NIF Functional Requirements and Primary Criteria and Project Completion Criteria. NIF Diagnostics, Cryogenics, user optics, and Experimental Support Technology, a Major Technical Effort of the ICF Campaign, will provide the construction of facility capabilities to support user experiments. In addition, users of NIF will need to provide additional specialized equipment, including targets, computational modeling, and personnel to plan and perform Stockpile Stewardship ICF and HEDP experiments, inertial fusion energy science, basic science, and nuclear weapons effects tests. Further details are provided in the ICF and High-Yield Section of the NNSA budget narrative.

Examples of NIF Diagnostics, Cryogenics, and Experimental Support equipment include experiment diagnostics such as neutron diagnostics that will be used to make accurate measurements of ICF implosions and high-energy x-ray diagnostics for HEDP target experiments. In addition to facility diagnostics development, commissioning, and calibration, a variety of additional experimental support technologies will be provided to support user experiments. These include the NIF Cryogenic Target System (NCTS), special user optics such as phase plates for beam spot tailoring, Potassium Dihydrogen Phosphate (KDP) crystals for optimal multi-color operation and beam smoothing, disposable debris shields, and cryogenic target systems for indirect and direct drive inertial fusion experiments for ignition and non-ignition targets. The users will also provide for appropriate storage of their special optics and other unique experimental equipment.

Additional facility capabilities that will be supplied by NIF Diagnostics, Cryogenics, and Experimental Support Technology to meet programmatic needs include shielding doors for radiation protection during ignition shots, equipment to perform classified experiments, including classified computer systems and classified diagnostic support systems, special handling equipment and procedures for fielding targets containing beryllium, tritium, etc., and the facilitization that is required to enable these capabilities (Personnel and Environmental Protection Systems).

Individual users are responsible for target fabrication, characterization, and for any non-facility diagnostics or other individual experiment support needs. The NCTS provides for ignition target transport and handling. Non-ignition HED, ICF, basic science, etc., Experimenters are responsible for transport and handling up to insertion in the Target Positioner.

10.2 Security

The operation of the NIF may generate classified data requiring safeguarding; the Project itself represents a large investment of government funds in assets that must be protected. The Functional Requirements and the System Design Requirements identify security-system design requirements. A NIF Security Plan will be prepared and submitted for Livermore Site Office (LSO) Safeguards and Security Division Director approval prior to the first classified experimental operations.

The plan will describe the NNSA requirements and compliance of the NIF design (e.g., access control, vaults, secure transfer lines, etc.) and administrative procedures that implement them. It will also describe the site security organization and interface to the NIF Project security team. Issues related to transparency of experimentation by the user community and international collaboration will be addressed in the final NIF Security Plan to be approved by the LSO Safeguards and Security Division Director before Critical Decision 4.

OMEGA Extended Performance (EP) Project, University of Rochester / Laboratory for Laser Energetics (LLE), Rochester, New York[a]

1. Significant Changes

- The project will be completed in FY 2008 using uncosted funding from FY 2007. Completion of the Project in FY 2008 is dependent on receiving the full FY 2007 Congressional Budget Request.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2005 Budget Request *(Estimate)*	1Q FY 2003	2Q FY 2004	2Q FY 2004	4Q FY 2004	N/A	N/A
FY 2006 Budget Request *(Performance Baseline)*	1Q FY 2003	2Q FY 2004	2Q FY 2004	4Q FY 2007	N/A	N/A
FY 2007	1Q FY 2003	4Q FY 2004	4Q FY 2004	3Q FY 2008	N/A	N/A
FY 2008	1Q FY 2003	4Q FY 2004	4Q FY 2004	3Q FY 2008	N/A	N/A

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

3. Baseline and Validation Status

(dollars in thousands)

	Total Estimated Cost (TEC)	Other Project Costs (OPC), except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2005 Budget Request *(Estimate)*	67,000	10,700	N/A	77,700	N/A	77,700
FY 2006 Budget Request *(Performance Baseline)*	67,000	9,500	N/A	76,500	76,500	N/A
FY 2007	89,000	9,500	N/A	98,500	98,500	N/A
FY 2008	89,000	9,500	N/A	98,500	98,500	N/A

4. Project Description, Justification, and Scope

Project Description

The OMEGA EP project is the design, manufacture, assembly, and testing of four laser beams each having a long pulse capability and two also having a short pulse pettawatt capability to complement the existing capability of the OMEGA laser system. The four beamlines are to be built in a new building that was funded by the University of Rochester. Many aspects of the NIF and the OMEGA architectures will be used to produce the high-energy beams. The intended use of the system is to backlight events created by the OMEGA laser for greater understanding of implosion events and to conduct fast ignition and high intensity laser matter interaction research in the new OMEGA EP target chamber. The project is broken down into six primary technical areas:

Laser Sources - The laser sources provide the pulses to be input into a NIF-like beamline.

Laser Amplifiers – Mechanical systems that adapt the Multi-Segment-Amplifier of the NIF to a Single-Segment-Amplifier as required by the OMEGA EP architecture.

Power Conditioning – Energy storage system to energize the flash lamps of the laser amplifiers.

Opto-Mechanical Beamlines – All lenses, mirrors, deformable mirrors, diffraction gratings, Plasma-Electrode-Pockels-Cells, frequency conversion to the UV, and laser diagnostics to transport the energy from the laser sources through the amplifiers and to the target.

Experimental, Vacuum Systems, and Structures – The structures, vacuum vessels and interfaces to the Opto-Mechanical systems required for beamline support.

Control Systems – The hardware and software necessary to control the laser through all of the component elements. Remote control from a centralized control room will be provided.

Justification

The OMEGA laser at the University of Rochester's LLE is a critical facility needed to support ICF goals. The OMEGA EP project will provide advanced radiographic capabilities that currently do not exist. This technology will facilitate the longer-term goal of demonstrating ignition and future Stockpile Stewardship Program (SSP) experiments on the National Ignition Facility (NIF). Specifically, OMEGA EP will provide the following:

- High-energy, short-pulse backlighters necessary for imaging direct-drive ignition implosions along two axes,
- Capability to develop weapons science applications of petawatt lasers in areas such as high-energy x-ray backlighting and the production of matter under extreme conditions of temperature and density,
- A unique means for evaluating the fast-ignition concept, which could increase the likelihood of achieving ignition and high gain on the NIF,
- A new capability for exploring basic science through ultrahigh-intensity lasers,
- An important facility upgrade to maintain the vitality of the scientific program at the Laboratory for Laser Energetics, consistent with the recommendation of the recent National Research Council report on High-Energy-Density Physics,
- An important capability to probe matter under extreme astrophysical conditions, consistent with recommendations contained in the recent National Research Council report on the Physics of the Universe, and
- Enhanced viability of LLE to support National Nuclear Security Administration (NNSA) and attract new talent into the SSP.

Project Scope

The scope of the project includes all of the design, development, and installation of the laser systems. At the conclusion of the project, the primary functional requirements will be met and performance verified by an independent panel. Subsequently, the laser will be available to conduct the ICF missions specified above under separate funding.

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

<u>Compliance with Project Management Order</u>

- Critical Decision – 0: Approve Mission Need – 3Q FY 2003
- Critical Decision – 1: Approve Preliminary Baseline Range – 4Q FY 2003
- Critical Decision – 2: Approve Performance Baseline – 3Q FY 2004
- External Independent Review Final Report – 3Q FY 2004
- Critical Decision – 3: Approve Start of Construction – 3Q FY 2004
- Critical Decision – 4: Approve Start of Operations – 3Q FY 2008.

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
2003	N/A	N/A	N/A
2004	N/A	N/A	N/A
Total, Design (OMEGA EP Project)	N/A	N/A	N/A
Construction			
2003	13,000[a]	13,000	13,000
2004	20,000[b]	20,000	20,000
2005	29,000[c]	29,000	29,000
2006	24,750[d]	24,750	24,750
2007	2,250	2,250	2,250
2008	0	0	0
Total, Construction	89,000	89,000	89,000
Total TEC	89,000	89,000	89,000

[a] Initial Congressional O&M funding was provided in the FY 2003 Energy and Water Development Appropriations Act (P.L. 108-7).

[b] Funding was provided in the FY 2004 Energy and Water Development Appropriations Act (P.L. 108-137).

[c] Funding was provided in the Consolidated Appropriations Act, 2005 (P.L. 108-447). $25,000,000 of the increase of $28,000,000 over the budget request was used for the EP project and $3,000,000 was used for other HEPW R&D in support of stockpile stewardship. The FY 2005 congressional data sheet indicated $6,000,000, of which $4,000,000 was for the EP project and $2,000,000 was for HEPW R&D ancillary to the project.

[d] Funding was provided in the FY 2006 Energy and Water Development Appropriations Act (P.L. 109-103), an increase of $22,000,000 above the FY 2006 Congressional Budget Request of $3,000,000. FY 2006 funding of $24,750,000 reflects government-wide rescission of 1.0 percent enacted by P.L. 109-148.

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design	0	0
Construction Phase		
Site Preparation	0	0
Equipment	62,150	62,150
All other construction (project office)	24,500	24,500
Contingency	2,350	2,350
Total, Construction	89,000	89,000
Total, TEC	89,000	89,000

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	0	0
Start-up (R&D related to Petawatt Technology)		
Offsetting D&D		
D&D for removal of the offsetting facility	62,150	62,150
Other D&D to comply with "one-for-one" requirements	24,500	24,500
D&D contingency	2,350	2,350
Total, D&D	89,000	89,000
Contingency for OPC other than D&D	89,000	89,000
Total, OPC	0	0

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design)								
TEC (Construction)	89,000	0	0	0	0	0	0	89,000
OPC Other than D&D	9,500	0	0	0	0	0	0	9,500
Offsetting D&D Costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total, Project Costs	98,500	0	0	0	0	0	0	98,500

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	3Q FY 2008
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations		10,000		300,000
Maintenance		0		0
Total Related funding		10,000		300,000

9. Required D&D Information

N/A

10. Acquisition Approach

N/A

Advanced Simulation and Computing Campaign

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Advanced Simulation and Computing Campaign[a]			
Integrated Codes	153,755	155,247	156,299
Physics and Engineering Models	65,242	66,566	67,182
Verification and Validation	49,747	52,138	50,198
Computational Systems and Software Environment	172,376	178,445	201,006
Facility Operations and User Support	158,652	165,559	111,053
Construction Projects	0	0	0
Total, Advanced Simulation and Computing Campaign	**599,772**	**617,955**	**585,738**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Advanced Simulation and Computing Campaign				
Integrated Codes	157,059	157,059	154,628	157,721
Physics and Engineering Models	71,119	71,119	68,790	73,781
Verification and Validation	53,916	53,916	53,916	55,593
Computational Systems and Software Environment	201,708	189,042	183,389	186,028
Facility Operations and User Support	114,439	112,507	110,150	109,120
Total, Advanced Simulation and Computing Campaign	**598,241**	**583,643**	**570,873**	**582,243**

Mission

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, platforms, and supporting infrastructure.

As the computational surrogate for nuclear testing, ASC simulations play an essential role in studies of a Reliable Replacement Warhead (RRW), support the development of a responsive infrastructure (RI), make possible interdiction/identification/attribution of nuclear threats, and support and transformation of the nuclear weapons complex consistent with Complex 2030.

The ASC Campaign enables Stockpile Stewardship by: delivering validated weapons simulation codes with accurate physical models and high-fidelity numerical approximations; integrating the ASC tools into a Quantification of Margins and Uncertainties (QMU) certification and assessment methodology; developing the ability to quantify confidence bounds on the results; and providing the necessary

[a] NNSA has included funding in the Advanced Simulation and Computing Campaign to continue the University Research Program in Robotics (URPR) initiated by Congress in previous years. This activity is not included in the FY 2006 or FY 2007 plans.

computing capability to code users, in collaboration with industrial partners, academia and government agencies. The ASC tools enable comprehensive understanding of the entire weapons lifecycle including dismantlement. 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." Only through ASC simulations can the National Nuclear Security Administration (NNSA) determine the effects of changes to current systems as well as margins and uncertainties in future and untested systems, such as the RRW.

The ASC tools are used to address areas of national security beyond the U.S. nuclear stockpile. Through coordination with other government agencies, the ASC tools play an important role in supporting non-proliferation, emergency response, and attribution activities. They have been used in the field to identify and characterize special nuclear material (SNM) threat materials and devices. There is a growing effort to enhance the capabilities of these tools -- for example, an enhanced capability to allow the determination of a perpetrator through forensic analysis of post-explosion radio nuclei debris. Another area in which ASC has been a contributor is in modeling the spread of infectious diseases. An ASC simulation code originally developed for determining material response has recently been used to model the spread of bird flu in the U.S. The simulations have been used by Department of Homeland Security (DHS) to assess various mitigation strategies, and the results have been published in peer-reviewed journals.

Simulation is basic to the work of the transforming nuclear weapons complex, ASC plays a key role in planning the experiments of the Science Campaign and in addressing safety concerns associated with the dismantlement of stockpile systems. Any future transformation of the stockpile will rely heavily on ASC simulation codes, computational infrastructure and platforms.

ASC is not only a massive scientific undertaking, but also a major management challenge to focus and apply resources effectively and efficiently while maintaining scientific creativity and nurturing innovation, which are keys to success. The ASC Strategy articulates principles and high-level goals that guide the program's directions and emphases for the next ten years. Advocacy, transparency, integration and effective federal management are the touchstones of the new ASC Business Model. It is product-oriented, identifying programmatic interfaces and customer-supplier relationships to enable more effective use of people, technology and scientific resources in the service of nuclear national security.

Federal Leadership of ASC

There have been significant strides during the past two years to sharpen the engagement of Headquarters (HQ) management in the ASC Campaign.

- Through implementation of the new Business Model, headquarters used its increased visibility into laboratory projects to provide programmatic guidance.

- Informed by the assessments and recommendations of the ASC Predictive Science Panel (a group of subject matter experts from industry, laboratories and academia), headquarters sets high-level technical directions.

- Phase two of the siting capability study was initiated to evaluate cost-effective strategies for siting future NNSA capability platforms.

- The ASC Roadmap for national program was established and published.

Benefits
ASC contributes to GPRA Unit Program Goal 2.1.30 by providing leading edge, high-end simulation capabilities through investments made in five subprograms that support activities in the areas of weapon codes, weapon science, computational infrastructure, and computing center operations.

Major FY 2006 Achievements

Direct Stockpile Support (Certification, LEPs, SFI), Dismantlement, National Security

- ASC codes played key roles in the design, sensitivity analysis, safety assessment, and peer review of the RRW.

- Systematic studies using high resolution/high fidelity physics models were performed to assess the impact of three dimensional (3D) design features on weapon performance for enduring stockpile systems and to assess the robustness of potential surety features in the Reliable Replacement Warhead (RRW).

- ASC performance codes were used to integrate results from science simulations and experimental investigations to assess impact of age-related changes on primary performance for the enduring stockpile.

- Modern ASC code baseline comparisons to nuclear test data significantly advanced for the B61, W62, W76, W80, B83, W87, and W88 weapon systems.

- ASC uncertainty quantification methodology was applied in an annual assessment of the W80 to quantify stockpile margins and uncertainties.

- Modern ASC safety analysis supported a stockpile surety experiment, and a successful 3-D subcritical experiment.

- Deployed 1-D, 2-D, and 3-D modeling capabilities to address additional scenarios in support of the nuclear event attribution and Nuclear Explosives Search Team (NEST) programs.

Stockpile Supporting Science

- ASC simulations at unprecedented spatial resolutions were used to explore fundamental weapons physics issues in joint Lawrence Livermore National Laboratory (LLNL)/Los Alamos National Laboratory (LANL) studies.

- Molecular dynamics simulations of rapid resolidification in a material that is useful in weapon science, modeling up to 32 million atoms, on the Blue Gene/L computer provided new physical insight into this process and were awarded the Gordon Bell Prize.

- Electronic structure (ab initio) calculations were run in excess of 200 teraFLOPs (one teraFLOP is 10^{12} floating-point operations) per second sustained performance on the Blue Gene/L computer.

- Simulations on ASC supercomputers optimized the ignition point design in support of laser beam conditioning decision for the National Ignition Campaign (NIC).

- Large-scale direct numerical simulations of hydrodynamic instabilities were used to generate data sets for model development and validation in regimes that are not experimentally accessible (e.g., primary implosion.)

- First principles physics model was deployed and used to assess the impact of age-related changes on high explosives performance, and to improve predictive capability in validation test.

Blue Gene/L simulations of the impact of age-related changes in material properties were used to support the assessment of pit lifetimes for the enduring stockpile.

Stockpile Science Supporting Infrastructure

- ASC Purple supercomputer (#3 of world's top 500 computers), delivered to LLNL, had an immediate impact, advancing the understanding of fundamental weapons physics and in application to the annual assessment and certification process.

- Blue Gene/L supercomputer (#1 of the world's top 500 computers), made available to the national program on the secure computing network for production use, initially focused on Plutonium aging and other stockpile material issues.

- Demonstration of production simulations using more than 10,000 processors and evaluation of parallel scaling using ASC weapons codes on the Blue Gene/L supercomputer established applicability of new technology to a broad class of computer codes.

Major Outyear Priorities and Assumptions

The outyear projections for Advanced Simulation and Computing Campaign (ASC Campaign) total $2,335,000,000 for FY 2009 through FY 2012, which reflects a slight increase. By 2012, ASC seeks to achieve or have made significant progress toward several major accomplishments and support the transition toward Complex 2030. Planned accomplishments include:

- Replacement of calibrated approximations with science-based representation of several physical phenomena;
- Improved understanding of detailed interactions leading to boost;
- Higher fidelity phase and damage models in the solid regimes;

- Production use of a full-systems code from detonation to secondary yield with known confidence;
- Demonstrate applicability of ASC codes to attribution and threat reduction;
- Use of ASC codes for assessment and certification to establish baselines, perform excursions from baselines and final certification for the W76-0, W76-1 LEP, W78, W88, W88 MAR, B61 and W80;
- Exploit alternative architectures for modern codes, e.g., achieving much higher spectral and angular resolution in transport of all kinds;
- Application of ASC code capability to plant operational safety and manufacturing issues;
- Application of peta-scale computing with Road Runner and subsequent ASC platforms to the weapon stockpile workload;
- Certification of RRW using modern ASC codes; and
- Utilization of tri-lab hardware and software initiatives to address capacity computing requirements including Tri-laboratory Linux Capacity Cluster (TLCC) and Tri-lab Productivity On Demand (TriPOD).

As part of Complex 2030, ASC will move toward a computing complex that maintains capability computing at a single site and reduces the footprint of weapons program computing to two sites tied together with a common user environment.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The ASC Campaign program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance. The DOE has incorporated feedback from the OMB into the FY 2008 Budget Request and will take all necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2004 Budget Request. The OMB gave the ASC Campaign scores of 83 percent on the Program Purpose and Design Section, 100 percent on the Strategic Planning Section, 91 percent on the Program Management Section, and 85 percent on the Program Results and Accountability Section. Overall, the OMB rated the ASC Campaign 88 percent, its highest category of "Effective." The OMB found that the program has a clear purpose, is well managed, and has clear and measurable goals. In addition, the OMB believed the program makes a unique contribution but must focus its resources such that redundancy does not occur in the three NNSA laboratories. In response to these recommendations, the NNSA management is guiding the program to meet weapons stockpile requirements without developing unneeded redundancy. As the ASC Campaign transitions to its new strategy and business model, it is a fitting time to transition to a series of new performance measures that better evaluate progress toward predictive capability and the associated computing environment.

Annual Performance Results and Targets
(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.30.00, Advanced Simulation and Computing Campaign										
Peer-reviewed progress in completing milestones, according to a schedule in the Advanced Simulation and Computing Campaign Program Plan, in the development and implementation of improved models and methods into integrated weapon codes and deployment to their users (Long-term Output)	R: High Fidelity Primary Code T: High Fidelity Primary Code	R: Initial baseline Primary Code R: Initial baseline Primary Code	R: Initial baseline Second-ary Code T: Initial baseline Second-ary Code	T: W76 code baseline	T: W80 code baseline	T: Modern baseline all enduring stockpile systems	T: Quantify margins and uncertain-ties of existing baseline simula-tions	T: Phase II to quantify margins and uncertain-ties of existing baseline simula-tions	T: Phase III to quantify margins and uncertain-ties of existing baseline simula-tions	By 2015, accomplish full transition from legacy design codes to modern ASC codes with documented quantification of margins and uncertainties of simulation solutions.
Cumulative percentage of the 31 weapon system components, primary/secondary/ engineering system, analyzed using ASC codes, as part of annual assessments and certifications (Long-term Output)	R: 32% T: 32%	R: 38% T: 38%	R: 51% T: 51%	T: 67%	T: 87%	T: 96%	T: 100%	N/A	N/A	By 2010, analyze 100% of 31 weapon system components using ASC codes, as part of annual assessments and certifications (interim target).
Annual maximum individual platform computing capability delivered, measured in trillions of operations per second (teraflops) (Annual Output)	R: 20* T: 40	R: 94 T: 100	R: 94 T: 100	T: 100	T: 150	T: 150	T: 350	T: 350	T: 350	By 2010, deliver a maximum individual platform computing capability of 350 teraflops.
Cumulative capacity of ASC production platforms attained, measured in teraflops, taking into consideration procurements and retirements of systems (Long-term Output)	R: 75 T: 75	R: 163 T: 172	R: 160 T: 160	T: 160	T: 310	T: 420	T: 930	T: 930	T: 930	By 2010, attain a total production platform capacity of 930 teraflops.
Annual average cost per teraflops of delivering, operating, and managing all Stockpile Stewardship Program (SSP) production systems (Efficiency)	R: $8.30M* T: $8.15M	R: $5.70M T: $5.70M	R: $3.99M T: $3.99M	T: $2.79M	T: $1.96M	T: $1.37M	T: $0.96M	T: $0.96M	T: $0.96M	By 2010, attain an average cost of $0.96 M per teraflops of delivering, operating, and managing all SSP production systems. (2003 baseline $11.64M)

*Delivery of new equipment delayed to 2Q 2005 by manufacturer.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Integrated Codes	**153,755**	**155,247**	**156,299**

This subprogram involves lab physics, engineering, and specialized code projects that develop and improve the weapons simulation tools. This subprogram primarily addresses the improvement of weapons system simulations, to predict with reduced uncertainties, the behavior of devices in the stockpile, and to begin the analysis and design for a RRW. The products of this subprogram are the large-scale integrated simulation codes that are needed for Stockpile Stewardship Program (SSP) maintenance, the Life Extension Programs, addressing and closing Significant Findings, and a host of related requirements, including supporting the dismantlement processes and in forming future modifications. 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 includes university partnerships that foster continued collaborations such as the ASC Alliances and Computational Science Graduate Fellowships. This subprogram’s functional and performance requirements are established by designers, analysts, code developers and the requirements of the QMU. 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 subprogram in assessing the degree of reliability and level of uncertainty associated with the outputs from the codes.

The FY 2008 activities include the following: Develop coupled multi-physics models for device simulation, based on fundamental understanding and realistic, scientifically-based representation of device behavior, with a reduced reliance on calibration to underground test data; producing integrated physics models with more accurate numerical methods for treating complex geometries in 2-D and 3-D computer codes; developing the capability to simulate effects of replacement components as well as to analyze various Stockpile-to-Target Sequence scenarios and modifications to ensure nuclear surety; accelerating code performance through more powerful numerical algorithms and improved approximations; maintaining interactions with academic colleagues in computer science, computational mathematics, and engineering; conducting basic research relevant to the ASC Campaign in computer science, scientific computing, and computational mathematics; and, continuing support of the Computational Science Graduate Fellowship.

Physics and Engineering Models	**65,242**	**66,566**	**67,182**

This subprogram develops microscopic and macroscopic models of physics and material properties, improved numerical approximations of transport for particles and x-rays, and the behavior of other critical phenomena. This subprogram is charged with the development, initial validation, and the 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 Stockpile Stewardship Program, mostly funded and led through the

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

Science Campaigns. Those of particular importance are the Dynamic Materials Properties subprogram and the Engineering Campaigns. Functional requirements for this subprogram are established by designers and analysts.

The FY 2008 activities include the following: Develop and implement Equation of State and constitutive models for materials within nuclear devices, improved understanding of phase diagrams and the dynamic response of materials. Continue physics-based modeling representing the altered properties of plutonium as it ages, partly as a result of self-irradiation. Explore fundamental chemistry models of high explosives, including thermal, mechanical, and constitutive properties of unreacted explosives and explosive products, decomposition kinetics, detonation performance, and response in abnormal environments. Improve representation of corrosion, polymer degradation, and thermal-mechanical fatigue of weapons electronics. Develop more representative models of melting and decomposition of foams and polymers in safety-critical components. Support of the Stockpile to Target Sequence requirements by providing better models of microelectronic and photonic materials under hostile environments.

Verification and Validation (V&V)	**49,747**	**52,138**	**50,198**

This national subprogram element provides a rigorous, reliable, scientifically based measure of confidence and progress in predictive simulation capabilities. The V&V program applies systematic measurement, documentation, and demonstration of the predictive capability of the codes and the underlying models in various operational and functional regimes. The uncertainty in the output from the codes must be quantified. V&V is developing and implementing Uncertainty Quantification (UQ) methodologies as part of the foundation to the QMU process of weapons assessment and certification. V&V also drives software engineering standards, tools, and practices to improve the quality, robustness, reliability, design optimization, and maintainability of the codes vital in evaluating and addressing the unique complexities of the stockpile stewardship mission.

In FY 2008, V&V will focus on QMU assessments, UQ and benchmarks to include: validation assessment of penetration mechanics for surety applications, integral V&V assessment of damage model, Engineering Validation Toolbox Tri-Laboratory Release, and Catalog of Major Adjustable Parameters in Weapons Physics Simulations; expand Primary Metric Project (PMP) test suites to 25 events, and development of first events of the Secondary Calculational Assessment Methodology Project (SCAMP).

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Computational Systems and Software Environment (CSSE)	**172,376**	**178,445**	**201,006**

The mission of this national subprogram is to build 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, which include capability, capacity, and advanced systems. 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. CSSE must provide the stability that ensures productive system use and protects the large ASC Campaign investment in its simulation codes.

A balanced and stable computational infrastructure is a key enabling technology for the ASC Campaign in its endeavor to deliver the required computing capabilities to its customers. Along with the powerful capability, capacity and advanced systems that the campaign will field, the supporting software infrastructure that CSSE is responsible for deploying on these platforms include many critical components, from system software and tools, to Input/Output (I/O), storage and networking, to pre- and post-processing visualization and data analysis tools. Achieving this deployment objective requires sustained investment in applied research and development activities to create technologies that address the unique ASC Campaign mission-driven need for scalability, parallelism, performance, and reliability.

In the next decade, both the enhancement of future predictive capabilities and the achievement of DSW simulation deliverables demand ever more powerful and sophisticated simulation environments. The immediate focus areas include moving toward a more standard user environment and improving its usability, deploying more capacity compute platforms, planning for and developing petascale computing capability, and overall making strategic investments so that the ASC Campaign can continue to meet the program requirements at an acceptable cost. The CSSE's long-term efforts in applied research and development will support the new ASC Campaign Roadmap that documents computing requirements at exascale levels of performance.

The FY 2008 activities include the following: procure and integrate high-performance scalable units for capacity computing to meet growing demands especially in the area of modern (QMU-based) weapons certification and assessment; create a common, usable, and robust application-development and execution environment for ASC-scale applications and platforms to meet the computational needs of weapons scientists and engineers; produce an end-to-end, high-performance I/O, networking-and-storage archive infrastructure encompassing ASC Campaign platforms and operating systems, large-scale simulations, and data-exploration capabilities to enable efficient ASC-scale computational analysis; 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; effective data management, extraction, delivery, and archiving, as well as an efficient remote or

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

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	**136,652**	**165,559**	**111,053**

This subprogram provides necessary physical facility and operational support for reliable production computing and storage environments as well as providing users with a suite of services enabling effective use of ASC Tri-Laboratory computing resources. The scope of the facility operations includes planning, integration and deployment, continuing product support, software license and maintenance fees, procurement of operational equipment and media, quality and reliability activities and collaborations. The designers, analysts and code developers of the nuclear weapon complex provide functional and operational computational requirements. 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 2008 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.

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		
Congressionally Directed Activity	**22,000**	**0**	**0**

The conference recommendation includes the following projects from within available funds: Nonprofit AVETeC for Nextedge Technology Park, Springfield (OH), $10,000,000; Wittenberg University supercomputer (HO), $1,000,000; Notre Dame/Purdue Supercomputer Grid (IL, IN), $5,000,000; and $6,000,000 provided to continue the demonstration at the Pacific Northwest National Laboratory of advanced electronics packaging and thermal engineering for thermally-efficient electronics related to high performance data servers using three dimensional chip scale packaging integrated with spray cooling (WA).

Total, Advanced Simulation and Computing Campaign	**599,772**	**617,955**	**585,738**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Integrated Codes	
The increase enables the ASC Campaign to meet the development of minimum, core code development needs of ASC simulation tools for the current Stockpile Stewardship Program Commitment.	**+1,052**
Physics and Engineering Models	
The increase reflects the limited replacement of nuclear-test calibrated models with more predictive capabilities. Some risk is incurred by constraining the design space that can be credibly analyzed for weapons performance.	**+616**
Verification and Validation (V&V)	
The decrease constrains the level of methodology development for verification and validation of complex multi-scale, multi-physics weapons codes at the labs and the extent to which the ASC Campaign can collaborate with strategic academic partners. The ASC Campaign plans to focus efforts to develop a portfolio of available validated simulation tools for uncertainty quantification to support the QMU-based certification process.	**-1,940**
Computational Systems and Software Environment	
The increase highlights the procurement of capacity computing resources for the weapons complex. The shift of resources from Facility Operations and User Support also reflects support for ASC computer platforms.	**+22,561**
Facility Operations and User Support	
The decrease reflects the initiation of computing consolidation for the weapons complex.	**-54,506**
Total Funding Change, Advanced Simulation and Computing Campaign	**-32,217**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	0	0	0
Capital Equipment	32,871	33,857	34,873
Total, Capital Operating Expenses	**32,871**	**33,857**	**34,873**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	0	0	0	0
Capital Equipment	35,919	36,997	38,107	39,250
Total, Capital Operating Expenses	**35,919**	**36,997**	**38,107**	**39,250**

[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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

Pit Manufacturing and Certification Campaign

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Pit Manufacturing and Certification Campaign			
Pit Manufacturing	122,105	147,658	155,838
Pit Certification	67,476	56,605	45,999
Pit Manufacturing Capability	22,040	33,335	54,479
Modern Pit Facility	1,012	0	0
Pit Campaign Support Activities at NTS	26,030	0	0
Consolidated Plutonium Center, OPCs	0	0	24,914
Total, Pit Manufacturing and Certification Campaign	**238,663**	**237,598**	**281,230**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Pit Manufacturing and Certification Campaign				
Pit Manufacturing	160,114	170,184	175,019	166,328
Pit Certification	45,161	37,556	36,556	37,160
Pit Manufacturing Capability	56,670	64,722	71,047	54,781
Modern Pit Facility	0	0	0	0
Pit Campaign Support Activities at NTS	0	0	0	0
Consolidated Plutonium Center, OPCs	30,000	52,000	0	4,000
10-D-XXX, PED, Consolidated Plutonium Center	0	15,000	75,000	85,000
Total, Pit Manufacturing and Certification Campaign	**291,945**	**339,462**	**357,622**	**347,269**

Mission

The goal of the Pit Manufacturing and Certification Campaign is to restore the capability to manufacture and certify the plutonium pits (nuclear material trigger component within a nuclear weapon which initiates the nuclear explosion) required for the stockpile.

The Pit Campaign supports Directed Stockpile Work (DSW) by providing the pits necessary to meet established stockpile requirements and surveillance program requirements. Over the past several years, Pit Campaign activities have been focused on establishing an interim pit manufacturing capacity at the Los Alamos National Laboratory (LANL), to provide a limited number of W88 pits in support of stockpile requirements, and developing the methodology to certify newly-manufactured pits without underground nuclear testing.

The Pit Manufacturing and Certification Campaign is an essential element in National Nuclear Security Administration's (NNSA) Complex 2030 strategy. The future responsiveness of the nuclear weapons complex is tied to the capabilities and capacities of NNSA plutonium facilities. Deciding on future plutonium facilities is a key element of the Complex 2030 NEPA process. The current Complex 2030 planning scenario relies on LANL facilities to provide an interim plutonium capability. The Pit

Campaign has the dual responsibilities of maximizing interim production at LANL while simultaneously preparing the technology and plans required for long term pit manufacturing.

The Campaign also provides the capability to develop, manufacture, and certify plutonium pits for Reliable Replacement Warheads (RRWs) and supports consolidation of Category I/II plutonium material and activities. Currently, Pit Campaign activities are focused on establishing capabilities to manufacture RRW pits in the 2012 timeframe and developing plans for Lawrence Livermore National Laboratory (LLNL) Category I/II plutonium work to move to the Los Alamos National Laboratory (LANL).

Benefits

Within the Pit Manufacturing and Certification Campaign, four subprograms make unique contributions in FY 2008 to achieve GPRA Unit Program Goal 2.1.31. The Pit Manufacturing subprogram provides limited quantities of W88 pits that meet all quality requirements for entry into the stockpile, and maintains an interim pit manufacturing capability at existing LANL facilities, and will expand the capacity to the extent practical. The Pit Certification subprogram confirms the nuclear performance of LANL-manufactured pits without underground nuclear testing. The Pit Manufacturing Capability subprogram develops the technology to manufacture RRW pits, or other non-W88 pits, by developing and demonstrating improved manufacturing processes. The Consolidated Plutonium Center subprogram provides planning for future plutonium facilities required to meet long-term stockpile needs.

The NNSA Pit Project Office reviews project performance and associated earned value data on specific project elements monthly. Based on these reviews, NNSA management gains vital understanding as to current project status.

Major FY 2006 Achievements

- Completed the manufacture of all qualification W88 pits required, as required, to support the FY 2007 certification objective for a LANL-manufactured pit.
- Completed major milestones, documented in the June 2005 Pit Manufacturing and Certification Integrated Project Plan, to remain on schedule to meet FY 2007 W88 certification.
- Completed major milestones, documented in the Pit Manufacturing and Certification Program Plan, on or ahead of schedule toward demonstrating the capability to manufacture pit types other than the W88 by the end of FY 2009. This included completion of the second phase of an advanced foundry design and evaluation and selection of commercial turning center for plutonium machining.
- Completed all NTS milestones, documented in the June 2005 Pit Manufacturing and Certification Program Plan, toward execution of LANL major subcritical experiment activities in support of the Pit Campaign.

Major Outyear Priorities and Assumptions

The outyear projections for Pit Manufacturing and Certification Campaign (Pit Campaign) total $1,336,298,000 for FY 2009 through FY 2012. This budget increases slightly over time and reflects the shift from the production of W88 pits to RRW pits, expansion of interim production capacities at LANL, and planning for long-term plutonium facilities.

The outyear funding for Pit Manufacturing provides a base of ~$120 million, plus annual inflation costs, to maintain the pit manufacturing infrastructure at LANL, and complete required numbers of W88 pits. Starting in FY 2007, with expected completion in FY 2012, the NNSA plans to increase LANL pit capacity from 10 pits per year to 30-50 Reliable Replacement Warhead (RRW) pits per year to the stockpile within FYNSP funding. The Chemistry and Metallurgical Research Replacement Nuclear Facility (CMRR-NF) will provide analytical chemistry and materials characterization support to TA-55 pit manufacturing activities. Some limited capability will be achieved with the Radiological Laboratory Utility and Office Building (RLUOB) that is planned to go forward within CMRR in FY 2008, but full support of pit manufacturing requires nuclear capability that will not proceed to construction in FY 2008. As part of Complex 2030 planning, NNSA is also examining alternatives to proceeding with the Chemistry and Metallurgical Research Replacement Nuclear Facility as currently configured. Funding in pit manufacturing also provides planning for consolidating LLNL technology and pit development activities requiring security categories I/II quantities of plutonium to LANL.

The outyear funding for Pit Certification will complete planned engineering and physics experiments as well as the subsequent analysis to increase confidence in the certification of LANL-manufactured pits, and to demonstrate stockpile stewardship without nuclear testing. This certification may include a neutron hardness test using the Annual Core Research Reactor at the Sandia National Laboratories (SNL), shock and vibration testing to assure robustness of the system under specific stockpile-to-target-sequence conditions, and follow-up subcritical experiments, e.g., Unicorn-type tests. A portion of the pit certification budget will be dedicated to improving the understanding of the boundary conditions leading to boost processes through a series of fundamental dynamic plutonium experiments. The results of this experimental program, and additional integral experiments, will determine the eventual need for DynEx experiments using the Dual Axis Hydrodynamic Test facility. Funding also supports development of a qualification approach for the RRW pit. Physics and engineering testing, as well as the development of a computational simulation capability, will be required to ensure that other stockpile warheads with replacement pits (e.g., RRW) will perform as expected without nuclear testing. The evolution of this certification strategy will establish a certification approach for other pit types.

The outyear funding for the Pit Manufacturing Capability will evaluate, document, and demonstrate, as needed, with a goal of 2009, the manufacturing processes necessary to manufacture pit types other than the W88. By 2012, the subprogram will have developed and proven the improved manufacturing processes necessary to manufacture RRW pits. Outyear funding will ensure the development of pit manufacturing processes and equipment that could be used to increase capacity at LANL or at a consolidated plutonium center.

Depending on the Complex 2030 record of decision planned for 2008, the Consolidated Plutonium Center (both OPC and PED) funding will be applied to the development of long-term plutonium facility capabilities and capacities.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The Pit Campaign has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take all necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2008 Budget Request. The OMB gave the Pit Campaign scores of 100 percent on the Program Purpose and Design, Strategic Planning, and Program Management Sections; and 84 percent on the Program Results and Accountability Section. Overall, the OMB rated the Pit Manufacturing and Certification Campaign 92 percent, with the highest category of

"Effective". The OMB assessment found that the program has demonstrated progress in achieving annual and long-term goals; has a clear and unique purpose; is well managed; and has clear and measurable performance metrics to cover the program. In addition, the OMB found that the program had a central role to play in the transformation of the stockpile. The OMB also noted that the program must coordinate closely with other NNSA programs. In response to the OMB findings, the NNSA is revising program focus and performance measures to better support the stockpile transformation, and the program is improving the coordination of priorities and initiatives across multiple NNSA programs.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.31.00, Pit Manufacturing and Certification Campaign										
Cumulative percentage of major milestones completed toward establishing a limited capability of manufacturing 10 sea launched ballistic missiles (W88) pits/year at Los Alamos National Laboratory (LANL) (Long-term Output)	R: 10% T: 10%	R: 30% T: 30%	R: 60% T: 60%	T: 100%	N/A	N/A	N/A	N/A	N/A	By 2007, establish capability to manufacture 10 W88 sea launched ballistic missile pits certified (approved for use within the nuclear weapons stockpile based on quality assurance of the manufactured product and assessed performance based on non-nuclear testing) for nuclear weapons stockpile per year.
Annual number of certified W88 pits manufactured at LANL (Annual Output)	N/A	N/A	N/A	T: 10	T: 10	T: 10	T: 10	N/A	N/A	Annually (beginning in FY 2007), produce 10 certified W88 pits until required number has been manufactured (currently 2010).
Cumulative percentage of major milestones completed toward certification of the LANL-built pit (Long-term Output)	R: 20% T: 25%*	R: 50% T: 50%	R: 60% T: 70%	T: 100%	N/A	N/A	N/A	N/A	N/A	By 2007, issue a certification statement for the pits being manufacture at LANL.
Cumulative percentage of major milestones completed toward restoration of the capability to manufacture all pit types in the enduring stockpile (Long-term Output)	R: 5% T: 5%	R: 20% T: 20%	R: 35% T: 35%	T: 55%	T: 75%	T: 100%	N/A	N/A	N/A	By 2009, establish or document manufacturing process capability for all pit types.
Cumulative percentage of major milestones completed toward the manufacture of development pits for replacement of pit type other than a W88 pit (Long-term Output)	N/A	N/A	N/A	N/A	N/A	T: 10%	T: 20%	T: 45%	T: 100 %	By 2012, manufacture the initial development pits for a reliable replacement warhead.

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Annual cost, in millions of dollars, per pit capacity to maintain a pit manufacturing capability. (Efficiency)	N/A	N/A	N/A	N/A	T : $12M	T: $12M	T: $12M	T: $12M	T: $12M	By 2013, reduce the cost to maintain a pit manufacturing capability from $12M per pit capacity in 2008 to $5M.
Cumulative percentage of major milestones for enhancing the capacity of pit manufacturing 10 pits per year to 30-50 pits per year (long-term output)	N/A	N/A	N/A	N/A	T : 5%	T: 15%	T: 25%	T: 70%	T: 100 %	By FY 2012, enhance the pit manufacturing capacity from 10 pits per year to 30 to 50 pits per year.

* Target was changed to 20% in program rebaselining caused by FY 2004 reprogramming; program met rebaselined target.

Detailed Justification

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		
Pit Manufacturing	**122,105**	**147,658**	**155,838**

The Pit Manufacturing subprogram objective is to manufacture pits 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. In FY 2007, LANL will manufacture at least 10 W88 pits and complete the establishment of a 10 pit per year manufacturing capacity at LANL through the installation of new and/or backup equipment to eliminate single point vulnerabilities in pit manufacturing. FY 2008 activities will focus on the continued manufacture of war reserve W88 pits as surveillance replacements for W88 pits in the stockpile, and work to increase the pit manufacturing capacity to 30 to 50 net RRW pits by the end of FY 2012. Additional personnel will be hired, efficiency increases will be made to the manufacturing infrastructure achieved through technology developed as part of the pit manufacturing capability activity, and additional equipment will be procured to achieve this increase in capacity. In addition, the Pit Manufacturing sub element will continue supporting planning for consolidating LLNL plutonium activities to LANL.

Pit Certification	**67,476**	**56,605**	**45,999**

The Pit Certification subprogram objective is 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. To confirm nuclear performance of the W88 pit without underground nuclear testing, LANL has specified a set of engineering tests and physics experiments, in addition to a comprehensive analytical effort to develop a computational baseline that will provide confidence in future simulation capabilities. These tests, experiments, and analyses are essential to complete a MAR for the W88 warhead with a LANL-manufactured pit in FY 2007, indicating confidence for use in the stockpile. A major focus of FY 2008 activities will be the development and execution of a series of fundamental dynamic plutonium experiments aimed at improving the understanding of boost processes and reducing uncertainties in performance prediction. The experiments are vital to providing additional plutonium data leading to improved weapon performance simulation codes. The results of this experimental program, and additional integral experiments, will determine the eventual need for DynEx experiments using the Dual Axis Hydrodynamic Test facility. Also, specific engineering tests applicable to the W88 pit that were previously deferred will be conducted to enhance confidence in the capability of the W88 pit to withstand specific environments. These tests can include neutron hardness, shock and vibration, and hydriding. In addition, LANL and LLNL will continue the planning and development of integral experiments in FY 2008 in support of certification of reliable replacement warhead pits.

	FY 2006	FY 2007	FY 2008
Pit Manufacturing Capability	**22,040**	**33,335**	**54,479**

(dollars in thousands)

The Pit Manufacturing Capability subprogram objective is 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 being developed support NNSA goals that include producing less waste, lowering the radiation dose to facility operators, and reducing the unit costs of manufacturing pits. The pit manufacturing process development effort in this subprogram objective supports both short and long-term pit manufacturing goals. Complex 2030 goals of establishing a manufacturing capacity at TA-55 at LANL of 30 to 50 net pits to the stockpile in FY 2012 require upgrades to LANL manufacturing equipment using improved technology being developed by this campaign element. FY 2008 funding will be focused on completing the technical assessment and documentation of manufacturing processes necessary for all pits currently in the nuclear weapons stockpile by the end of FY 2009, and to develop new technology required to manufacture RRW pits to support the manufacture of a RRW First Production Unit (FPU) by the end of FY 2012.

Consolidated Plutonium Center - Other Project Costs (OPCs)	**0**	**0**	**24,914**

A vital element of the Complex 2030 strategy is the consolidation of all activities (R&D, production, and surveillance) involving Cat I/II quantities of plutonium from multiple sites to one consolidated plutonium center. This consolidation significantly reduces security and operational costs associated with utilization and storage of Cat I/II materials across the complex. A consolidated plutonium center also provides a modern and agile plutonium production capacity (i.e., pit manufacturing) that is essential for timely transformation of the stockpile and establishment of a responsive capability. Lack of an adequate pit manufacturing capacity and agile capability remains one of the primary impediments to a responsive nuclear weapons complex infrastructure.

The CPC consolidates R&D functions currently performed by LLNL Building 332, LANL PF-4, and the LANL Chemistry and Material Research (CMR) building into a single facility that also provides sufficient pit manufacturing capacity for long-term support of the stockpile. Thus, the proposed CPC is not a re-packaging of the Modern Pit Facility (MPF) project canceled at the end of FY 2005. The MPF project was solely focused on pit manufacturing functions and required long-term operation of these other facilities for research and development (R&D) involving Category I/II quantities of SNM. The consolidation of all these activities into a CPC allows plutonium R&D facilities operated by the national laboratories to be de-inventoried of SNM to less than Category I/II quantities (with significant security savings) or closed. The CPC is planned to primarily focus on support of an RRW stockpiles scenarios and so will not need to have the greater size and expanded production capabilities required for MPF to support a large number of legacy weapon types. In summary, the CPC will contain a smaller, more focused manufacturing capability in a facility that also consolidates plutonium R&D for larger quantities of SNM to a single site.

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		

Assuming approval of mission need, conceptual design of the CPC will begin in FY 2008 using operating funds. A site would be selected the end of FY 2008 according to the current Complex 2030 NEPA process schedule. The funding for the CPC would support facility conceptual design, provide funding for long-lead production technology development, and ensure sufficient funding for adequate project management oversight in the early Future Year Nuclear Security Plan (FYNSP) period. Later in the FYNSP period, funding will focus on facility design and support site preparation actions. The facility is scheduled to be fully operational in 2022, with construction essentially complete by 2020. This represents a very aggressive schedule for a facility of this magnitude. Additional FYNSP funding allows for earlier completion and provides necessary resources for rigorous evaluation of facility design and cost estimates. This will greatly increase the likelihood of meeting the 2022 date as well as minimizing the possibility of schedule slips or cost overruns.

Modern Pit Facility (MPF)	**1,012**	**0**	**0**
Pit Campaign Support Activities at NTS	**26,030**	**0**	**0**
Total, Pit Manufacturing and Certification Campaign	**238,663**	**237,598**	**281,230**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Pit Manufacturing	
Additional funding is used to continue the acceleration of increasing pit manufacturing capacity from 10 pits per year to 30 – 50 net RRW pits per year by the end of FY 2012. Acceleration to be gained through improvements to the manufacturing infrastructure, increased staffing, and installation of additional equipment.	**+8,180**
Pit Certification	
The funding reduction is consistent with the completion of the W88 MAR in FY 2007. Following the issue of the MAR, LANL will focus on activities that increase confidence in the MAR as well as determine certification requirements for the RRW pit. Activities supporting enhancement of confidence in the 2007 W88 MAR decision include the completion of engineering certification activities, and providing additional data on plutonium by conducting a program of dynamic plutonium experiments to improve predictive capabilities of weapon performance simulation codes. Experiments and analysis necessary for the certification of an RRW system will be further refined.	**-10,606**
Pit Manufacturing Capability	
Accelerate development of pit technology to support legacy pit types or RRW pit manufacture in order to meet tight deadline of RRW FPU in FY 2012. In particular, LLNL plutonium technology development efforts will be accelerated to support FY 2014 plutonium quantity reduction goals as well as RRW development goals. FY 2008 investments throughout the weapons complex will include testing of an improved plutonium foundry, improved plutonium machining, improved plutonium recovery and processing plutonium from old pits, and RRW pit manufacturing process feasibility evaluations.	**+21,144**
Consolidated Plutonium Center, Other Project Costs (OPCs)	
Funding will support conceptual design, long-lead production technology development, establish rigorous project management oversight in the early Future Year Nuclear Security Plan (FYNSP) period, as well as other activities necessary to get the consolidated plutonium center on track.	**+24,914**
Total Funding Change, Pit Manufacturing and Certification Campaign	**+43,632**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
General Plant Projects	110	113	130
Capital Equipment	8,626	8,885	10,161
Total, Capital Operating Expenses	**8,736**	**8,998**	**10,291**

Outyear Capital Operating Expenses

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	133	137	142	146
Capital Equipment	10,466	10,780	11,104	11,437
Total, Capital Operating Expenses	**10,599**	**10,917**	**11,246**	**11,583**

[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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

Readiness Campaign

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Readiness Campaign			
Stockpile Readiness	16,604	17,576	18,924
High Explosives and Weapon Operations	15,595	17,188	9,835
Nonnuclear Readiness	29,808	31,171	25,592
Tritium Readiness	62,067	86,385	73,231
Advanced Design and Production Technologies	67,848	53,645	33,587
98-D-125, Tritium Extraction Facility	24,645	0	0
Total, Readiness Campaign	**216,567**	**205,965**	**161,169**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Readiness Campaign				
Stockpile Readiness	17,010	16,323	15,653	9,840
High Explosives and Weapon Operations	15,441	16,646	15,367	10,587
Nonnuclear Readiness	29,163	25,344	24,974	16,254
Tritium Readiness	82,265	67,153	73,055	113,225
Advanced Design and Production Technologies	46,598	59,237	51,308	34,040
Total, Readiness Campaign	**190,477**	**184,703**	**180,357**	**183,946**

Mission

The goal of the Readiness Campaign is to identify, develop, and deliver new or enhanced processes, technologies, and capabilities to meet the current and future nuclear needs of the stockpile, and support the transformation of the nuclear weapons complex into a more agile and more responsive enterprise with greater design to production integration, shorter cycle times, and lower production and operating costs.

A substantial portion of Readiness Campaign projects in FY 2008 supports critical needs of the current stockpile and the transition from Life Extension Program (LEP) first production units to initial production runs and provide technology solutions for base workload capability and future nuclear weapons complex requirements. Projects funded through the Readiness Campaign include the development of testing capability for neutron generators; development of production capability for weapon components containing uranium materials and associated subassemblies; development of production capability for high explosive components and detonators and the technologies to qualify weapon components for reuse; and production of arming, firing, and fuzing components and similar electrical, mechanical, and electronic components. Key drivers are the elimination of problematic materials, reduction of waste stream costs, improved worker safety, improvement in assembly and disassembly processes, and improved business and product development/deployment processes.

The Complex continues to assure the safety, security, and reliability of the existing stockpile as it transforms to the responsive nuclear weapons infrastructure as outlined in the 2001 Nuclear Posture Review (NPR) and described in the vision for Complex 2030. The Readiness Campaign is one of the key providers of design-to-manufacturing and technological readiness capabilities for this transformation. As the Readiness Campaign develops and deploys technology capabilities to meet urgent needs for the Directed Stockpile Work (DSW) program and enabling significant operational improvement in Readiness in Technical Base and Facilities (RTBF), gains are often made in cycle time reduction, improved in-process measurements, and improved manufacturing techniques and business practices. Insertion of state-of-the-art equipment designs combined with advanced applications enhance the nuclear weapons complex manufacturing modular capability to quickly modify and enhance products, tools and processes. The Readiness Campaign closely integrates planning and project selection prioritization with the senior program management of DSW, RTBF, and other programs such as the Engineering and Advanced Simulation and Computing Campaigns. In FY 2008, the Campaign's investment focus continues to shift to multi-site projects that provide technology-based capabilities across the weapons complex (multi-site, multi-system) that have a validated plan to achieve measurable cost savings, or a permanent reduction in fixed operating costs. This focus supports the long-term strategies to create a fully integrated and interdependent nuclear weapons complex transformed to be modernized and cost effective.

The Readiness Campaign enables its customer base with technology that contributes to faster implementation of new requirements, reduction in cycle times, less waste, leaner manufacturing (fewer components or steps), and a more capable workforce.

Projects underway with Readiness Campaign funding include deploying agile machining and models based manufacturing capabilities, and developing defect free manufacturing technologies. Capabilities developed in whole or in part through the Readiness Campaign have been leveraged by the Reliable Replacement Warhead (RRW) design teams as well as being critical to the success of the Life Extension Programs. As the specific needs of the RRW activities and the transition issues associated with Complex 2030 become clearer, the planning and prioritization of the Readiness Campaign will increasingly be aligned with approved scope for these emerging priorities within the anticipated outyear funding projection.

The Readiness Campaign performance targets as discussed below reflect its goal to deliver design-to-manufacturing capabilities to ensure weapon safety and reliability and to modernize the manufacturing complex to reduce cycle times and improve efficiency. The Readiness Campaign's second performance measure, to deploy capabilities that reduce cycle time is indicative of focus on improving manufacturing efficiency.

Benefits

Within the Readiness Campaign, there are five subprograms: Stockpile Readiness, High Explosives and Weapon Operations (HEWO), Nonnuclear Readiness, Tritium Readiness, and Advanced Design and Production Technologies (ADAPT), each of which make unique contributions to the GPRA Unit Program Goal 2.1.32, the stockpile, and the Nuclear Weapons Complex. Collectively, these five subprograms encompass the key capabilities needed to design, manufacture, and dismantle nuclear weapons and to sustain the infrastructure needed to do so over time. The Readiness Campaign subprograms address fissile material manufacture and disposition, nonnuclear components of nuclear weapons, high explosives, tritium supply, weapon assembly and disassembly, and the design and manufacturing capabilities needed to support an enduring stockpile.

Stockpile Readiness develops and deploys future manufacturing capabilities (materials, equipment, people, and processes) for production of components containing special materials.

High Explosives and Weapon Operations (HEWO) develops, enhances and deploys capabilities for the production of high explosive and other energetic components, requalification of weapons components for reuse, and helps insure that the assembly and disassembly of war reserve nuclear weapons operations are fully ready to support mission requirements.

Nonnuclear Readiness develops and deploys the electrical, electronic, electro-mechanical, mechanical and other nonnuclear capabilities and processes that support design through the manufacture and dismantlement of nuclear weapons, test assemblies, and development lots, including inspection and evaluation technologies and equipment.

Tritium Readiness establishes and demonstrates a new, assured supply of tritium to support the nuclear weapons stockpile.

Advanced Design and Production Technologies (ADAPT) integrates and systematically develops and deploys across the Complex new design and production technologies and enhanced capabilities needed by the DSW and RTBF programs.

These subprograms together support the capabilities necessary to build entire nuclear weapon systems. They also support the overall mission, goals, objectives, and management processes of the program.

Major FY 2006 Achievements

- Delivered 240 Tritium Producing Burnable Absorber Rods to the Watts-Bar Reactor to support the third run of the irradiation cycle.
- Delivered the capability for manufacturing main charges from the high explosive PBX-9501 by demonstrating production readiness for the W76 LEP and receiving the Qualification Engineering Release from the Design Agency.
- Completed reservoir development for both the W76 2X and W80 Acorn units.
- Reached operational readiness and deployed into production the assembly and disassembly glovebox providing a full range of assembly, disassembly, separation, isolation, and packaging capabilities for the majority of weapon systems in the nuclear stockpile.
- Completed development and deployed to full production an inexpensive, readily available, and environmentally friendly new mock explosive (LM-17) capable of replicating LX-17 and PBX 9502 main charges in engineering tests, joint test assemblies and as set-up parts for high explosive machining operations.
- Deployed and demonstrated Interactive Electronic Procedures system for use on the W80 surveillance testbed; their first qualified, weapon-specific application in the Complex.
- Deployed a Jig Borer Machine Tool to provide a precision machining capability that reduces cycle time from over 17 hours to less than 2 hours with improved product quality.
- Completed development and process deployment for all polymeric materials for the W76-1 LEP including five new encapsulants, and the materials are now available well below the system cost targets.

Major Outyear Priorities and Assumptions
The outyear projections for the Readiness Campaign total $739,483,000 for FY 2009 through FY 2012. The outyear funding for the Readiness Campaign reflects expansion of focus primarily from capability development and deployment for base workload and Life Extension Program requirements to increasingly address targeted development and deployment of design-to-manufacturing capabilities to meet the evolving needs of the stockpile and support the transformation of the Nuclear Weapons Complex into an agile and more responsive enterprise with shorter cycle times and lower operating costs. The Readiness Campaign is positioned to support Complex 2030 and RRW production once approved, but the balance between sustaining the legacy stockpile and supporting the new requirements is increasingly challenging within the planned resources.

Currently, development and deployment project phases are captured in separate, but aligned, projects. In general, capabilities are developed in ADAPT and deployed in Nonnuclear Readiness, HEWO, and Stockpile Readiness. Beginning in FY 2009, the Readiness Campaign will combine the capability for development and deployment within these subprograms for increased efficiency, sustainability and accountability at the sites. Multi-site, complex-wide capability development and deployment will be funded in the ADAPT subprogram.

Program Assessment Rating Tool (PART)
The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The Readiness Campaign program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2007 Budget Request. The OMB gave the Readiness Campaign scores of 100 percent on the Program Purpose and Design and Strategic Planning Sections; 89 percent on the Program Management Section, and 78 percent on the Program Results and Accountability Section. Overall, the OMB rated the Readiness Campaign 87 percent, its highest rating of "Effective." The OMB assessment found that the program has demonstrated progress in achieving annual and long-term goals; has a clear and unique purpose; is well managed; and has clear and measurable performance metrics to cover a portion of the program. In addition, the OMB found that it is difficult to measure the impact the program has on optimizing nuclear weapons stewardship activities, such as lowered costs and reduced cycle times. The OMB also noted that the program must coordinate closely with other NNSA programs given its purpose. In response to the OMB findings, the NNSA is investigating performance measures that better assess the program's impact on reducing cost/time. The program is also improving the coordination of priorities and initiatives across multiple NNSA programs.

Annual Performance Results and Targets

(R = Results; T = Target)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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: 6 T: 5	R: 12 T: 10	R: 16 T: 15	T: 20	T: 22	T: 24	T: 25	T: 27	T: 29	By 2017, deploy 38 critical immediate and urgent capabilities to support DSW 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	N/A	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)	N/A	R: 240 T: 240	R: 240 T: 240	T: 480	T: 720	T: 960	T: 960	T: 1,200	N/A	By 2011, complete irradiation of 1,200 Tritium-Producing Burnable Rods (to provide tritium for nuclear weapons) (Interim Target).
<u>Cumulative percentage of Tritium Extraction Facility (TEF) project completed (total project cost), while maintaining a Cost Performance Index of 0.9 - 1.15 (Efficiency</u>)	R: 80% T: 80%	R: 87% T: 87%	R: 97% T: 96%	T: 100%	N/A	N/A	N/A	N/A	N/A	<u>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.)</u>

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Stockpile Readiness	**16,604**	**17,576**	**18,924**

The mission of the Stockpile Readiness subprogram is to ensure the availability of future manufacturing capabilities for the production of weapon components containing special materials.

This includes the establishment of special processes; replacement of sunset technologies with advanced capabilities providing substantial yield, operating, cost, and other potential benefits; and the deployment of component qualification and acceptance techniques.

In meeting this mission, the Stockpile Readiness subprogram develops and deploys beneficial, cutting-edge applied science and technology concepts and methods into operationally ready capabilities that deliver cost-effective, rapid product realization. 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; shortened cycle times; built-in quality and acceptance; closer integration of activities across the Nuclear Weapons Complex; a more productive workforce; and agile processes that enhance responsiveness to future national security needs.

The Stockpile Readiness Subprogram deliverable in FY 2008 is a dimensional inspection technology and agile machining capability. Ongoing activities to support future deliverables include deploying initial models-based casting and forming design and manufacturing tools; begin use of upgraded dimensional inspection capability; deploy digital radiography and data exchange capability with design agencies; deploy critical plant laboratory network and equipment upgrades; and establish core capabilities to meet requirements for a responsive, efficient, and cost effective production complex.

High Explosives and Weapon Operations (HEWO)	**15,595**	**17,188**	**9,835**

The HEWO 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 (WR) component logistics and inventory control, and special nuclear material interim storage and staging. The HEWO subprogram provides technology enabled solutions to modernize processes and facilities and use science-based design, engineering, and manufacturing to achieve a high level of Nuclear Weapons Complex integration, efficiency, and quality, with a reduced cost.

In FY 2008, the HEWO subprogram plans to deliver process capability for models-based design and fabrication of special weapon tooling and high explosives main charges as well as system engineering based solutions to improve tooling process. Ongoing activities focus on establishing the capability to be the primary supplier for TATB and TATB-based insensitive high explosives and formulations to support stockpile management activities; providing capability to non-destructively characterize the quality of potting material after assembly; establishing advanced inventory and materials management systems for storing, tracking and controlling material and hardware assets used in or on the nuclear weapons stockpile.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Nonnuclear Readiness	**29,808**	**31,171**	**25,592**

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 2008, the Nonnuclear Readiness subprogram planned deliverables include: assembly processes that incorporate mistake-proofing for strong-links and other mechanical devices and product tester readiness supporting production of small neutron generators. Ongoing activities include establishing analytical capabilities, materials and processes to support the electrical and mechanical product development tasks for life extension, and product tester readiness supporting production of neutron generators and other nonnuclear components and assemblies.

Tritium Readiness	**62,067**	**86,385**	**73,231**

The Tritium Readiness subprogram reestablishes and operates the Department capability for producing tritium to maintain the national inventory in support of the nuclear weapons stockpile. Irradiation of Tritium Producing Burnable Absorber Rods (TPBARs) in the Tennessee Valley Authority (TVA) Watts Bar reactor began in October 2003. A capability to produce tritium is currently maintained in standby at TVA Sequoyah reactors until needed to meet tritium production requirements, which are specified in the Nuclear Weapons Stockpile Plan signed annually by the President. The third 18-month tritium production run at Watts Bar commenced in November 2006. Irradiated rods from the second production run will be transported to the Tritium Extraction Facility (TEF) at the Savannah River Site (SRS) in mid-FY 2007, where tritium will be extracted from TPBARs and piped directly to the Tritium Loading Facility.

In FY 2008, the Tritium Readiness subprogram will deliver the fourth production run of TPBARs to TVA for irradiation and will transport the third run of irradiated TPBARs from the TVA Watts Bar reactor to SRS for extraction at the TEF. Ongoing activities include development and testing to provide improved TPBAR performance, strengthening the supply chain for component sourcing and long-range reactor fuel supplies, and management actions to transition the subprogram from development to steady-state production operations. Once the Tritium Readiness Program completes development and implements full production operations, it is anticipated that the Tritium Readiness subprogram will be transferred to the DSW program.

Tritium Readiness Construction	**24,645**	**0**	**0**

Project 98-D-125, TEF includes two major buildings: (1) a 15,250-square-foot (approx) Remote Handling Building (RHB) and (2) a 26,500-square-foot (approx) Tritium Processing Building (TPB). Major processes and operations systems included within the TEF will be: (1) the Receiving, Handling, and Storage System that will support all functions related to the receipt, handling, preparation, and storage of incoming TPBAR and outgoing radioactive waste materials; (2) the Tritium Extraction System that will perform initial cleanup of extracted gasses; (3) the Tritium Process Systems that will separate process gasses from the irradiated TPBARs; (4) the Tritium Analysis and Accountability Systems that will support monitoring and tritium accountability; (5) the Solid Waste Management System that will receive solid waste generated by TEF for management and storage prior to disposal in

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

the E-Area vaults, which will be upgraded by TEF to accommodate that disposal; and (6) the Heating, Ventilation, and Air Conditioning System that would provide and distribute conditioned supply air to the underground Remote Handling Area (RHA) and the above-ground tritium processing area and also discharge exhaust air to the environment via a 100-foot stack. By 2007, the TEF is expected to be operational and the cost of facility operation will be incorporated in the Tritium Readiness Subprogram budget.

Advanced Design and Production Technologies (ADAPT)	**67,848**	**53,645**	**33,587**

The ADAPT subprogram promotes cross-cutting, multi-site technology enabled solutions, and develops integrated enhanced capabilities to improve the effectiveness of the Nuclear Weapons Complex design-to-manufacturing capabilities. At the laboratories and plants, ADAPT projects focus on fast-turn-around engineering solutions through virtual prototypes and implementing modern product data management and collaboration tools. Additionally, ADAPT activities identify, develop and integrate essential applied technology capabilities to achieve rapid product realization, meeting Nuclear Weapons Complex requirements and related national security needs, in addition to developing qualified manufacturing processes and capabilities for delivery to other weapon activities to support directed production schedules or life extension programs.

ADAPT supplies a vital link to pull relevant science-based research and innovation through the development of new or modified process or product applications to readiness for insertion into existing weapons systems. ADAPT supports development of manufacturing processes and products that replace sunset technologies and operations, and that provide new alternatives that improve safe, reliable, and secure functionality. It also carries the responsibility of pursuing selected, promising longer-lead technological improvements that could result in significant, "transformational" improvements or reductions in risk to the LEP.

In FY 2008, the ADAPT subprogram planned deliverables include deploying process simulators and knowledge-based advisors to optimize design and production. Ongoing activities include: developing design and fabrication processes for advanced high-reliability, microtechnology-based detonators with lower detonation energies and enhanced safety and reliability, advancements in electronic neutron generator technology, and qualified joint test assembly-ready microtelemetry modules.

Total, Readiness Campaign	**216,567**	**205,965**	**161,169**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Stockpile Readiness	
This slight increase in funding reflects an ongoing commitment made in FY 2006 and FY 2007 to multi-year projects. New project starts in FY 2008 have been delayed to release funds for higher priority RTBF and DSW requirements in FY 2008.	**+1,348**
High Explosives and Weapon Operations	
This decrease in funding reflects completion of projects in FY 2007 and an ongoing commitment made in FY 2006 and FY 2007 to multi-year projects but also a delay in planned project starts in FY 2008 in order to release funds for higher priority RTBF and DSW requirements.	**-7,353**
Nonnuclear Readiness	
This decrease in funding reflects an on-going commitment made in FY 2006 and FY 2007 to multi-year projects but also a delay in planned project starts in FY 2008 in order to release funds for higher priority RTBF and DSW requirements.	**-5,579**
Tritium Readiness	
The decrease in funding from the previous fiscal year is part of the approved multi year baseline and is due to completion of start-up operations at the TEF and transition to steady-state tritium extraction at the responsive operations level. Progress in resolving technical issues, coupled with anticipated adjustments to the overall requirements for tritium gas, enable the program to take this one-year reduction and accept what are deemed modest increased risks to technical issue resolution and production schedules.	**-13,154**
Advanced Design & Production Technologies	
This decrease in funding reflects completion of projects in FY 2007 and an ongoing commitment made in FY 2006 and FY 2007 to multi-year projects but also a delay in planned project starts in FY 2008 in order to release funds for higher priority RTBF and DSW requirements.	**-20,058**
Total Funding Change, Readiness Campaign	**-44,796**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	1,489	1,534	1,251
Capital Equipment	19,442	20,025	16,331
Total, Capital Operating Expenses	**20,931**	**21,559**	**17,582**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	1,288	1,327	1,367	1,408
Capital Equipment	16,821	17,326	17,846	18,381
Total, Capital Operating Expenses	**18,109**	**18,653**	**19,213**	**19,789**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
98-D-125, Tritium Extraction Facility	407,899	74,558	24,645	0	0	0
Total, Construction			**24,645**	**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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 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 Appro-priations	FY 2006	FY 2007	FY 2008	Completion Date
9-MeV Linac, Y-12 National Security Complex	4,325	3,825	2,000	1,350	475	0	FY 2007
Microwave Deployment, Y-12 National Security Complex	6,087	4,587	547	1,150	2,890	0	FY 2009
Computer Numerical Controller Lathe and Glovebox, Y-12 National Security Complex	6,870	5,870	3,870	2,000	0	0	FY 2007
Coordinate Measuring Machine # 3, Y-12 National Security Complex	6,000	5,700	5,700	0	0	0	FY 2007
Multi-axis Orbital machining Center, Y-12 National Security Complex	4,890	3,700	0	500	2,000	1,200	FY 2008
Direct Li2O Reduction, Y-12 National Security Complex	3,000	2,400	0	0	0	2,400	FY 2009
Coordinate Measuring Machine # 1, Y-12 National Security Complex	7,741	7,541	7,641	(100)	0	0	FY 2006
Coordinate Measuring Machine #2, Y-12 National Security Complex	2,065	1,965	2,065	(100)	0	0	FY 2006
Hydroforming Unit, Y-12 National Security Complex	1,935	1,785	1,545	240	0	0	FY 2006
Vacuum Annealing Equipment, Y-12 National Security Complex	3,538	3,388	3,000	388	0	0	FY 2006
Low Energy X-Ray Machine, Y-12 National Security Complex	4,393	4,243	4,493	(250)	0	0	FY 2006

(dollars in thousands)

Major Item of Equipment	Total Project Cost (TPC)	Total Estimated Cost (TEC)	Prior Year Appro-priations	FY 2006	FY 2007	FY 2008	Completion Date
Scanning Electron Microscope, Y-12 National Security Complex	3,200	3,200	5,100	(1,900)	0	0	FY 2006
Electro Polisher, Y-12 National Security Complex	103	103	1,503	(1,400)	0	0	FY 2006
Elecron Beam Welder, Y-12 National Security Complex	4,488	4,188	4,978	(790)	0	0	FY 2006
Metalworking, Y-12 National Security Complex	3,378	2,178	2,278	(100)	0	0	FY 2006
Assembly Glovebox, Y-12 National Security Complex	17,892	14,892	15,000	(108)	0	0	FY 2005
Jig Borer #1, Y-12 National Security Complex	1,975	1,925	1,900	25	0	0	FY 2006
Jig Borer #2, Y-12 National Security Complex	4,360	3,360	3,372	(12)	0	0	FY 2006
Electron Beam Weld Inspection, Y-12 National Security Complex	2,644	2,494	2,494	0	0	0	FY 2007
Total Major Items of Equipment	**88,884**	**77,344**	**67,486**	**893**	**5,365**	**3,600**	

Readiness in Technical Base and Facilities

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Readiness in Technical Base and Facilities			
Operations of Facilities	1,170,329	1,203,786	1,159,305
Program Readiness	104,681	75,167	71,466
Material Recycle and Recovery	72,003	69,982	69,962
Containers	17,074	20,130	19,184
Storage	24,970	35,285	35,133
Subtotal, Operations and Maintenance	**1,389,057**	**1,404,350**	**1,355,050**
Construction	265,783	281,422	307,094
Total, Readiness in Technical Base and Facilities	**1,654,840**	**1,685,772**	**1,662,144**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Readiness in Technical Base and Facilities				
Operations of Facilities	1,214,897	1,310,232	1,364,120	1,424,675
Program Readiness	83,850	91,351	94,574	96,456
Material Recycle and Recovery	75,207	77,170	90,012	91,604
Containers	18,287	17,993	33,094	33,190
Storage	26,683	27,417	28,652	29,221
Subtotal, Operations and Maintenance	**1,418,924**	**1,524,163**	**1,610,452**	**1,675,146**
Construction	279,479	241,295	252,277	277,487
Total, Readiness in Technical Base and Facilities	**1,698,403**	**1,765,458**	**1,862,729**	**1,952,633**

Mission

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, as identified by 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 containers sufficient to support the requirements of the weapons stockpile. Beginning in FY 2007, RTBF will be overseeing implementation of 10CFR851, the Worker Safety and Health Rule and associated costs will be incurred in Operations of Facilities and construction activities across the entire weapons complex.

Consistent with Complex 2030, the RTBF program is transforming its business model to standardize program facilities management within the Nuclear Weapons Complex. In FY 2008, RTBF transformation highlights include steps to improve program management, consolidate special nuclear materials (SNM), and improve operations. By the end of FY 2008, NNSA will drive uniformity in the management of the RTBF program using a national work breakdown structure and activity-based costing methods. Institutional Site Support projects will be more responsive to changing programmatic requirements, focusing on smaller facilities and modernizing selected equipment that support programmatic missions while reducing operating and maintenance costs. Regarding material consolidation, RTBF will complete final shipments of TA-18 nuclear materials to final destinations, and package surplus nuclear materials at LANL for off-site shipment. RTBF developed a plan for removal of CAT I/II SNM and transition of LLNL programmatic work involving CAT I/II SNM to LANL and NTS and began moving material from LLNL in Fiscal Year 2007. NNSA plans to eliminate the need for CAT I/II SNM security at Sandia National Laboratories (SNL) by the end of 2008, Lawrence Livermore National Laboratory (LLNL) by 2014, and from Los Alamos National Laboratory (LANL) by 2022. Operational improvements include consolidating flight test operations and ceasing NNSA operations at Tonopah Test Range by the end of 2009 through use of alternative, non-NNSA operated ranges, elimination of joint test assemblies containing SNM, and through alternative designs and/or test techniques.

The RTBF Construction Program plays a critical role in revitalizing the nuclear weapons manufacturing and research and development infrastructure. Investments from this program will design and construct facilities that support the nuclear weapons complex, improving the responsiveness and/or functionality of the infrastructure and its technology base. Before advancing to capitalized design efforts, conceptual designs for the projects are usually prepared using operating funds. The conceptual design for a particular project might exceed $3,000,000 depending on the size, complexity, or other factors associated with that particular project. In accordance with 50 United States Code (USC), Section 2746, which requires identification of projects whose conceptual designs exceed the $3,000,000 threshold, the following are projects that might or will exceed this threshold: the Uranium Processing Facility at Y-12 (06-D-140), the TA-55 Reinvestment Project at LANL (08-D-804), and the Component Evaluation Facility at Pantex (05-D-140).

The RTBF program partners with two other major elements within Weapons Activities with a focus on the overall nuclear weapons complex. Those two elements are the Facilities and Infrastructure Recapitalization Program (FIRP) and the DSW Responsive Infrastructure. RTBF program partners with FIRP to restore the facilities and infrastructure of the nuclear weapons complex and maintain them in appropriate condition to support the mission. The RTBF funds maintenance of the complex and makes capital investments to sustain the complex into the future. This ensures that facilities necessary for immediate programmatic workload are maintained sufficiently to support that workload. FIRP is a capital renewal and sustainability program that was established principally to reduce the large backlog of deferred maintenance that had developed during the 1990s to an appropriate level, consistent with industry best practices. FIRP funding reduces deferred maintenance, recapitalizes the infrastructure, and reduces the maintenance base by eliminating excess real property. From now until completion of the

FIRP program, the NNSA will institutionalize responsible and accountable facility management practices and provide funding levels needed to sustain the complex at industry standard best practice levels or better.

External Independent Reviews (EIRs) and Independent Project Reviews (IPRs)
The revised DOE Order 413.3A “Program and Project management for Acquisition of Capital Assets” requires External Independent Reviews (EIRs) 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 CD-3. In addition projects less than the $100,000,000 threshold will be subjected to an Independent Project Review (IPR). Beginning in FY 2007, the EIR business line will be financed via the Working Capital Fund to achieve parity on how EIRs are funded and to standardize the administration of these activities.

The House of Representatives (HR) Energy and Water Development Appropriation Committee Report Accompanying HR Report 4614, stated: “The Committee considers compliance, by all parts of the Department, with Project Management Order 413.3 to be essential. The Committee also expects that all elements of the Department, including the NNSA, will comply with the requirements of Project Management Manual 413.3-1 for capital asset acquisition….”. The NNSA RTBF Program is in compliance with the requirements of the DOE Order 413.3A and plans on conducting an EIR for the Chemistry and Metallurgy Research Building Replacement at LANL.

Benefits
Within the RTBF program, six subprograms provide unique contributions to the GPRA Unit Program Goal 2.1.33:

Operations of Facilities operates and maintains NNSA-owned programmatic capabilities in a state of readiness, ensuring that each capability (including both workforce and facilities) is operationally ready to execute programmatic tasks identified by the campaigns and DSW. This activity funds maintenance of the complex and makes capital investments to sustain the complex into the future.

Program Readiness involves selected activities that support more than one facility, campaign, or DSW activity, and are essential to achieving the objectives of the Stockpile Stewardship Program.

Material Recycle and Recovery is responsible for the recycling and recovery of plutonium, enriched uranium, and tritium from fabrication and assembly operations, limited life components, and dismantlement operations in support of weapons and components.

Containers responds to the needs of the nuclear weapons complex by providing directive-approved 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 for nuclear materials and components.

Storage enhances national security by providing effective storage and management of surplus pits, highly enriched uranium (HEU), and other weapons and nuclear materials in compliance with DOE/NNSA requirements.

Construction is a capital acquisition subprogram composed of independent Line Item Construction projects that are created to address specific needs as well as to support Complex 2030. These needs include replacement of aging facilities, incorporation of modern safety, security, and environmental protection standards, reconfiguration and consolidation to improve the efficiency of the nuclear weapon complex, and incorporation of new technology to provide infrastructure that is responsive to the future needs of the program. The capital portions of each line item project are independently reviewed and funded by Congress based on the mission need identified in the Construction Project Data Sheet (CPDS) submitted to Congress and the operating portion, which includes funding for federal oversight, are provided by the Operations of Facilities budget. A table of RTBF Construction projects is provided in the Capital Operating Expenses and Construction Summary section. Funds appropriated under Readiness in Technical Base and Facilities operating accounts, Preliminary Engineering and Design datasheets, and construction projects may be used to provide independent assessments of associated Readiness in Technical Base and Facilities projects.

Major FY 2006 Accomplishments – RTBF

- Supported key FY2006 DSW milestones such as restarting the Sandia Pulse Reactor (SPR) in support of the W76 Life Extension Program certification activities, increasing transportation container support to align with higher dismantlement and surveillance activities, and initiating the design and safety reviews for 3 new transportation containers to support future stockpile requirements.
- Made significant progress to standardize RTBF program expectations across the nuclear weapons complex by centralizing Headquarters RTBF management activities, piloting a national Work Breakdown Structure and new performance measures for a portion of RTBF activities, validating mission critical facilities and infrastructure in accordance with Federal Real Property Council and DOE guidance, and completing 2 independent cost reviews for key Defense Programs facilities.
- Exceeded corporate facility availability goals to support DSW and campaign activities as mission essential facilities were available greater than 90 percent of schedule days.
- Attained a safety goal record to fully achieve the annual target of the number of reportable accidents well below the national Bureau of Labor Statistics (BLS) average of 5.0 per 200,000 hours of work.
- Attained NNSA complex-wide aggregate Facility Condition Index (FCI) of deferred maintenance per replacement plant value of 6.9% for all mission essential facilities and infrastructure.
- Increased funding profiles for stabilizing, repackaging, and disposing of Inactive Actinides.
- Piloted at all sites (at least one facility per site) Activity Based Costing (ABC) methodologies including a clear definition of the scope, cost and schedule for RTBF funded facilities.
- Reissued the Roadmap for Nuclear Facility Quality Assurance Excellence.
- Initiated design (attained Critical Decision (CD)-1) for 2 projects (Building B-3 Remediation, Restoration, and Upgrade Project at North Las Vegas and for the Radioactive Liquid Waste Treatment Facility at LANL.
- Initiated construction (attained Critical Decision (CD)-3) for 4 projects (Device Assembly Facility modifications for the Criticality Experiments Facility at NTS, the Beryllium Capability Project at the Y-12 Plant, the Radiological Laboratory Utility Office Building of the Chemistry and Metallurgy Research Facility Replacement (CMRR) at LANL, and the Tritium Facility Modernization Project at the Lawrence Livermore National Laboratory (LLNL).

- Completed the Stockpile Management Restructuring Initiative (SMRI) project (attained CD-4) at the Kansas City Plant (KCP).
- Completed the Sandia National Laboratories' (SNL) Weapons Evaluation Test Laboratory project (attained CD-4) located at the Pantex Plant (PX).
- Completed the Test Capabilities Revitalization Project, Phase I, at SNL (attained CD-4).
- Completed the Electrical Power Systems Safety, Communications, and Bus Upgrade project at the Nevada Test Site (NTS) (attained CD-4).
- Completed the National Security Sciences Building, Phase I, at the Los Alamos National Laboratory (LANL) (attained CD-4).

Major Outyear Priorities and Assumptions

The outyear projections for Readiness in Technical Base and Facilities at the level of $7,279,223,000 for FY 2009 through FY 2012. The trend in the five-year period is increasing and reflects funding growth as a result of continued aging of the NNSA complex and the escalating requirements and costs associated with nuclear facility safety and compliance.

RTBF budget is concentrated on two major objectives - operate and maintain the NNSA program facilities in a safe, secure, efficient, reliable and compliant condition within the resources available and be responsive to the demands of the current and future national security challenges, which require revitalization of the nuclear weapons infrastructure within the current parameters as well as the concepts established under Complex 2030. The RTBF program continues to be challenged by the continued aging of the NNSA complex and the escalating requirements and costs associated with nuclear facility safety and compliance. Major construction activities during the period include continued focused effort on HEUMF, UPF, Chemistry and Metallurgy Research Facility Replacement at LANL (CMRR), Radioactive Liquid Waste Treatment Facility at LANL, Building B-3 at the Nevada Site Office, Criticality Experiments Facility at the Nevada Test Site, and the Replacement Fire Stations at the Nevada Test Site, and the Beryllium Capability project at Y-12.

In order to address these challenges, RTBF will realize efficiencies through the use of activity based costing principles for selected key 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 that will consolidate program activities, reduce program footprint, and replace/refurbish process equipment as needed to support priority program work.

Deferred requirements will be reprioritized based on the future demands placed on the complex as it moves to Complex 2030 while continuing to support the existing mission and priorities of DSW and the Campaigns in supporting the requirements associated with national security.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government’s portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The RTBF program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2005 Budget Request. The OMB gave the RTBF program scores of 100 percent on the Program Purpose and Design, and Strategic Planning Sections; 88 percent on the Program Management Section; and 56 percent on the Program Results and Accountability Section. Overall, the OMB rated the program as 75 percent, its second highest rating of “Moderately Effective.” The OMB assessment found the program has recently developed long-term performance goals against which it can measure its success; integration with the FIRP is beginning; and independent evaluations of the program trended toward showing improvements. The OMB concluded that the program does not yet have an established track record against those goals that would support a higher rating. In response to the OMB findings, NNSA management is developing mechanisms to provide more oversight of contractors; actively monitoring performance against goals and targets through the Planning, Programming, Budgeting, and Execution/Evaluation (PPBE) process; integrating a broader-scope program with the FIRP; and standardizing RTBF program management across the complex.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.33.00, Readiness in Technical Base and Facilities										
Annual percentage of scheduled days that mission-essential facilities are available (Annual Output)	R: 96% T: 90%	R: 98.8% T: 90%	R: 98.1% T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	Annually, mission-essential facilities are available at least 90% of scheduled days.
Annual number of Reportable Accidents per 200,000 hours of work [vs. Bureau of Labor Statistics (BLS) standard average] (Annual Output)	R: 1.9 T: <6.4	R: 1.9 T: <6.4	R: 1.77 T: <5.0	T: <5.0	T: <5.0	T: <5.0	T: <5.0	T: <5.0	T: <5.0	Annually, reportable accidents are below Bureau of Labor Statistics (BLS) national standard average.
<u>Annual NNSA complex-wide aggregate Facility Condition Index (FCI), as measured by deferred maintenance per replacement plant value, for all mission-essential facilities and infrastructure (the industry standard is below 5%) (Efficiency)</u>	<u>R: 7.2%</u> <u>T: 10%</u>	<u>R: 7.4%</u> <u>T: 9%</u>	<u>R: 6.7%</u> <u>T: 7.4%</u>	<u>T: 6.8%</u>	<u>T: 6.4%</u>	<u>T: 6.1%</u>	<u>T: 5.6%</u>	<u>T: 5.5%</u>	<u>T: 5.3 %</u>	<u>By FY 2009, return the condition of mission essential facilities and infrastructure to industry standards.*, **.</u>
Annual percentage of baselined construction projects with total estimated cost (TEC) greater than $20,000,000with actual schedule performance index (SPI) of 0.9-1.15 and cost performance index (CPI) of 0.9-1.15, as measured against approved baseline definitions (Annual Output)	N/A	R: 71%	R: 90% T: 75%	T: 80%	T: 85%	T: 90%	T: 90%	T: 90%	T: 90%	By 2009, 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.

* FCI Targets based on the latest NNSA Ten Year Site Plans (TYSPs) indicate that the FY 2009 endpoint target will not be achieved.

**The NNSA is in the process of redefining its facilities and infrastructure consistent with the Federal Real Property Council (FRPC) and DOE mission-dependency values.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Operations of Facilities	**1,170,329**	**1,203,786**	**1,159,305**

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; and the transfer of the ES&H activities from the Department as a result of a reorganization. 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. The funds also include support for the TA-18 Early Move of Special Nuclear Material to other locations. Maintains current and future operations with a smaller workforce, growing maintenance needs, and increasing regulatory requirements. Payment-in-Lieu-of-Taxes for Los Alamos County (approximately $200,000 per year), the Los Alamos Pueblo Project (approximately $800,000 per year) and the GE Pension for the former Pinellas site (approximately $2,500,000) are funded from the Operations of Facilities account within RTBF. 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. Operations of Facilities funding may be used to provide further support to the planned down-sizing of the Kansas City Plant consistent with the 2030 Complex plan.

Surplus Facility D&D

Modernizing and reducing square footage of the complex increases the number of facilities that must be decontaminated and decommissioned. DOE/EM is responsible for legacy D&D and NNSA FIRP funding is currently restricted to non-process contaminated facilities. D&D costs for facilities closed under Complex 2030 must be included in NNSA's planning. Defense Programs has a process in place to solicit proposals from field sites for activities that will enable the program to reduce overall footprint at the sites, eventually reducing operational cost. Once site proposals are received, the process enables a prioritization of the work scope required across the complex that focuses on consolidation opportunities, preparing facilities for future D&D activities, and supporting mission requirements.

▪ **Kansas City Plant**	**87,293**	**98,057**	**96,353**

Operates and maintains the Kansas City Plant (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

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

Directed Stockpile Work, Life Extension Programs (LEPs) and Stockpile Systems products, the associated weapon programs, and technology development and deployment activities. Operations of Facilities include costs for -- Facilities Management, Maintenance, Utilities, ES&H, Capital Equipment, General Plant Projects (GPP), and Expense-funded projects.

Congressionally Directed Activity	**15,000**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $15,000,000 for the Kansas City Plant.

▪ **Lawrence Livermore National Laboratory**	**74,427**	**96,906**	**81,044**

Funds fixed operational costs and keeps the facilities and capabilities in a safe, secure, reliable, and “ready for operations” state of readiness. Activities include, but are not limited to newly generated waste, building and building system maintenance; utilities; maintenance of programmatic equipment; ES&H; actions to address safety issues, and implementation of rules, such as the Safety Basis Rule 10CFR830, Nuclear Safety Management. Infrastructure support (Facilities Support) is also included in Operations of Facilities, and funds Other Project Costs (OPC) for the RTBF line item construction projects, TA-18 Early Move, and Offsite Assignees (at NNSA Headquarters), in addition to other minor RTBF activities not specifically allocated to a facility or facility group.

Congressionally Directed Activity	**4,000**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $4,000,000 for the Lawrence Livermore National Laboratory in support of the following activities: rapid prototyping activities at the Special Technology Laboratory ($2,000,000) and establish a public-private partnership to test and evaluate water filtration technology ($2,000,000).

▪ **Los Alamos National Laboratory**	**235,310**	**306,258**	**270,582**

Funds implementation of the technologies and methods necessary to make construction, operation, and maintenance of Defense Programs (DP) facilities safe, secure, compliant, and cost effective. The goal is to ensure that mission-essential capabilities in critical nuclear facilities and other DP facilities and infrastructure are available to conduct the scientific, computational, engineering, and manufacturing activities of the Stockpile Stewardship Program. The LANL RTBF program maintains facilities and technologies in an appropriate condition, to enable the accomplishment of the DP mission. Funds fixed operational costs and keeps the facilities and capabilities in a safe, secure, reliable, and “ready for operations” state of readiness. Funds the principal structures, equipment, systems, materials, procedures, and personnel necessary to balance the program and provide program sponsors with a facility that is safe, secure, reliable, and compliant for operations. DP direct-funded facilities include the Engineering, Manufacturing Systems and Methods Shops, Tritium, Dynamic Experimentation, Los Alamos Neutron Science Center (LANSCE), Waste Management, Nuclear Materials Technology (TA-55 & Chemistry and Metallurgy Research [CMR]), and Beryllium Technology. Work scope includes conventional facility management, infrastructure and utilities, and operation and maintenance of special equipment. Operations of Facilities also funds infrastructure support and provides the final year of funding for TA-18 Early

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

Move activities to complete special nuclear material shipments. Operations of Facilities also funds general infrastructure support activities such as Other Project Costs for Line Items, General Plant Projects, and Authorization Basis activities.

Congressionally Directed Activity	**46,250**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $46,250,000 for the Los Alamos National Laboratory in support of the following activities: National Museum for Nuclear Science and History ($1,750,000), Arrowhead Center at New Mexico State University ($2 ,000,000), establish a National Nanotechnology Enterprise Development Center ($7,500,000), and acquire additional advanced computing capacity ($35,000,000).

▪ **Nevada Test Site**	**35,931**	**67,687**	**66,127**

Funds fixed operational costs and maintains the facilities and capabilities in a safe, secure, reliable, and "ready for operations" 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. Facilities include the Device Assembly Facility, U1a Complex, Joint Actinide Shock Physics Experimental Research (JASPER), Atlas, High Explosive (HE) Facility, 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, and are designated RTBF mission critical. Atlas will be maintained in "cold standby". Operations of facilities also funds line item Other Project Costs and the final year of funding for TA-18 Early Move activities to complete special nuclear material shipments.

Congressionally Directed Activity	**31,000**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $31,000,000 for the Nevada Test Site (NTS) in support of the following activities: the operation and recapitalization of facilities ($7,500,000), University of Nevada at Las Vegas (UNLV) Research Foundation to support ongoing programs of the Institute for Security Studies ($2,500,000), Advanced Monitoring Systems Initiative ($3,000,000), improve and upgrade existing roads at the NTS ($7,500,000), purchase and install a Geographic Information Center ($1,000,000), install a fiber optic link between the NTS and Indian Springs Air Force Base ($4,000,000), upgrade the Emergency Operations Center within the Nevada Support Facility ($4,500,000), and continue the ongoing administration support grant for the UNLV Research Foundation ($1,000,000).

Congressionally Directed Activity	**4,000**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), provided $4,000,000 for two new water tanks in Area 6 of the NTS.

▪ **Pantex Plant**	**81,281**	**96,124**	**95,012**

Funds facility management and support, which includes costs associated with facilities and their ability to function effectively, such as plant and maintenance engineering, facility utilization

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

analysis, modification and upgrade analysis, facilities planning and condition determinations, and the rental of buildings and land. Maintenance activities sustain property, plant, and equipment in a condition suitable to fulfill the mission safely and reliably, including preventative, predictive, corrective, and general maintenance. Utilities costs include the utilities management program, utility-related engineering, an energy-savings program, and operation and distribution of utility services. Work includes the collection and treatment of wastewater; steam distribution and condensate return; electrical distribution; natural gas distribution; compressed air; and water production, treatment, and distribution to support domestic, industrial, and fire protection needs. Environmental protection, waste management, and waste minimization activities are also performed. Safety and health activities consist of a large set of functional activities working together to achieve a safe work place. Functions include Authorization Basis documentation, emergency management, fire protection, and safety and health assurance, including Radiation Safety, Nuclear Explosive Safety, Occupational Medicine, Industrial Hygiene, and Industrial Safety. 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.

Congressionally Directed Activity	**51,000**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $51,000,000 for the Pantex Plant.

▪ **Sandia National Laboratories**	**107,662**	**163,627**	**156,872**

Funds fixed operational costs and maintains the facilities and capabilities in a safe, secure, reliable, and “ready for operations” state of readiness. The dominant cost driver for these capabilities/facilities is the staff (SNL and contract labor) 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, Z operations and refurbishment, Nanosciences Labs, Electromagnetic Test Facilities, Materials Characterization Laboratories, Environmental Test Facilities at SNL and Livermore, Neutron Generator Production Facility, Primary Standards Laboratory, and Waste Management Activities. Consistent with Complex 2030, consolidate flight test operations and cease NNSA operations at Tonopah Test Range by the end of 2009 through use of alternative, non-NNSA operated ranges, elimination of joint test assemblies containing SNM, and through alternative designs and/or test techniques. The Microsystems and Engineering Sciences Applications (MESA) and Z refurbishment facilities come on-line in FY 2007. In FY 2007, the operational support for the Z facility has been transferred from the ICF Campaign; however, it is operated at half the single-shift rate following completion of the Z facility refurbishment.

	FY 2006	FY 2007	FY 2008
Congressionally Directed Activity	**31,500**	**0**	**0**

(dollars in thousands)

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $31,500,000 for the Sandia National Laboratories (SNL) in support of the following activities: modification of the Z-Beamlet laser at the Z Pinch ($11,000,000), MESA operations ($12,000,000), establish a National Nanotechnology Enterprise Development Center ($7,500,000), and Advanced Engineering Environment ($1,000,000).

▪ **Savannah River Site (SRS)**	**95,786**	**100,013**	**97,410**

Funds facilities management and support activities that maintain the facilities and infrastructure in a state of readiness for mission operations. Preventive, predictive, and corrective maintenance of process and infrastructure equipment and facilities is performed. Environmental, safety, and health 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 are also 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.

▪ **Y-12 National Security Complex**	**174,128**	**191,092**	**188,561**

Funds operation and maintenance of mission-essential facilities in a state of readiness, in which each facility is operationally ready to execute programmatic tasks within multiple Defense Programs 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.

Congressionally Directed Activity	**45,750**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $45,750,000 for the Y-12 National Security Complex in support of the following activities: Plasma Separation Process High Energy Storage Isotope Research ($3,750,000), Secure Wireless Technologies ($2,000,000), and designated site support ($40,000,000).

▪ **Institutional Site Support**	**32,361**	**84,022**	**107,344**

Supports corporate activities across the nuclear material complex including: re-packaging and disposition of inactive actinide materials, 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, forecasting of nuclear material supply and demand, and external independent reviews of line item construction projects. Funding is also provided for Complex 2030 transformation activities to be more responsive to changing programmatic requirements while improving operational efficiency

		(dollars in thousands)	
	FY 2006	FY 2007	FY 2008

and lowering operating costs. The focus of the initiative is on smaller facilities and modern equipment that support programmatic missions while reducing operating/maintenance costs. Site proposed transformation projects will be approved contingent on budget appropriation and fund availability.

Congressionally Directed Activity	**17,650**	**0**	**0**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006 (P.L. 109-103), earmarked $17,650,000 for Institutional Site Support activities in support of the following activities: not-for-profit Technology Ventures Corporation for technology transfer and commercialization efforts at the National Laboratories and Nevada Test Site ($3,500,000), risk-based data management within the state of Oklahoma ($1,150,000), robotics repetitive system technology ($2,000,000), multi-platform dosimeter radiation detection devices within the state of Washington ($1,500,000), airborne particulate threat assessment within the state of Pennsylvania ($2,000,000), command and control of Vulnerable Materials Security System within the states of Pennsylvania and New Jersey ($2,000,000), Consortium on Terrorism and Fire Science at University of Nevada at Reno ($3,000,000), continue operations and security at the Atomic Testing History Institute ($500,000), and radio-analytical services laboratory at the UNLV Research Foundation ($2,000,000).

Program Readiness	**104,681**	**75,167**	**71,466**

Supports selected activities that rely on more than one facility, Campaign, or DSW activity, and are essential to achieving the objectives of the Stockpile Stewardship Program.

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

- At the Nevada Test Site, Program Readiness activities include logistical support for laboratory staff permanently located in Nevada, including facilities, equipment, and administrative and technical support. Efforts related to offsite monitoring, weather, cultural resources, hydrology, and geology are also supported. Legacy environmental compliance issues that resulted from years of nuclear testing activities in Nevada are addressed, as well as regulatory requirements and efforts to avoid potential compliance orders. The Federal Facility Agreement and Consent Order and the Legacy Rehabilitation projects continue to be supported in FY 2007, along with historical archiving and seismic monitoring activities. The Borehole Management Program will continue to close the remaining NTS legacy boreholes in accordance with the approved site execution plan to comply with state environmental regulations. The NTS Equipment Revitalization Program will continue to replace and modernize NTS equipment that is obsolete in accordance with the NTS Comprehensive Capital Equipment Plan.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

- At the Pantex Plant, Program Readiness activities include operational quality assurance, production assurance, critical skills, and program readiness program management. Production assurance provides management and oversight capabilities to integrate program readiness across all program areas.

- At Sandia National Laboratories, Program Readiness is focused on three major areas—people readiness, technical readiness and capability readiness. Some of the specific efforts under People Readiness include the Knowledge Management program for creating the infrastructure to preserve the knowledge of our senior experienced personnel, the Russian Program supporting unclassified exchange with the Russian institutes under the auspices of Weapons Safety and Security Exchange, critical skills development (internally and jointly with institutions) and the Weapons Intern Program. Assuring that capabilities are available and ready for the future is also a thrust within Program Readiness. Specifically, we are focusing on developing the capabilities necessary to support micro-optical-electromechanical systems in the future.

- Program Readiness also supports the Nuclear Criticality Safety Program (NCSP). The NCSP, developed in response to DNFSB Recommendation 97-2, maintains a base nuclear criticality skills and technical capability necessary to support all operational criticality safety programs in the Department's nuclear facilities.

Material Recycle and Recovery	**72,003**	**69,982**	**69,962**

Material Recycle and Recovery 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. It also supports the implementation of new processes or improvements to existing processes for fabrication and recovery operations, material stabilization, conversion, and storage. Material Recycle and Recovery supports the process of recycling and purifying the above materials to meet specifications for safe, secure, and environmentally acceptable storage, and to meet the directive schedule for tritium reservoir refills.

- At Los Alamos National Laboratory, Material Recycle and Recovery 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, Material Recycle and Recovery 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 missions.

- At the Y-12 National Security Complex, Material Recycle and Recovery 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 Management and to

		(dollars in thousands)	
	FY 2006	FY 2007	FY 2008

ensure safe and secure handling of materials on-site. In addition, Material Recycle and Recovery 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.

- Material Recycle and Recovery activities include responses to uranium stabilization/ decontamination/repackaging; nuclear materials information management; a small amount of generic criticality safety support, and nuclear materials planning and reporting. Material Recycle and Recovery is principally accomplished at Y-12, LANL, and the SRS Tritium Facility.

Containers	**17,074**	**20,130**	**19,184**

The RTBF Containers subprogram provides for 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. New container systems are developed to improve safety, security, maintainability and accept a broader array of contents to minimize the number of specialized containers that have to be maintained. Refurbishment work to provide containers to support specific DSW Dismantlement and Life Extension Programs is funded by the individual program.

Storage	**24,970**	**35,285**	**35,133**

Storage provides for effective storage and management of national security and surplus pits, HEU, and other weapons and nuclear materials in compliance with DOE/NNSA requirements. This includes the cost of receipt, storage, and inventory of nuclear materials, non-nuclear materials, HEU, enriched lithium, and components from dismantled warheads. Storage also 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, storage 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 & Inspection Surveillance includes surveillance activities associated with pits in storage. Activities include weight and leak testing, visual inspections, and radiography.

- At the Y-12 National Security Complex, storage 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 Weapons Complex. 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.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Construction	**265,783**	**281,422**	**307,094**

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 RTBF Construction projects are listed in the Construction Projects table in the Capital Operating Expenses and Construction Summary section.

The Construction subprogram includes the cost of new and ongoing line item construction projects that support the Nuclear Weapons Complex, except for the major programmatic specific projects that support specific campaigns. RTBF Construction projects range from complex, state-of-the-art facilities and advanced scientific and technical tools, to replacement facilities and basic infrastructure. The RTBF Construction 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. Both are critical to ensure a reliable nuclear weapons stockpile.

To effectively support both the near and long-term needs of the weapons complex, the RTBF Construction subprogram must be flexible and responsive to diverse and evolving program and facility requirements. The Integrated Construction Program Plan (ICPP), first established in FY 2002 by the Deputy Administrator for Defense Programs and the Associate Administrator for Infrastructure and Environment, is the planning and prioritization document that integrates the line item construction plans included in the sites' Ten Year Site Plans with the FYNSP. Through the ICPP and other associated processes, NNSA ensures the construction program is appropriately aligned and integrated with validated program requirements, and resources are optimally allocated to individual projects based on established priorities and demonstrated readiness. Funds appropriated under Readiness in Technical Base and Facilities operating accounts, Preliminary Engineering and Design datasheets and construction projects may be used to provide independent technical assessments of associated Readiness in Technical Base and Facilities projects.

The current SNL Ion Beam Lab (IBL) facility is decaying and is prone to increasing down-time as a result of its age, the state of its building systems, and costly maintenance. It was constructed in 1956 as a temporary building. The IBL facility has been removed from the deferred maintenance list and is in the "run to failure" mode. In addition to facility issues, the programmatic impact of the current capability is limited in some cases by energy stability issues and the minimum size of irradiated areas possible with the older equipment. The need to analyze and evaluate micro- and nano-technologies for future weapon components has led to requirements for ever smaller irradiated spot sizes. Use of the current IBL is also limited by radiation shielding concerns, where simultaneous access to multiple test stations is not possible, and other safety concerns such as water sources near electrical energy.

The scope of the replacement Ion Beam Laboratory is to replace the 50 year old corrugated metal building, which currently serves as the Ion Beam Laboratory, with an approximately 27,000 square foot office and high bay structure. The scope also includes relocating the majority of the equipment in the current IBL, upgrading key pieces of equipment, and procuring a new accelerator and a new

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

focused implanter. The new commercially available instruments will greatly improve SNL's ability to develop, analyze, and evaluate microtechnologies for future weapon components. The replacement facility would be built adjacent to the recently constructed MESA facilities and provide capability to perform Ion beam irradiations for applications that directly impact the NNSA Directed Stockpile Work (DSW) programs and Nuclear Weapons (NW) Campaigns, balanced with fundamental research into radiation effects and materials science. Replacement of the IBL facility has been recognized as the highest priority for SNL for years. In addition, the existing Ion Beam Laboratory will be decommissioned and demolished once the replacement facility is operational.

Congressionally Directed Activity [Non-add]	**[2,000]**	**[0]**	**[0]**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006. (P.L. 109-103) provided $2,000,000 for Construction activities for Project 05-D-140, PE&D, Test Capabilities Revitalization Project.

Congressionally Directed Activity [Non-add]	**[11,000]**	**[0]**	**[0]**

The Conference Report, 109-275, accompanying the Consolidated Appropriations Act, 2006. (P.L. 109-103) provided $11,000,000 for Construction activities for Project 01-D-124 Highly Enriched Uranium Materials Facility at the Y-12 National Security Complex.

Total, Readiness in Technical Base and Facilities	**1,654,840**	**1,685,772**	**1,662,144**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Operations of Facilities	
• Kansas City Plant – The decrease does not represent a significant net change in operating costs.	**-1,704**
• Lawrence Livermore National Laboratory – The decrease reflects transfer of RTBF scope to Science Campaigns. The scope transfer was the result of a change in the cost accounting and charging method at the site.	**-15,862**
• Los Alamos National Laboratory – The decrease reflects a reduction in planned institutional support activities, and transfer of RTBF scope to DSW and Campaign activities. The scope transfer was the result of a change in the cost accounting and charging method at the site.	**-35,676**
• Nevada Test Site - The decrease does not represent a significant net change in operating costs.	**-1,560**
• Pantex Plant - The decrease does not represent a significant net change in operating costs.	**-1,112**
• Sandia National Laboratories – The decrease reflects a decrease in scope due to reduced operations within Technical Area V and Tonopah Test Range.	**-6,755**
• Savannah River - The decrease does not represent a significant net change in operating costs.	**-2,603**
• Y-12 National Security Complex - The decrease does not represent a significant net change in operating costs.	**-2,531**
• Institutional Site Support – The increase reflects additional funding for Complex 2030 transformation activities to be more responsive to changing programmatic requirements while improving operational efficiency and lowering operating costs. The focus of the initiative is on smaller facilities and modern equipment that support programmatic missions while reducing operating/maintenance costs and result in footprint reductions. Site proposed transformation projects will be approved contingent on budget appropriation and fund availability. These projects could include consolidation of the Rubber Shop into Building 9204-2 at the Y-12 Security Complex, the replacement of Kathabar #4 in Building 9204-2 at Y-12, the decontamination of beryllium contaminated spaces at LANL and SNL, calibration equipment replacement at SRS, and consolidation of the B341 Gas gun capabilities into B191 HEAF at LLNL.	**+23,322**
Total, Operations of Facilities	**-44,481**

	FY 2008 vs. FY 2007 ($000)
Program Readiness	
The decrease reflects reallocation of funding for areas of high priority requirements and a reduced level of activity at some sites.	**-3,701**
Material Recycle and Recovery	
The slight decrease does not represent a significant net change in operating costs.	**-20**
Containers	
The decrease reflects reduced container analysis support for TA-18 Early Move activities as the final shipments are scheduled for early FY2008.	**-946**
Storage	
The slight decrease does not represent a significant net change in operating costs.	**-152**
Construction	
• Supports mortgages for ongoing projects including funding for the Highly Enriched Uranium Materials Facility (HEUMF) project per the revised schedule.	
• Initiates 3 new line item construction projects: High Explosive Pressing Facility, PX; High Pressure Fire Loop, PX; TA-55 Reinvestment Project, LANL.	**+25,672**
Total Funding Change, Readiness in Technical Base and Facilities	**-23,628**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	36,411	37,503	38,628
Capital Equipment	68,185	70,231	72,338
Total, Capital Operating Expenses	**104,596**	**107,734**	**110,966**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	39,787	40,981	42,210	43,476
Capital Equipment	74,508	76,743	79,045	81,416
Total, Capital Operating Expenses	**114,295**	**117,724**	**121,255**	**124,892**

Construction Projects[b] [c]

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
08-D-801, High Pressure Fire Loop; PX	31,910	0	0	0	7,000	24,910
08-D-802, High Explosive Pressing Facility; PX	68,140	0	0	0	25,300	42,840
08-D-804, TA-55 Reinvestment Project, Phase I, LANL	15,100	0	0	0	6,000	9,100
07-D-140, Project Engineering & Design, VL	7,477	0	0	4,977	2,500	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 2007 and FY 2008 funding shown reflects estimates based on projected FY 2006 obligations.

[b] The TEC estimate is for design only for the PED projects included in 07-D-140, 06-D-140, 05-D-140, 04-D-103, 03-D-103, and 01-D-103.

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

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
07-D-220, Radioactive Liquid Waste Treatment Facility Upgrade, LANL	61,500	0	0	14,828	26,672	20,000
06-D-140, Project Engineering & Design, VL	TBD	0	12,379	51,577	23,862	TBD
06-D-402, NTS Replace Fire Stations No. 1 and No. 2, NTS	28,839	0	8,201	13,919	6,719	0
06-D-403, Tritium Facility Modernization, LLNL	10,384	0	2,574	7,810	0	0
06-D-404, Building B-3 Remediation, Restoration and Upgrade NSO	15,840	0	15,840	0	0	0
05-D-140, Project Engineering & Design, VL	32,078	8,533	6,930	9,615	7,000	0
05-D-401, Bldg 12-64 Upgrade, PX	35,792	24,902	10,890	0	0	0
05-D-402, Beryllium Capability Project, Y-12	16,305	3,598	7,623	5,084	0	0
04-D-103, Project Engineering and Design, VL	7,011	5,031	1,980	0	0	0
04-D-125, Chemistry and Metallurgy Research Facility Replacement (CMRR), LANL	672,160	49,625	54,450	112,422	95,586	295,077
04-D-126, Building 12-44 Production Cells Upgrade, PX	12,465	4,965	7,500	0	0	0
04-D-128, Criticality Experiments Facility (formerly TA-18 Mission Relocation Project), LANL/NTS	80,643	3,768	12,870	24,197	29,455	10,353
03-D-102, National Security Sciences Bldg, LANL	98,365	91,975	6,390	0	0	0

	(dollars in thousands)					
	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
03-D-103, Project Engineering and Design, VL	73,188	30,317	28,710	14,161	0	0
01-D-103, Project Engineering and Design, VL	59,413	48,938	8,910	1,565	0	0
01-D-124, Highly Enriched Uranium Materials Facility, Y-12	467,402	199,684	80,536	21,267	77,000	88,915
Total, Construction			**265,783**	**281,422**	**307,094**	**394,345**

Outyear Construction Projects

	FY 2009	FY 2010	FY 2011	FY 2012
	(dollars in thousands)			
11-D-xxx, Complex Command Center, Y-12	0	0	10,000	21,200
11-D-140, PED, DU/Binary, Y-12	0	0	10,000	22,200
11-D-140, PED, ESA Fabrication Facility Replacement, LANL	0	0	3,000	8,060
10-D-xxx, NW Engineering & Product Support Complex, SNL	0	4,000	5,000	18,100
10-D-xxx, Test Capabilities Revitalization-II, SNL	0	20,000	39,000	0
10-D-xxx, Uranium Processing Facility, Y-12	0	100,000	146,277	203,847
10-D-140, PED, Complex Command Center, Y-12	0	4,000	4,000	4,080
09-D-xxx, TA-55 Radiography Facility, LANL	20,000	8,000	0	0
09-D-xxx, TRU Waste Facility, LANL	14,500	15,000	5,000	0
09-D-xxx, Component Evaluation Facility, PX	30,000	45,482	30,000	0
08-D-801, High Pressure Fire Loop, PX	0	0	0	0
08-D-802, High Explosive Pressing Facility, PX	5,000	0	0	0
08-D-804, TA-55 Reinvestment Project, Phase I, LANL	7,900	1,200	0	0
07-D-220, Radioactive Liquid Waste Treatment Facility Upgrade, LANL	14,500	5,500	0	0
07-D-140, Project Engineering & Design, VL	0	0	0	0
06-D-140, Project Engineering & Design, VL	97,161	0	0	0
06-D-402, NTS Replace Fire Stations No. 1 and No. 2, NTS	0	0	0	0
04-D-125, Chemistry and Metallurgy Research Facility Replacement (CMRR), LANL	71,150	38,113	0	0
04-D-128, Criticality Experiments Facility (formerly TA-18 Mission Relocation Project), LANL/NTS	10,353	0	0	0
01-D-124, Highly Enriched Uranium Materials Facility, Y-12	8,915	0	0	0
Total, Construction	**279,479**	**241,295**	**252,277**	**277,487**

08-D-804, TA-55 Reinvestment Project – Phase I
Los Alamos National Laboratory (LANL)
Los Alamos, New Mexico

1. Significant Changes

This is the first construction funding request for this project. A Critical Decision 2 was approved in November 2006 to ensure FY08 project execution activities are initiated. Phase I consists of two subprojects, replacement of chiller equipment and replacement of cooling towers.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2008	1QFY2007	4QFY2007	2QFY2008	4QFY2011	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC[a]	OPC, except D&D Costs	Offsetting D&D Costs[b]	Total Project Costs	Validated Performance Baseline[b]	Preliminary Estimate
FY 2008	21,600	7,000	N/A	28,600	28,600	

4. Project Description, Justification, and Scope

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.

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[a] The TEC includes the cost of preliminary design ($7.0M) appropriated in 06-D-140, Project Engineering and Design (PED). Also, as stated above the TEC represents the first line item of this project

[b] The validated performance baseline was approved in November 2006.

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 TA-55 Reinvestment Project Team identified 20 subprojects at the pre-conceptual stage for upgrades and modernization through this project. The subprojects were selected utilizing a risk-based prioritization process that considered the current condition of the equipment, risk of failure to the worker, the environment and the public, and risk of failure to programmatic and facility operations.

During Conceptual Design, the project continued to refine the prioritization method and subprojects. Defense Program's 2030 Vision combined with impacts to available/anticipated funding has lead to development of a phased acquisition strategy for the TRP project. To meet mission need objectives within the budgetary and strategic context constraints, the TRP project is proposed for execution as three separate, distinct capital line item projects, TRP Phase I, TRP Phase II, and TRP Phase III.

TRP Phase I Scope: TRP Phase I consists of two (2) subprojects. TRP Phase I subprojects will be designed, constructed, and transitioned to operations primarily between FY2008 and FY2010 and support maintaining viability and infrastructure of LANL PF-4 facility capabilities to meet assigned missions consistent with 2030 Vision. The subprojects comprising TRP Phase I have been grouped to enable timely execution as developed. This strategy will allow expedited subproject completion, greater focus/control of scope, ensure that compliance driven subprojects are completed expeditiously, and support the 2030 Vision.
TRP Phase I, includes the following subprojects:

1. Replacement of Chiller Equipment
2. Replacement of Cooling Towers

<u>Compliance with Project Management Order (TRP Phase I):</u>

- Critical Decision 0: Approve Mission Need – 2Q FY 2005
- Critical Decision 1: Approve Preliminary Baseline, Subprojects 1 and 2 – 4Q FY 2006
- Critical Decision 2: Approve Performance Baseline, Subprojects 1 and 2 - 1Q FY 2007
- Critical Decision 3: Approve Start of Construction, Subprojects 1 and 2 – 2Q FY 2008
- Critical Decision 4: Approve Start of Operations – FY2010 – FY2011

5. Financial Schedule

TRP Phase I

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Preliminary Design(PED 06-D-140)[a]			
2006	2,000	0	0
2007	1,500	3,500	2,000
2008	2,000	2,000	3,500
2009	1,000	1,000	1,000
Total, Preliminary Design	6,500	6,500	6,500
Final Design and Construction			
2008	6,000	6,000	5,000
2009	7,900	7,900	7,900
2010	1,200	1,200	2,200
Total Final Design and Construction	15,100	15,100	15,100
Total, TEC	21,600	21,600	21,600

[a] Preliminary design funding for TRP was appropriated through 06-D-140, PED.

6. Details of Cost Estimate

TRP Phase I [a]
Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary Design	6,500	6,500
Construction Phase		
Site Preparation	0	0
Equipment	6,000	20,000
All other construction	8,000	30,000
Contingency	1,100	15,000
Total, Construction	15,100	65,000
Total, TEC	21,600	71,500

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	5,500	N/A
Start-up	1,100	N/A
D&D Phase[b]		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with “one-for-one” requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	400	N/A
Total, OPC	7,000	N/A

7. Schedule of Project Costs

TRP Phase I - Phase A

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC (Design)	0	2,000	3,500	1,000	0	0	0	6,500
TEC (Construction)	0	0	5,000	7,900	2,200	0	0	15,100
OPC Other than D&D	4,000	1,500	400	800	300	0	0	7,000
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	4,000	3,500	8,900	9,700	2,500	0	0	28,600

[a] Current estimate is the baseline for TRP Phase I.

[b] No demolition activities are necessary for this project.

8. Related Operational and Maintenance Funding Requirements

Completion of Phase I (fiscal quarter)	4Q FY 2013
Completion of Phase II (fiscal quarter)	TBD
Expected Useful Life (number of years)	25
Expected Future start of D&D (fiscal quarter)	TBD

Related Funding Requirements – Applicable to Phase I, II, III

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

9. Required D&D Information (Applicable to Phase I and II)

As the project is an investment in the infrastructure systems of an existing facility, demolition activities are not required as part of this project.

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

D&D Information Being Requested	Square Feet
Area of replacement facility	N/A
Area of existing facility	N/A
Area of any additional space that will require D&D to meet the "one-for-one" requirement	0

10. Acquisition Approach (Applicable to Phase I and II)

Design and Construction Management will be implemented by the Los Alamos National Security through the LANL Management and Operating Contract. The TRP Acquisition Strategy is based on tailored procurement strategies for each subproject in order to mitigate risks. TRP Subprojects will be implemented via LANL-issued final design/construction contracts based on detailed performance requirements/specifications developed during the preliminary design phase.

08-D-802, High Explosive Pressing Facility,
Pantex Plant, Amarillo, Texas

1. Significant Changes

- None

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2008	FY 2008	3QFY 2007	4Q FY2008	2Q FY2011	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2008	76,286	4,292	0	80,578	80,578	

4. Project Description, Justification, and Scope

This project will provide a new high explosive (HE) main charge pressing facility with capability and capacity to meet the needs of changing weapon complexity, projected workload, and the Life Extension Program activities in the future including the W76, W78, and W88 Programs.

The facility must improve safety, quality and efficiency of material movement. It reduces personnel restrictions and eliminates human reassurance program (HRP) requirements by its location outside the Protected Area. Benefits also include reduced administrative safety controls through improved engineering controls, and reduced maintenance downtime.

The new facility will be located in the Limited Zone of the Pantex Plant, and replace existing operations in buildings 12-17, 12-21A and 12-63. The facility will be designed to produce main charge pressing hemispheres to meet the FY12 requirements of nearly 1,000 hemispheres per year and will consist of approximately 45,000 square feet of space. Proposed areas include the main pressing facility, a magazine storage area, and a connecting ramp.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

Compliance with Project Management Order

- Critical Decision – 0: Approve Mission Need – August 2003
- Critical Decision – 1: Approve Preliminary Baseline Range – June 2005
- External Independent Review Final Report – September 2006
- Critical Decision – 2: Approve Performance Baseline – November 2006
- Critical Decision – 3: Approve Start of Construction – 3Q FY 2008
- Critical Decision – 4: Approve Start of Operations – 3Q FY 2012

5. Financial Schedule (dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
2004	1,200	1,200	0
2005	1,488	1,488	402
2006	1,980	1,980	2,112
2007	3,478	3,478	3,728
2008	0	0	1,904
Total, Design (PED No. 04-D-103.2)	8,146	8,146	8,146
Construction			
2006	0	0	0
2007	0	0	0
2008	25,300	25,300	5,989
2009	5,000	5,000	20,438
2010	0	0	3,873
2011	0	0	0
Total, Construction	68,140	68,140	68,140
Total TEC	76,286	76,286	76,286

NOTE: The Administration is still considering the plans and outyear funding requirements for Complex 2030. This project is included in the evaluation.

6. Details of Project Cost Estimate

Total Estimated Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Preliminary and Final Design	8,146	6,851
Construction Phase		
Site Preparation	0	0
Equipment	7,045	7,045
All other construction	48,485	49,357
Contingency	12,610	9,429
Total, Construction	68,140	65,831
Total, TEC	76,286	72,682

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	1,166	1,166
Start-up	2,452	1,452
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with “one-for-one” requirements	0	0
D&D contingency	0	0
Total, D&D	0	0
Contingency for OPC other than D&D	674	382
Total, OPC	4,292	3,000

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Out Years	Total
TEC (Design)	2,514	3,728	1,904	0	0	0	0	8,146
TEC (Construction)	0	0	5,989	20,438	3,873	0	0	68,140
OPC Other than D&D	1,299	200	150	160	440	1,800	243	4,292
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	3,813	3,928	8,043	20,598	4,313	1,800	243	80,578

8. Related Operations and Maintenance Funding requirements

Start of Operation ………………………………………………	1Q FY 2012
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	1,000	1,000	1,000	1,000
Maintenance	400	400	460	460
Total Related funding	1,400	1,400	1,460	1,460

9. Required D&D Information

This project is using "banked excess" square feet.

N/A

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

N/A

D&D Information Being Requested	Square Feet
Area of new construction	45,000
Area of existing facility being replaced	N/A
Area of any additional space that will require D&D to meet the "one-for-one" requirement	N/A

10. Acquisition Approach

Various alternatives were considered to include a Federal led or utilizing the current Management and Operating contractor, BWXT Pantex, LLC. It was determined that the U.S. Army Corps of Engineers (USACE) would be utilized for the construction contract administration and Title III construction management services. Due to the specialized functionality associated with this project, BWXT Pantex, LLC is responsible for Title I and II design services. BWXT Pantex will support the USACE during Title III, as required. PXSO and the USACE will sign a Memorandum of Understanding (MOU) during Title II. The USACE and BWXT Pantex project management processes will be integrated and defined in the MOU.

08-D-801, High Pressure Fire Loop Zone 12 South MAA
Pantex Plant, Amarillo, Texas

1. Significant Changes

None

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Existing Facilities Start	D&D Existing Facilities Complete
FY 2008	1QFY2006	4QFY2006	1QFY2008	1QFY2011	N/A	N/A

3. Baseline and Validation Status (dollars in thousands)

(dollars in thousands)

	TEC	OPC, except D&D Costs	D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2008	33,596	1,384	0	34,980	34,980	

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. Eleven failures have occurred since 1995 in the entire Zone 12 South system. Two of these failures were located in the section of Zone 12 South 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. Alternate routing may be required to circumvent Solid Waste Management Units and complications with facility interferences. This routing will be further evaluated during the Design Phase via computer modeling. 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 deferred maintenance reduction associated with this project is $700,000 (FY03 Baseline).

<u>Compliance with Project Management Order</u>

- Critical Decision – 0: Approve Mission Need – September, 2004

- Critical Decision – 1: Approve Preliminary Baseline Range – December, 2005

- External Independent Review Final Report – 4Q FY 2006

- Critical Decision – 2: Approve Performance Baseline – 1Q FY 2007

- Critical Decision – 3: Approve Start of Construction – 1Q FY 2008

- Critical Decision – 4: Approve Start of Operations – 2Q FY 2011

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design [a]			
2006	1,686	1,686	991
2007	0	0	695
Total, Design (06-D-160)	1,686	1,686	1,686
Construction			
2008	7,000	7,000	7,000
2009	24,910	24,910	16,067
2010	0	0	8,166
2011	0[b]	0	677
Total, Construction	31,910	31,910	31,910
Total TEC[c]	33,596	33,596	33,596

[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] Additional funding in the amount of $13,000,000 will be requested in FY 2011.

[c] This is a preliminary estimate. The performance baseline will be established following completion of preliminary design.

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design	1,686	1,686
Construction Phase	26,560	13,025
Site Preparation	0	0
Equipment	0	0
All other construction	0	0
Contingency	5,350	4,300
Total, Construction	31,910	17,325
Total, TEC[a]	33,596	19,011

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Pre-Conceptual Mission Need	77	77
External Independent Review	125	125
Conceptual Planning	615	551
Start-up	458	0
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with "one-for-one" requirements	0	0
D&D contingency	0	0
Total, D&D	0	0
Contingency for OPC other than D&D	109	0
Total, OPC	1,384	753

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design)	1,686	0	0	0	0	0	0	1,686
TEC (Construction)	0	7,000	16,067	8,166	677	0	0	31,910
OPC Other than D&D	746	106	178	354		0	0	1,384
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	2,432	7,106	16,245	8,520	677	0	0	34,980

[a] This is a preliminary estimate. The performance baseline will be established following completion of preliminary design.

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	2Q FY 2011
Expected Useful Life (number of years)	40
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	10	N/A	400	N/A
Maintenance	40	N/A	1,600	N/A
Total Related funding	50	N/A	2,000	N/A

9. Required D&D Information

N/A

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

N/A

D&D Information Being Requested	Square Feet
Area of new construction	N/A
Area of existing facility(ies) being replaced	N/A
Area of any additional space that will require D&D to meet the “one-for-one” requirement	N/A

10. Acquisition Approach

This project will be a design-bid-build acquisition. The design services (Title I, and II) will be accomplished by an outside A-E firm and the contract will be 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 of this project will be performed by a construction contractor operating under a contract to be awarded on the basis of competitive bids. The construction contract will be administered by either DOE/NNSA or the M&O Contractor. The M&O Contractor will administer the design contract and perform the Construction management services. Best value practices will be used for design and construction services.

07-D-220, Radioactive Liquid Waste Treatment Facility Upgrade Project
Los Alamos National Laboratory (LANL)
Los Alamos, New Mexico[a]

The project is in the preliminary design phase. Therefore, the project cost, scope, and schedule are only preliminary estimates and will be revised at Critical Decision (CD)-2B; Approve Performance Baseline of Treatment Facility.

1. Significant Changes

- CD- 1, Alternative Selection and Cost Range, for this project was approved in June 2006. As a result, the Preliminary and Final design dates shown in Section 2 for FY 2008 are based on the CD-1. The selected alternative was to construct a new Radioactive Liquid Waste Treatment Facility including a Zero Liquid Discharge (ZLD) System.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Existing Facilities Start	D&D Existing Facilities Complete
FY 2007	1QFY2006	4QFY2007	1QFY2008	1QFY2010	2QFY2011	2QFY2012
FY 2008	3QFY2006	2QFY2008	3QFY2008	3QFY2010	3QFY2011	4QFY2012

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2007	61,100	6,200	8,700[b]	76,000	N/A	76,000
FY 2008	72,600[c]	15,000[d]	9,000[c]	96,600	1QFY2007[e]	96,600

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, new starts may be deferred. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] This is rough-order-of magnitude estimate and will be revised once the full details of D&D are established.

[c] The project TEC was increased at CD-1 approval as the ZLD system scope was included to mitigate the impact of pending state regulations which will restrict discharge of treated effluent into Mortandad Canyon to the environment.

[d] These increases are based on cost estimates established at the conceptual design and approved at CD-1.

[e] Only the ZLD baseline was validated in 1Q FY 2007. The balance of the project baseline will be validated in 3QFY 2007 to ensure appropriate nuclear safety features are established and incorporated into design.

4. Project Description, Justification, and Scope

Project Description:

The radioactive liquid waste treatment and disposal capability at LANL supports 15 technical areas, 63 buildings, and 1800 sources of radioactive liquid waste (RLW). This capability must be continuously available to receive and treat liquid waste generated from Stockpile Stewardship and other activities. This project will renovate and construct new facilities and systems to satisfy the long-term RLW mission requirements.

Project Justification:

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 and the high cost of repair. The existing 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 operations and safety reviews have highlighted the need for enhanced seismic conformance for the existing facility. Continuous workarounds are required to keep systems running and excessive corrosion threatens system availability. Degraded and outdated facility systems pose elevated risk to workers.

Project Scope:

This project will replace the following RLW treatment capabilities at LANL and reduce the liquid discharge to Mortandad Canyon to zero:

1) Transuranic (TRU) waste treatment;
2) Facility/infrastructure and LLW treatment;
3) Secondary waste treatment;
4) RLW discharge system/Zero Liquid Discharge (ZLD) system, and
5) TRU influent storage.

The replacement is needed to remediate significant deficiencies associated with the existing RLW treatment capabilities that pose a threat to the long-term availability of this function. The replacement is ultimately aimed at providing an RLW treatment capability that is safe, reliable, and effective for the next 30 years in support of primary missions at LANL.

FY 2008 funding will be used to continue construction activities. No construction funding will be used until a CD-3, Approve Start of Construction, is approved.

The project will be conducted in accordance with the project management requirements in Department of Energy (DOE) Order 413.3 “Program and Project Management for the Acquisition of Capital Assets” and DOE Manual 413.3-1, “Project Management for the Acquisition of Capital Assets.”

Compliance with Project Management Order:

- Critical Decision – 0: Approve Mission Need – 1Q FY 2005
- Critical Decision – 1: Approve Alternative Selection and Cost Range – 3Q FY 2006
- External Independent Review Final Report (ZLD) – 1Q FY 2007
- Critical Decision – 2A: Approve Performance Baseline (ZLD) – 1Q FY 2007
- Critical Decision – 3A: Approve Start of Construction (ZLD) – 2Q FY 2007
- External Independent Review Final Report (Treatment Facility) – 3Q FY 2007
- Critical Decision – 2B: Approve Performance Baseline (Treatment Facility) - 3Q FY 2007
- Critical Decision – 3B: Approve Start of Construction (Treatment Facility) – 3Q FY 2008
- Critical Decision – 4A: Approve Start of Operations (ZLD) – 3Q FY 2009[a]
- Critical Decision – 4B: Approve Start of Operations (Treatment Facility) – 2Q FY 2011

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Preliminary Design[b]			
2006	3,000	3,000	362
2007	8,100	8,100	10,738
2008	0	0	0
Total, Design (06-D-140)	11,100	11,100	11,100
Construction			
2007	14,828	14,828	3,000
2008	26,672	26,672	8,000
2009	14,500	14,500	35,000
2010	5,500	5,500	15,500
Total, TEC	72,600	72,600	72,600

[a] Existing RLW operations may benefit from ZLD system utilization in advance of new treatment facility construction completion and start up of the new facility.

[b] FY 2006 and FY 2007 Design funding was included in Project Engineering and Design (PED) in 06-D-140.

6. Details of Project Cost Estimate

Total Estimated Costs[a]

	(dollars in thousands)	
	Current Estimate	Previous Costs
Preliminary and Final Design	11,100	11,100
Construction Phase		
Site Preparation[b]	0	0
Equipment[b]	0	0
All other construction	48,200	35,900
Contingency	13,300	14,100
Total, Construction	61,500	50,000
Total, TEC	72,600[c]	61,100

Other Project Costs

	(dollars in thousands)	
	Current Estimate	Previous Costs
Conceptual Planning	3,940	2,700
Start-up	8,915[d]	3,500
D&D Phase		
D&D for removal of the existing facility	0	0
Other D&D to comply with "one-for-one" requirements	6,624	6,400
D&D contingency	2,376	2,300
Total D&D	9,000	8,700
Contingency for OPC other than D&D	2,145	0
Total, OPC	24,000[e]	14,900

[a] This project is still in the preliminary design phase. The cost is a preliminary estimate subject to change. CD-2, Performance Baseline, is approved by the Acquisition Executive at the completion of the preliminary design.

[b] As the project does not yet have a Performance Baseline, preliminary Site Preparation and Equipment estimates have been included within the "All Other Construction" estimate.

[c] The cost increase is due to the addition of the ZLD system that was included in the scope at CD-1 and material price escalation recently seen in the construction industry.

[d] Includes the cost of safety documentation, contractor and DOE Operational Readiness Reviews, procedure writing, and appropriate operator training.

[e] The new facility will be a Hazard Category 2 Nuclear Facility, which requires greater rigor addressing nuclear safety and startup issues.

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC(Design)	362	10,738	0	0	0	0	0	11,100
TEC (Construction)	0	3,000	8,000	35,000	15,500	0	0	61,500
OPC Other than D&D	4,200	800	1,200	2,500	2,500	3,800	0	15,000
D&D Costs	0	0	0	0	0	5,000	4,000	9,000
Total Project Costs	4,562	14,538	9,200	37,500	18,000	8,800	4,000	96,600

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	2Q2011
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	3Q2041

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	22,600	N/A	678,000	N/A
Maintenance	3,100	N/A	93,000	N/A
Total Related funding*	25,700	N/A	771,000	N/A

**Life cycle cost based on new facility concept for a 30 year time period.*

9. Required D&D Information

The existing RLW plant has approximately 15,000 square feet of treatment area, 7,000 square feet of this existing treatment area will be torn down to partially meet "one for one" site requirements. The remaining 8,000 square feet of existing treatment area will remain as mission support space. This would occur in the FY11/12 time frame. To complete the one-for-one requirement, 15,000 square feet will be utilized from the site banked square footage.

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

RLWTF East Annex, TA-50-001

D&D Information Being Requested	Square Feet
Area of new construction	22,000
Area of existing facility(ies) being replaced	7,000
Area of any additional space that will require D&D to meet the "one-for-one" requirement	15,000

10. Acquisition Approach

The ZLD system will be acquired through a firm-fixed price, design-build contract. The balance of the project will be accomplished via design-bid-build or design-build as determined to be advantageous to the government during preliminary design. Design services will be obtained through competitively awarded contracts using a combination of firm fixed price and cost reimbursable pricing methods. Construction will be accomplished using a firm fixed price contracting approach. The construction contract will be incrementally funded by annual appropriations.

07-D-140, Project Engineering and Design (PED) - RTBF, Various Locations[a]

1. Significant Changes

- As a result of the planning associated with the Responsive Infrastructure/Complex 2030, the Consolidate and Renovate Computing Facilities at the Kansas City Plant has been cancelled.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2007	2Q FY 2007	4Q FY 2008	1Q FY 2009	1Q FY 2011	N/A	N/A
FY 2008	2Q FY 2007	4Q FY 2008	1Q FY 2009	1Q FY 2011	N/A	N/A

3. Baseline and Validation Status[b]

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate (TEC)
FY 2007	7,477	N/A	N/A	7,477	Various	42,200-92,000
FY 2008	7,477	N/A	N/A	7,477	Various	42,200-92,000

4. Project Description, Justification, and Scope

This project provides for Architect-Engineering (A-E) services for National Nuclear Security Administration (NNSA) 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 (O&M) 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.

The FY 2007 PED design project is 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

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, new starts may be deferred. Cost and schedule impacts to this project will be determined after passage of an appropriation.

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

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 the subproject. The final TEC and the Total Project Cost (TPC) for the project described below will be validated and the Performance Baseline will be established at Critical Decision 2 (CD-2), following completion of preliminary design.

FY 2007 Proposed Design Project

07-01: Consolidate and Renovate Computing Facilities, Kansas City Plant, Kansas City

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q FY 2007	1Q FY 2008	2Q FY 2008	2Q FY 2011	1,977	$22,200-$27,000

Fiscal Year	Appropriations	Obligations	Costs
2007	1,977		

This project has been cancelled under the present planning associated with the Responsive Infrastructure and 2030 Future Complex planning.

07-02: TRU Waste Facilities, Los Alamos National Laboratory

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q FY 2007	4Q FY 2008	1Q FY 2009	1Q FY 2011	5,500	$ 20,000-$65,000

Fiscal Year	Appropriations	Obligations	Costs
2007	3,000	3,000	3,000
2008	2,500	2,500	2,500

The Department of Energy (DOE) signed an Order of Consent ("Consent Order") with the State of New Mexico, effective March 1, 2005. The Consent Order requires DOE to complete a "fence-to-fence" cleanup of Los Alamos National Laboratory (LANL) by December 29, 2015. "Fence-to-fence" means removal and/or remediation of contaminants that reside in the environment at LANL. As part of the Consent Order, the State of New Mexico has identified four Material Disposal Areas (MDAs) in TA-54. The current set of TRU waste storage and process facilities resides in MDA G. MDA G will undergo a phased closure, consistent with the Consent Order, to be completed by December 29, 2015. It will not be feasible, practical, or realistic to attempt to keep the TRU facilities operational in the midst of Area G closure activities. Therefore, the TRU waste management capability must be reconstituted, commissioned, and in operation at a location outside of the closure boundaries, before the corrective actions to close MDA G begins. Closure of MDA G is scheduled to start in FY 2012 and must be completed by December 29, 2015.

The proposed project will support the continued need of TRU waste generation at LANL while Area G is prepared for closure. The proposed project will provide sufficient space to accommodate newly generated TRU Waste for the next 25 years at LANL. The Project Engineering and Design fund is requested in FY 2007 to meet the FY 2011 deadline to start Area G closure.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
2007	4,977	3,000	3,000
2008	2,500	2,500	2,500
Total, Design	7,477	5,500	5,500
Total TEC	7,477	5,500	5,500

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Design Phase		
Preliminary and Final Design Costs (Drawings/Specifications)	6,627	6,627
Design Management costs (10% of TEC)	600	600
Project Management costs (5% of TEC)	250	250
Total, Design Costs (100% of TEC)	7,477	7,477
Total, TEC	7,477	7,477

Other Project Costs

(dollars in thousands)

	Current Estimate	Previous Costs
Conceptual Planning		
Start-up		
D&D Phase		
D&D for removal of the existing facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	N/A	N/A

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
Project Costs								
TEC (Design)	0	3,000	2,500	N/A	N/A	N/A	N/A	5,500
OPC Other than D&D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Offsetting D&D Costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total, Project Costs	0	3,000	2,500	N/A	N/A	N/A	N/A	5,500

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	N/A
Expected Useful Life (number of years)	N/A
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

9. Required D&D Information

N/A

10. Acquisition Approach

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

06-D-402, NTS Replace Fire Stations No. 1 and No. 2, Nevada Test Site[a]

1. Significant Changes

- The design-build bids for the Fire Stations have been received and are much higher than the recently completed government estimates. Once a path forward is selected, a notification will be prepared if needed.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2006	1QFY2005	1QFY2007	3QFY2006	1QFY2008	N/A	N/A
FY 2007	3QFY2005	3QFY2007	4QFY2006	1QFY2009	N/A	N/A
FY 2008	3QFY2005	3QFY2007	4QFY2006	1QFY2009	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate (TEC)
FY 2006	24,707	455	N/A	25,162	NA	24,707
FY 2007	31,212	705	N/A	31,917	31,917	N/A
FY 2008	31,182	705	N/A	31,887	31,917	N/A

4. Project Description, Justification, and Scope

Project Description

This project will provide for the design and construction of two new fire stations on the 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 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.

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

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 capability. Fire Station No. 1 is estimated to be 35,000 square feet (sq. ft.) and Fire Station No. 2 is estimated to be 14,500 sq. ft. 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.

FY 2008 funding will be used to continue construction of Fire Stations. Construction funds will not be used until Critical Decision 3, Approve Start of Construction is approved.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 "Program and Project Management for the Acquisition of Capital Assets" and DOE Manual 413.3-1, Project Management for the Acquisition of Capital Assets.

Project Milestones

- Critical Decision – 0: Approve Mission Need – FY 2005
- Critical Decision – 1: Approve Preliminary Baseline Range – 3QFY 2005
- External Independent Review Final Report – 1Q FY 2006
- Critical Decision – 2: Approve Performance Baseline – 2Q FY 2006
- Critical Decision – 3A: Approve Start of Construction Fire Station 2 – 4Q FY 2006
- Critical Decision – 3B: Approve Start of Construction Fire Station 1 – 2QFY 2007
- Critical Decision – 4: Approve Start of Operations – 1Q FY 2009

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design[a]			
2004	2,343	0	0
2005	0	2,343	888
2006	0	0	371
2007	0	0	650
2008	0	0	434
Total, Design (PED No. 04-D-103)	2,343	2,343	2,343
Construction			
2006	8,201[b]	8,201	0
2007	13,919	13,919	5,824
2008	6,719	6,719	22,187
2009	0	0	828
Total, Construction	28,839	28,839	28,839
Total TEC	31,182	31,182	31,182

[a] Funding for the preliminary and final design was included in the PED Line Item 04-D-103.

[b] The original Appropriation was $8,284,000. This was reduced by $82,840 by a government-wide mandatory rescission of 1.0 percent (P.L 109-148).

6. Details of Project Cost Estimate

Total Estimated Costs[b]

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Preliminary and Final Design	2,343	2,343
Construction Phase		
Site Preparation	0	0
Equipment	0	0
All other construction	23,055	22,927
Contingency	5,784	5,912
Total, Construction	28,839	28,839
Total, TEC	31,182	31,182

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning[a]	705	705
Start-up	0	0
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with “one-for-one” requirements	0	0
D&D contingency	0	0
Total, D&D	705	705
Contingency for OPC other than D&D	0	0
Total, OPC	705	705

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC(Design)[b]	1,259	650	434	0	0	0	0	2,343
TEC (Construction)	0	5,824	22,187	828	0	0	0	28,839
OPC Other than D&D	705	0	0	0	0	0	0	705
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	1,964	6,474	22,621	828	0	0	0	31,887

[a] Includes the cost for the Conceptual Design Report, NEPA documentation, ES&H costs.

[b] The cost of preliminary and final designs appropriated in 04-D-103, PED.

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	1QFY 2009
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs[a]	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	1,500	N/A	45,000	N/A
Maintenance	500	N/A	15,000	N/A
Total Related funding	2,000	N/A	60,000	N/A

9. Required D&D Information

Not applicable.

10. Acquisition Approach

Conceptual design and preliminary design were performed by the on-site performance-based management contractor. The final design and construction will be accomplished by a firm fixed-priced contract, awarded on the best value selection criteria.

[a] Rough order of magnitude estimate.

06-D-140, Project Engineering and Design (PED) - RTBF, Various Locations[a]

1. Significant Changes

- Overall funding and spending profile for the Uranium Processing Facility (UPF), will adjusted to accommodate the additional funds requirement in UPF. The profile presented here is the best estimate of the requirements.

- An additional $2,000,000 has been added to the TA-55 Radiography Facility Project to comply with nuclear facilities requirements.

- The Building 942 Renovation, SNL project has been cancelled due to higher programmatic requirements. The FY 2006 appropriated funds of $2,113,000 Includes the cost for the conceptual design, NEPA documentation, Preliminary Project Execution Plan, startup, ES&H and contingency, were reprogrammed to higher priorities in Defense Programs.

- Conceptual design costs for TA-55 Reinvestment Project at LANL and the Uranium Processing Facility at Y-12 are expected to exceed the Congressional notification threshold of $3,000,000 each.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2006	1Q FY 2006	3Q FY 2009	Various	Various	Various	Various
FY 2007	1Q FY 2006	3Q FY 2009	Various	Various	Various	Various
FY 2008	1Q FY 2006	3Q FY 2009	Various	Various	Various	Various

3. Baseline and Validation Status[b]

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2006	92,213	N/A	N/A	92,213	Various	92,213
FY 2007	108,795	N/A	N/A	108,795	Various	108,795
FY 2008	TBD	N/A	N/A	TBD	Various	TBD

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,

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

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

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.

New 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 Total Project Cost (TPC) for each project described below will be validated and the Performance Baseline will be established at Critical Decision 2 (CD-2), following completion of preliminary design.

None of the projects listed in this data sheet has an approved performance baseline; therefore, all costs and schedule are preliminary until CD-2 is approved.

The project will be conducted in accordance with the project management requirements in Department of Energy (DOE) Order 413.3 and DOE Manual 413.3-1, "Program and Project Management for the Acquisition of Capital Assets".

5. Financial Schedule[a]

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
2006	12,379	11,859	362
2007	51,577	51,577	24,774
2008	23,862	23,862	37,162
2009	97,161	91,161	122,161

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

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		
1Q FY 2006	TBD	TBD	TBD	6,336	23,000-40,000

Fiscal Year	Appropriations	Obligations	Costs
2006	1,859	1,859	0
2007[a]	1,977	1,977	2,036
2008	2,500	2,500	4,300

The project Mission Need was approved in January 2005. The above changes reflect this approval. However, these dates are target dates, subject to change until the Performance Baseline is approved at the Critical Decision 2.

The purpose of this project is to design and construct a replacement Radiography Facility to be located within the TA-55 Perimeter Intrusion and Detection System (PIDAS). The specifics of the design and configuration are to be optimized to meet the requirements of the associated programs. The facility will house several x-ray systems suitable for the various energy level requirements, and will provide a long-term solution for LANL sealed nuclear component radiography. Radiography of sealed nuclear components is required for the Pit Manufacturing and Certification Project (PMCP) and Pit Surveillance Program (PSP).

LANL has been assigned the responsibility for establishing and maintaining a limited pit production mission for up to 20 pits per year until a more permanent pit manufacturing facility can be designed and constructed. Non-destructive examinations (NDE) using x-ray radiography, dye penetrant, and ultrasonic examinations are a necessary component of these operations to identify material defects and verify assembly configurations. The PSP examines approximately 15 pits per year; this is expected to increase to about 25 pits per year as stockpile life extension programs are implemented. Final radiography on "pits" manufactured at Los Alamos and radiography of surveillance pits (those removed from the stockpile for destructive examination) is currently performed at another facility that is over 40 years old. This facility does not have the permanent safety and security features required to meet the demands of the revised facility authorization basis or the revised design basis threat; therefore it is not suitable for the long term. NDE in this old facility also requires secure transport and extensive temporary security measures, which are labor intensive and inefficient.

This project will (1) reduce the programmatic and schedule risk associated with anticipated changes in the safeguards and security requirements for protecting nuclear assemblies during transportation and examination outside the PIDAS at TA-55; (2) provide improved protection for workers and the environment in the event of accidental releases; and (3) be commensurate with the Laboratory goal of consolidating nuclear operations around TA-55.

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

06-02: TA-55 Reinvestment Project, LANL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q FY 2006	2Q FY 2008	1Q FY 2009	4Q FY 2015	6,500	105,000-175,000

Fiscal Year	Appropriations	Obligations	Costs
2006	2,000	2,000	0
2007	1,500	1,500	2,000
2008	2,000	2,000	3,500
2009	1,000	1,000	1,000

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. The project received Critical Decision 0 on December 6, 2004, and is proceeding with the development of the Conceptual Design.

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; and material handling), electrical (power distribution, standby and emergency power), and utility systems (process gasses and liquids, piping), safety, facility monitoring and control, structural components, architectural (roofing, 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 will be refined during conceptual design. In FY 2006 and FY 2007, and FY 2008 PED funding will be used to perform design activities on subprojects planned for construction starting in FY 2009.

06-03: Radioactive Liquid Waste Treatment Facility Upgrade, 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		
1Q FY 2006	3Q FY 2007	4Q FY 2007	2Q FY 2010	11,100	52,000-79,000

Fiscal Year	Appropriations	Obligations	Costs
2006	3,000	3,000	362
2007	8,100	8,100	10,738

The radioactive liquid waste (RLW) treatment and disposal capability at Los Alamos National Laboratory supports 15 technical areas, 63 buildings, and 1800 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 the following RLW treatment capabilities at LANL and reduce the liquid discharge to Mortandad Canyon to zero:

- Transuranic (TRU) waste treatment,
- Facility/infrastructure and low-level waste (LLW) treatment,
- Secondary waste treatment,
- RLW discharge system/Zero Liquid Discharge (ZLD),
- TRU influent storage.

06-04: Building 942 Renovation, SNL

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

Fiscal Year	Appropriations	Obligations	Costs
2006	520	0	0

This project has been cancelled. A total of $1,593,000 of the FY 2006 appropriated amount of $2,113,000 was used as a source of funds for an FY 2006 appropriation transfer to the Office of the Administrator account. The remaining funds of $520,000 have been moved to 06-04, TA-55 Reinvestment Project.

06-05: Uranium Processing Facility, Y-12

Fiscal Quarter				Total Estimated Cost Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q FY 2006	3Q FY 2009	TBD	TBD	TBD	600,000-1,000,000

CD-0 for the project was attained in December 2004, based on preliminary data. The cost and schedule data are accordingly identified as "TBD" but will be finalized in the future.

Fiscal Year	Appropriations	Obligations	Costs
2006	5,000	5,000	0
2007	40,000[a]	40,000	10,000
2008	19,362	19,362	29,362
2009	96,161	96,161	121,161

This subproject provides for preliminary and final (Title I and Title II) design for the Uranium Processing Facility (UPF), a major system acquisition, that is being proposed to ensure the long-term viability, safety, and security of the Enriched Uranium (EU) capability at the National Nuclear Security Administration's (NNSA) Y-12 National Security Complex in Oak Ridge, Tennessee. 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.

[a] Original FY 07 request was $40,000,000 of which $35,000,000 may be reprogrammed into the HEUMF line item construction project.

- 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 Design Basis Threat Policy.
- 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.

6. Details of Project Cost Estimate

Total Estimated Costs[a]

Cost Element	Current Estimate	Previous Estimate
	(dollars in thousands)	
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	TBD	65,453
Design Management costs (9.9% of TEC)	TBD	8,920
Project Management costs (18.8% of TEC)	TBD	17,840
Total, Design Costs	TBD	92,213
Total, Line Item Costs (TEC, Design Only)	TBD	92,213

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	N/A	N/A
Start-up	N/A	N/A
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with “one-for-one” requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	N/A	N/A

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	Total
TEC (Design)	362	24,774	37,162	122,161	TBD
TEC (Construction)	N/A	N/A	N/A	0	N/A
OPC Other than D&D	N/A	N/A	N/A	0	N/A
Offsetting D&D Costs	N/A	N/A	N/A	0	N/A
Total, Project Costs	362	24,774	37,162	122,161	TBD

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

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)..................	Various
Expected Useful Life (number of years)..	Various
Expected Future start of D&D for new construction (fiscal quarter).....	N/A

(Related Funding requirements) [a]

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

9. Required D&D Information

N/A

10. Acquisition Approach

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

[a] This data sheet is for design activities only. Costs related to items in this table may be determined when construction funds are requested under separate line items.

05-D-140, Project Engineering and Design (PED) - RTBF, Various Locations[a]

1. Significant Changes

- None.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2006	2Q FY 2005	2Q FY 2008	2Q FY 2007	4Q FY 2011	Various	Various
FY 2007	2Q FY 2005	2Q FY 2008	2Q FY 2007	4Q FY 2011	Various	Various
FY 2008	2Q FY 2005	2Q FY 2008	2Q FY 2008	4Q FY 2011	Various	Various

3. Baseline and Validation Status

(dollars in thousands)

	TEC[b]	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2006	31,196	N/A	N/A	31,196	Various	31,196
FY 2007	20,118	N/A	N/A	20,118	Various	20,118
FY 2008	32,078	N/A	N/A	32,078	Various	32,078

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 cost estimate range and schedule.

FY 2005 PED design projects described below reflect changes due to continuing conceptual design studies or developments since the initial submission of this data sheet. Preliminary estimates for the cost of preliminary and final design and engineering efforts for each subproject are provided, as well as a

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

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

preliminary estimate of the TEC, including physical construction, of each subproject. The final TEC and the Total Project Cost (TPC) for each project described below will be validated and the Performance Baseline will be established at CD-2 following completion of preliminary design.

None of the projects listed in this data sheet has an approved performance baseline; therefore, all costs and schedule are preliminary until CD-2 is approved.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

5. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations[a]	Costs
Design			
2005	8,533 [b]	3,573	8
2006	6,930	6,930	2,184
2007	9,615	9,615	11,891
2008	7,000	7,000	7,567
2009	0	0	5,468

[a] The obligations and costs reflect a reprogramming of the FY 2005 ATTC design funding of $5,952,000. They also exclude $4,960,000 appropriated for Impact Resistant Bunkers. The FY 2005 obligated value also reflects a reprogramming to move DX High Explosives Characterization Project funding of $1,984,000, to address other Defense Program higher priority activities.

[b] Appropriation of $16,600,000 was reduced by 0.8 percent, or $131,000 due to the rescission included in the Consolidated Appropriations Act, 2005 (P.L. 108-447). It was further reduced by two reprogrammings: $1,984,000 was reprogrammed from subproject -01 to RTBF containers and $5, 952,000 was reprogrammed to project 03-D-102, National Security Sciences Building.

FY 2005 Design Projects

05-01: DX High Explosives Characterization Project, LANL

This project has been cancelled. The FY 2005 appropriated funds of $1,984,000 were reprogrammed to Defense Programs other higher priority activities.

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		
N/A	N/A	N/A	N/A	N/A	N/A

Fiscal Year	Appropriations	Obligations	Costs
2005	0[a]	0	0

05-02: Test Capabilities Revitalization (TCR) Project, Phase II, SNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q FY 2005	4Q FY 2007	2Q FY 2008	4Q FY 2011	9,083	60,000-70,000

Fiscal Year	Appropriations	Obligations	Costs
2005	1,589[b]	1,589	8
2006	4,430[c]	4,430	2,184
2007	3,064	3,064	6,891

This project has been cancelled due to budget constraints. The Engineering Campaign Program, which is the primary user of these facilities, is evaluating the options to revitalize some or all of the functions provided by these facilities using a combination of operating funds and general plant project funds.

[a] The FY 2005 appropriation was reduced by $16,000 due to the rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447). The balance of funds, $1,984,000, were reprogrammed to Defense Programs other higher priority activities.

[b] The FY 2005 appropriation was reduced by $11,000 due to the rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

[c] Congress earmarked an additional $2,000,000 over the budget request for this project in FY 2006 (Total FY 2006 Appropriation of $4,500,000. This was reduced by $70,000 by a government-wide mandatory rescission of 1.0 percent by P.L. 109-148).

05-03: Component Evaluation Facility (CEF), Pantex

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
4Q FY 2005	2Q FY 2008	2Q FY 2008	2Q FY 2011	18,035	101,000-135,000

Fiscal Year	Appropriations	Obligations	Costs
2005	1,984[a]	1,984	0
2006	2,500	2,500	0
2007	6,551	6,551	5,000
2008	7,000	7,000	7,567
2009	0	0	5,468

The proposed Component Evaluation Facility (CEF) at the Pantex Plant will consolidate and increase capability and capacity of existing technologies, provide space for new technologies required for surveillance and re-qualification of weapons and provide additional facility flexibility.

Capabilities at the CEF will include the ability to conduct concurrent operations on multiple stockpile weapon types on a non-interference basis, to completely disassemble and inspect any insensitive-high-explosive weapon, and sufficient facility capacity to house, test, and operate new weapon diagnostics developed in the Enhanced Surveillance activities of the Engineering Campaign. It will also include Assembly/Disassembly Bays to day-to-day production operations. The facility will house the following operations:

- High Energy Linac
- Mass Properties
- Computed Tomography
- CSA Evaluation
- Small Lot Build
- Agile Surveillance Technologies/Diagnostics Bay
- Staging/Anomaly Evaluation Bay

The bays, except for the LINAC, Mass Properties and CT, will be equipped with typical assembly/disassembly bay utility services to allow surveillance/evaluation/production flexibility. It is also planned that special process equipment for these bays will be funded and installed by the weapon programs later when detailed equipment requirements are known. Process Equipment for the LINAC, Mass Properties and CT Bays are included in the construction project.

[a] Original appropriation was for $2,000,000. This was reduced by $16,000 by the rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447). There is no change to the TEC due to a corresponding increase to the FY 2007 appropriation request amount.

05-04: Albuquerque Transportation and Technology Center (ATTC), AL

This project has been cancelled and will address via arrangements with the General Services Administration. The FY 2005 appropriated funds of $5,952,000 were reprogrammed to project 03-D-102, National Security Sciences Building.

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		
N/A	N/A	N/A	N/A	N/A	N/A

Fiscal Year	Appropriations	Obligations	Costs
2005	0[a]	0	0

05-05: Impact Resistant Bunkers, Pantex

This project has been cancelled.

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		
N/A	N/A	N/A	N/A	4,960	N/A

Fiscal Year	Appropriations	Obligations	Costs
2005	4,960[b]	0	0

[a] The FY 2005 appropriation of $6,000,000 was reduced by $48,000 due to the rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447). The project was cancelled and third party financing was approved. The remaining FY 2005 appropriated funds of $5,952,000 were reprogrammed to project 03-D-102, National Security Sciences Building.

[b] The FY 2005 appropriation was reduced by $40,000 due to the rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

6. Details of Cost Estimate

Total Estimated Cost[abc]

Cost Element	Current Estimate	Previous Estimate
	(dollars in thousands)	
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	26,627	16,074
Design Management costs (5.6% of TEC)	1,817	1,348
Project Management costs (11.3% of TEC)	3,634	2,696
Total, Design Costs	32,078	20,118
Total, Line Item Costs (TEC, Design Only)	32,078	20,118

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning[d]	N/A	N/A
Start-up	N/A	N/A
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	N/A	N/A

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

[b] The obligations and costs reelect a reprogramming of FY 2005 Albuquerque Transportation and Technology Center design funding $5,952,000, and the DX High Explosives Characterization Project at Los Alamos National Laboratory $1,984,000, to Defense Programs other higher priority activities.

[c] The TEC is for design only for the subprojects included in this data sheet. The remaining subproject is the Component Evaluation Facility at Pantex.

[d] Includes the cost for the conceptual design, NEPA documentation, Preliminary Project Execution Plan, startup, ES&H and contingency.

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	Total
TEC (Design)[a]	14,083	7,567	5,468	27,118
TEC (Construction)	N/A	N/A	N/A	N/A
OPC Other than D&D	N/A	N/A	N/A	N/A
Offsetting D&D Costs	N/A	N/A	N/A	N/A
Total, Project Costs	14,083	7,567	5,468	27,118

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	Various
Expected Useful Life (number of years)	Various
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations		N/A		N/A
Maintenance		N/A		N/A
Total Related funding		N/A		N/A

9. Required D&D Information

N/A

10. Acquisition Approach

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

[a] The obligations and costs reflect a reprogramming of the FY 2005 Albuquerque Transportation and Technology Center design funding $5,952,000, and the DX High Explosives Characterization Project at Los Alamos National Laboratory $1,984,000, to Defense Programs other higher priority activities. They also reflect the cancellation of subproject -05, Impact Resistant Bunkers.

04-D-128, Criticality Experiments Facility (CEF) Project, Los Alamos National Laboratory (LANL) and Nevada Test Site (NTS)[a]

1. Significant Changes

- To facilitate construction activities, additional interim Critical Decision 3's were approved. Critical Decision 3B, approved in 2Q FY 2006, authorized early procurement of critical equipment and Critical Decision 3C, approved in 3Q FY 2006, authorized start of site temporary construction to support modifications of the Device Assembly Facility (DAF) scope of the CEF.
- DAF is now designated as a "Category I" Security Facility. As a result, in FY 2006 new security requirements took effect, which the CEF Project must comply with. These new requirements resulted in an increase in the total project cost in FY 2007 through FY 2009. A 60-seat secured conference room was deleted from the project scope to pay for the cost of new security requirements in FY 2007. Other secured conference rooms at NTS will be used for the CEF training. Additional capital funds are being requested in FY 2008 and FY 2009 to pay for the increased security costs.
- A new management and operating contract was awarded for LANL in FY 2006 to a for-profit contractor. The change from a non-profit to a for-profit contract requires the contractor to pay New Mexico Gross Receipt Tax resulting in an increase in capital and operating costs for FY 2007 through FY 2009.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Existing Facilities Start	D&D Existing Facilities Complete
FY 2006	4Q FY 2004	4Q FY 2006	4Q FY 2006	3Q FY 2008	N/A	N/A
FY 2007	4Q FY 2004	4Q FY 2006	3Q FY 2005[b]	3Q FY 2008	N/A	N/A
FY 2008	4Q FY 2004	3Q FY 2007[c]	4Q FY 2005	3Q FY 2008	N/A	N/A

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] Construction of the Entry Guard Station was accelerated to start in June 2005 to accommodate TA-18 Early Move activities.

[c] Due to the need for additional PED funding in FY07, the final design of two critical assembly machines will be completed in 3Q FY 2007. Design of the DAF modifications and two other critical assembly machines were completed in 4Q FY 2006.

3. Baseline and Validation Status (dollars in thousands)

(dollars in thousands)

Fiscal Year	Total Estimated Cost (TEC)	Other Project Costs (OPC), except D&D Costs	D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2006	105,892	36,831	N/A	142,723	N/A	142,723
FY 2007	102,887[ab]	42,316	N/A	145,203	145,203	NA
FY 2008[c]	106,086	42,941	N/A	149,027	145,203	NA

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 sitting 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 existing DAF missions. Specifically: The DAF will be modified to accept four critical assemblies, two storage vaults, two control rooms, several offices. The existing entry guard station will be modified to provide two automated entry lanes with biometrics. New personnel control fencing will be constructed within the

[a] Includes $25,443,000 for design funded by the PED line item 01-D-103.

[b] An additional $1,565,282 is requested in FY 2007 PED line item 01-D-103 to incorporate nuclear safety significant requirements in to the criticality assembly machines development.

[c] New security requirements at the DAF resulted in higher security costs for the CEF project in FY 2007 through FY 2009 than budgeted in the baseline.

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, transported and reassembled at the DAF. The critical assembly controls and safety systems will be upgraded to meet nuclear safety requirements.

FY 2008 funding will be used to continue construction of DAF. Construction funds will not be used until appropriate Critical Decision 3 is approved. The project is being executed in accordance with the project management requirements in Department of Energy (DOE) Order 413.3 "Program and Project Management for the Acquisition of Capital Assets" and DOE Manual 413.3-1, Project Management for the Acquisition of Capital Assets.

- Critical Decision – 0: Approve Mission Need – 4Q FY 2002
- Critical Decision – 1: Approve Alternative Selection and Cost Range – 3Q FY 2004
- Critical Decision 2A – Approve Performance Baseline for the Entry Guard Station - 3Q FY 2005
- Critical Decision 3A – Approve Start of Construction for the Entry Guard Station - 3Q FY 2005
- External Independent Review Final Report – 1Q FY 2006
- Critical Decision – 2B: Approve Performance Baseline –1Q FY 2006
- Critical Decision - 3B: Approve early procurement of critical equipment – 2 Q FY 2006
- Critical Decision – 3C: Approve early construction – 3Q FY 2006
- Critical Decision – 3D: Approve Start of Construction of DAF– 4Q FY 2006
- Critical Decision – 3E: Approve Machine Installation – 3 Q FY 2007
- Critical Decision – 4: Approve Start of Operations – 3Q FY 2010[a]

[a] New security requirements at the DAF resulted in higher security costs for the CEF project in FY 2007 through FY 2009 than budgeted in the baseline.

5. Financial Schedule (dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year[a]			
2001	998[b]	0	0
2002	6,426	0	0
2003	0	7,424	0
2004	1,591[c]	1,591	1,731
2005	5,953[d]	5,953	10,696
2006[e]	8,910	8,910	10,831
2007	1,565[f]	1,565	2,185
Construction			
2004	3,768	3,768	0
2005	0	0	220
2006[e]	12,870	12,870	3,353
2007	24,197	24,197	31,402
2008	29,455	29,455	25,754
2009	10,353	10,353	13,349
2010	0	0	6,565
Total, TEC	106,086	106,086	106,086

[a] Design accomplished in 01-D-103, PED.

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

[c] 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.

[d] 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).

[e] FY 2006 original Appropriation for Project Engineering and Design was $9,000,000. This was reduced by $90,000 as a result of a government-wide mandatory rescission of 1.0 percent (P.L. 109-148). 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] An additional $1,565,282 is requested for the Project Engineering and Design (01-D-103) to incorporate nuclear Safety Significant requirements for the Critical Assembly Machines identified during preliminary Safety Analysis development.

6. Details of Project Cost Estimate

Total Estimated Costs

	(dollars in thousands)	
	Current Costs	Previous Costs
Preliminary and Final Design[a] [b]	25,443	25,418
Construction Phase		
Improvement to land	3,000	3,000
Buildings	51,900[cd]	46,430
Standard Equipment	3,454	2,000
Inspection, design and project liaison, testing, checkout and acceptance	2,667	2,000
Construction Management	4,774[e]	4,462
Project Management	3,500	3,000
Contingency	11,348[c]	16,577
Total, Construction	80,643	77,469
Total, TEC	106,086[e]	102,887

[a] 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.

[b] An additional $1,565,282 is requested for the Project Engineering and Design to incorporate nuclear Safety Significant requirements for the Critical Assembly Machines identified during preliminary safety analysis development.

[c] Based on the final design cost estimates.

[d] Increase due to new security requirements at DAF.

[e] Includes cost for additional NEPA and ES&H planning for the pre-construction activities in support of CD-3C.

Other Project Costs

	(dollars in thousands) Current Costs	Previous Costs
Conceptual Planning[a]	26,603[b]	25,761
Start-up[c]	16,138	16,555
D&D Phase		
D&D for removal of the existing facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	42,941[d]	42,316

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC(Design)[d]	23,258	2,185	0	0	0	0	0	25,443
TEC (Construction)	3,573	31,402	25,754	13,349	6,565	0	0	80,643[e]
OPC Other than D&D	22,228	2,955	5,802	9,376	2,580	0	0	42,941[f]
D&D Costs[g]	0	0	0	0	0	0	0	0
Total Project Costs	49,059	36,542	31,556	22,725	9,145	0	0	149,027

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	1Q FY 2010
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	N/A

[a] Includes the cost for the Conceptual Design Report, National Environmental Policy Act (NEPA) documentation; environmental, safety and health (ES&H), and safeguard and security costs.

[b] Includes cost for additional NEPA and ES&H planning for the pre-construction activities in support of CD-3C.

[c] Includes the cost of Operational Readiness Reviews.

[d] Increase due to New Mexico Gross Receipt Tax imposed on the LANL new Management and Operating Contractor.

[d] The cost of preliminary and final designs appropriated in 01-D-103, PED.

[e] Reflects changes due to the cost of new security requirements at DAF.

[f] Reflects changes due to the New Mexico Gross Receipt Tax imposed on the LANL new contractor.

[g] D&D of the TA-18 Facility (approximately 70,0000 square foot) at LANL, although not part of this project, may be paid by the Facilities and Infrastructure Recapitalization Program and estimated to be approximately $10,000,000.

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	TBD	N/A	TBD	N/A
Maintenance	TBD	N/A	TBD	N/A
Total Related funding	TBD	N/A	TBD	N/A

9. Required D&D Information

Not Applicable--existing facility is being upgraded.

10. Acquisition Approach

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.

04-D-125, Chemistry and Metallurgy Research Building Replacement (CMRR) Project, Los Alamos National Laboratory (LANL) Los Alamos, New Mexico[a]

1. Significant Changes

- In April 2006, the Administration presented its vision for the nuclear weapons complex of the future, "Complex 2030." The originally approved scope for CMRR predates the Complex 2030 vision. The new vision requires that the CMRR Project be reassessed to assure that the proposed scope is still valid. The reassessment is being performed in FY 2007. Pending completion of this reassessment, the following strategies will be followed to maintain requisite forward momentum on the CMRR Project without making unnecessary funding commitments for construction:

- The CMRR – Radiological Laboratory, Utility, and Office Building, or "RLUOB" (Phase A in this document) and its associated equipment from Phase B will proceed as planned. The Complex 2030 vision depends on the non-nuclear facility to be available as previously planned.

- The CMRR - Nuclear Facility, or "NF", (Phase C in this document) and its associated equipment from Phase B will not proceed into construction in FY 2008; however, design efforts and associated safety document development will continue using line item funds as identified on previous Congressional Project Data Sheets. Proceeding with the design and safety efforts represents a modest investment in maintaining the Nuclear Facility schedule by mitigating unrecoverable schedule delays should the Nuclear Facility ultimately be deemed to be an inherent part of the Administration's strategy for providing plutonium services for the Complex in the post-2014 time frame.

- Based on the strategy to not proceed into construction of the Nuclear Facility in 2008, the FY 2008 request for construction funding is being reduced by $65,000,000, relative to the FY 2007 planning basis.

- Coupled to the pending CMRR scope reassessment are potential changes to the CMRR acquisition strategy and the timing for attaining Critical Decisions 2 and 3 for the CMRR-NF. Decisions on acquisition strategy and critical decision timing will also be made in FY 2007. The overall cost and schedule impacts of the strategy to not proceed with construction of the NF in FY 2008 have not been fully determined. It is likely that the overall cost of the project will increase and the schedule will slip unless the previously planned funding was duly recovered early in the physical construction cycle (FY 2009-2012).

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

2. Design, Construction, and D&D Schedule[a]

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete[b]
FY 2004	1QFY2004	3QFY2006	2QFY2004	1QFY2011	N/A	N/A
FY 2005	3QFY2004	3QFY2007	3QFY2005	3QFY2012	N/A	N/A
FY 2006	2QFY2005	1QFY2007	1QFY2006	4QFY2010	N/A	N/A
FY 2007	3QFY2005	2QFY2007	2QFY2006	1QFY2013	TBD	TBD
FY 2008	3QFY2005	2QFY2009	2QFY2006	1QFY2013	TBD	TBD

[a] The start of physical construction relates to CMRR Phase A (RLUOB); complete physical construction relates to CMRR Phase C (Nuclear Facility). Phase C is currently in preliminary design and is not baselined at this time. The current completion of Phase C based on the CD-1 submittal was given as a range of FY 2012 and FY 2017.

[b] CMR D&D will not be initiated until final start-up of CMRR Nuclear Facility operations currently projected to occur no earlier than FY 2014. Inclusion of CMR D&D in the FY 2008 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 2009) 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.

3. Baseline and Validation Status[a]

(dollars in thousands)

	TEC[b]	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2004	500,000	100,000	N/A	600,000	0	600,000
FY 2005	500,000	100,000	N/A	600,000	0	600,000
FY 2006	750,000	100,000	N/A	850,000	0	850,000
FY 2007	738,097	100,000	TBD	838,097	164,000	838,097
FY 2008	TBD	TBD	TBD	TBD	164,000	837,299

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, and unplanned facility outages have resulted in the operational loss of two of seven wings at the CMR Building. 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.

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[a] The TEC and OPC (exclusive of CMR D&D costs) reflect alternative selection and cost range information approved at CD-1, 3Q FY 2005. Updated estimates provided in this FY 2008 request reflect funding current estimates for all CMRR Phases. The validated performance baseline for CMRR Phase A was attained in 1Q FY 2006. The overall preliminary estimate ($837,299,000) includes the CMRR Phase A validated value and the unvalidated estimates for Phases B and C, which are expected to be baselined in FY 2007. No construction funds will be used until the Performance Baselines have been validated for each respective phase of CMRR.

[b] The TEC includes the cost of preliminary design ($65,139,000) appropriated in 03-D-103, Project Engineering and Design (PED) for Phases B and C.

Scope

The CMRR project consists of three primary elements. These elements define the basic scope and drive the acquisition strategy.

- Phase A, 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 will be obtained through this data sheet. Phase A - scope will be considered complete when the structures are built, approved for beneficial occupancy, and four of the twenty six radiological laboratories are equipped. The RLUOB becomes fully functional after additional special facilities equipment is procured and installed as part of Phase B.

- Phase B, Special Facilities Equipment (SFE) including gloveboxes, hoods, materials transfer system, and AC/MC instrumentation: This phase of the project was established to enable timely acquisition of long-lead specialty equipment for the CMRR project and is intended to lower overall schedule risk. Phase B will equip both Phase A (RLUOB) and Phase C (Nuclear Facility). The performance baselines for both Phase B and Phase C will be established after preliminary design and subsequent to the initiation of Phase A (RLUOB). This phase will be executed with conceptual design, followed by an extensive preliminary design, then final design and construction.

- Phase C, CMRR Nuclear Facility (NF): Construction of a facility located behind perimeter security protective systems of approximately 22,500 net square feet to house Hazard Category II nuclear laboratory space for analytical chemistry/material characterization, and actinide research & development operations. Additionally, this facility will include SNM Storage, and a large vessel handling capability. This phase will be executed with conceptual design, followed by an extensive preliminary design, then final design and construction.

<u>Compliance with Project Management Order:</u>

- Critical Decision 0: Approve Mission Need – 4Q FY 2002
- Critical Decision 1: Approve Alternate Selection and Cost Range – 3Q FY 2005
- External Independent Review Final Report, (RLUOB) – 1Q FY 2006
- Critical Decision 2/3(A): Design-Build, (RLUOB) - 1Q FY 2006
- External Independent Review Final Report, (SFE/NF) – 4Q FY 2007

- Critical Decision 2/3(B,C): Design-Build, (SFE/NF) - 4Q FY 2007
- Contract Closeout: (RLUOB) – 4Q FY 2009
- Critical Decision 4: Approve Start of Operations, (SFE/NF) – 4Q FY 2014

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Preliminary Design[a]			
2004	9,500	9,500	0
2005	13,568	13,658	1,848
2006	27,910[b]	27,910	19,147
2007	14,161	14,161	44,144
Total, Preliminary Design (PED 03-D-103)	65,139	65,139	65,139
Final Design[c]			
2004	9,941	0	0
2005	10,063[d]	0	0
2006	0	20,004	20,004
2007	40,000	40,000	30,865
2008	73,921	73,921	83,056
Total, Final Design (TEC 04-D-125)	133,925	133,925	133,925
Total, Design	199,064	199,064	199,064
Construction			
2004	0	0	0
2005	29,621[d]	29,621	0
2006	54,450[e]	54,450	15,933
2007	72,422	72,422	65,170
2008	21,665[f]	21,665	77,446
2009	71,150	71,150	90,759
2010	38,113	38,113	38,113
2011	0	0	0
2012	0	0	0
Total, Construction (TEC 04-D-125)	287,421	287,421	287,421
Total TEC	486,485	486,485	486,485

6. Details of Cost Estimate[a]

[a] Preliminary design funding for CMRR Phases B and C is included in 03-D-103, PED.

[b] Reflects a reduction of $800,000 from the reallocation of PED funds from CMRR to Building 12-64 under 03-D-103

[c] Final design includes funding for all CMRR Phases.

[d] The total FY 2005 funds appropriated for 04-D-125 were $39,684,000 and included $16,000,000 increase above original budget request and a rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

[e] Reflects a government-wide rescission of 1.0 percent in accordance with the Consolidated Appropriations Act of FY 2006 (P.L. 109-148).

[f] The request for construction funding as reflected above, includes the Radioactive Laboratory and the Nuclear Facility. As a result of the ongoing Complex 2030 planning, NNSA will conduct a revalidation of how the Nuclear Facility will fit in the Complex 2030. The TEC and TPC will be adjusted based on the results of that evaluation.

Total Estimated Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Preliminary and Final Design[b]	199,064	200,317
Construction Phase		
Site Preparation	0	0
Equipment	50,869	50,869
All other construction	161,552	361,877
Contingency	75,000	125,129
Total, Construction	287,421	537,875
Total, TEC	486,485	738,192

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	24,895	24,291
Start-up, SME Technical Advice and Assistance	TBD	58,797
D&D Phase[c]		
D&D for removal of the offsetting facility	TBD	TBD
Other D&D to comply with "one-for-one" requirements	TBD	TBD
D&D contingency	TBD	TBD
Total, D&D	0	0
Contingency for OPC other than D&D	TBD	16,912
Total, OPC	TBD	100,000

[a] Estimate based on alternative selection and cost range (CD-1) information. The performance baseline will be established following approval of CD-2 for each CMRR phase.

[b] The preliminary design funds of $65,139,000 were appropriated under 03-D103 and are for CMRR Phases B and C only. The remaining $133,925,000 is for the final design of all CMRR Phases and was funded through 04-D-125. The reduction in the preliminary and final design budgets reflects FY 2006 and 2007 rescissions and a reallocation of PED funds from CMRR to Building 12-64 under 03-D-103.

[c] Section 9 provides preliminary pre-conceptual cost and schedule information for CMR D&D.

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years[a]	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC (Design)[b]	40,999	75,009	83,056	0	0	0	0	199,064
TEC (Construction)	15,933	65,170	77,446	90,759	38,113	0	0	287,421
OPC Other than D&D	29,618	5,000	7,000	3,000	5,000	24,000	26,382	TBD
Offsetting D&D Costs	0	0	0	0	0	0	TBD	TBD
Total, Project Costs	86,550	145,179	167,502	93,759	43,113	24,000	26,382	TBD

8. Related Operational and Maintenance Funding Requirements

Beneficial Occupancy Phase A (fiscal quarter)	4Q FY 2009
Start of Nuclear Operations Phase C (fiscal quarter)	2Q FY 2014
Expected Useful Life (number of years)	50
Expected Future start of D&D for new construction (fiscal quarter)	2Q FY 2065

(Related Funding Requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	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 FY04 dollars) with an associated schedule estimate range of 4-5 years. (If this cost range is escalated to FY12, 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 FY05, 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 FY02 Energy and Water Development Appropriations Act "one-for-one" requirement. The current FYNSP/ICPP funding profiles included in this CPDS 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

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[a] Previous project data sheets included $5,242,000 of Pre-Conceptual Design costs (Pre CD-0) that have been removed based on FY 2007 project data sheet guidance.

[b] TEC (Design) includes $65,139,000 in preliminary design for CMRR Phases B and C appropriated under 03-D-103.

CMRR Nuclear Facility, currently projected to be no earlier than FY14. As such, budget formulation for CMR D&D is premature for the FY08 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.

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

CMR (TA-3, building 29)

D&D Information Being Requested	Square Feet
Area of replacement facility: CMRR (TA-55)	400,000
Area of existing facility: CMR (TA-3, building 29)	550,000
Area of any additional space that will require D&D to meet the “one-for-one” requirement	0

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 for each phase of the CMRR project in order to mitigate overall schedule risk. Phase A (RLUOB) will be implemented via LANL-issued traditional design-build subcontract based on performance specifications developed during CMRR Conceptual Design. Phases B (SFE) and C (NF) will be implemented via one or more LANL-issued final design/construction contracts based on detailed performance requirements/specifications developed during CMRR preliminary design phase.

01-D-124, Highly Enriched Uranium Materials Facility
Y-12 National Security Complex, Oak Ridge, Tennessee[a]

Significant Changes

- An Independent Cost Review and External Independent Review were conducted in May and October of 2006 and a bottoms-up estimate was developed. Corrective action plans were developed to implement the findings and recommendations of those reviews. Baseline Change Proposals 05-151 and 06-310 R1 have been incorporated into the baseline and are reflected in this data sheet.

- The performance baseline presented in this data sheet reflects the results of a bottoms-up estimate which includes the following:
  - Impact of DBT design change and recent project shutdown due to quality issues on construction subcontractor;
  - Increased BWXT Y-12 staffing to support construction and address quality issues;
  - Known cost increases due to changed site conditions, errors and omissions, testing, and revised estimates;
  - Revised OPC estimate based on resource loaded schedule;
  - Impact of 10-month construction delay and
  - Contingency from revised risk assessment.

- Reflecting all these changes and using actual costs, and current overhead and escalation rates, the revised Total Estimated Cost is increased to $467,402,000, Other Project Cost increased to $81,715,000, and Total Project Cost increased to $549,117,000. Start of operations is scheduled for the second quarter of FY 2010.

- The TEC obligations and costs throughout this data sheet reflect the approved BCPs. This proposal requires an additional $80,000,000 in FY 2007 capital funding, $77,000,000 in FY2008 and $8,915,000 in FY 2009 capital funding. FY 2007 funding level of approximately $101,267,000 includes $21,267,000 in the FY 2007 President's budget request.

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Existing Facilities Start	D&D Existing Facilities Complete
FY 2001	1QFY2001	1QFY2002	2QFY2001	2Q2005	N/A	N/A
FY 2002	3QFY2001	4QFY2002	4QFY2001	2Q2005	N/A	N/A
FY 2003	3QFY2001	4QFY2003	2QFY2002	4Q2006	N/A	N/A
FY 2004	3QFY2002	4QFY2003	3QFY2002	3Q2006	N/A	N/A
FY 2005	4QFY2002	1QFY2004	2QFY2003	1Q2007	N/A	N/A
FY 2006	4QFY2002	1QFY2004	2QFY2003	1Q2007	N/A	N/A
FY 2007	4QFY2002	1QFY2004	2QFY2003	2Q2007	N/A	N/A
FY 2008	4QFY2002	1QFY2004	2QFY2003	4Q2008 [a]	N/A	N/A

3. Baseline and Validation Status (dollars in thousands)

(dollars in thousands)

	TEC	OPC, except D&D Costs	D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2001	120,000	24,000	TBD	144,000	N/A	144,000
FY 2002	119,949 [b]	24,000	TBD	143,949	N/A	143,949
FY 2003	119,949	24,000	TBD	143,949	N/A	143,949
FY 2004	184,000	38,500	TBD	222,500	N/A	222,500
FY 2005	211,898	39,300	TBD	251,198	251,198	N/A
FY 2006[c]	280,731	42,980	TBD	323,711	251,198	N/A
FY 2007 [d]	301,487	42,980	TBD	334,527	319,527	N/A
FY 2008 [e]	467,402	81,715	N/A	549,117	549,117	N/A

4. Project Description, Justification, and Scope

The Highly Enriched Uranium (HEU) Materials Facility will support the consolidation of long-term highly enriched uranium materials into a state-of-the-art facility. The new facility will result in cost savings and an increased security posture and will feature: storage in a hardened concrete structure for enhanced security, new Safe Secure Trailer (SST) or Safeguard Transport (SGT) shipping/receiving station, a central location near HEU processing facilities that includes a small administrative area to house the building operators. This facility will be located in a Protected Area. The Program Requirements Document for the Y-12 National Security Complex HEU Materials Facility, DOE/ORO-2113 Rev.1, documents the storage requirements.

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[a] This information reflects the schedule contained in BCP 06-310 R1.

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

[c] This information reflects the Performance Baseline, based on BCP-05-151, in accordance with DOE Order 413.3A requirements with an allowance for contingency.

[d] This information reflects the proposed Performance Baseline, based on a proposed BCP, in accordance with DOE Order 413.3A requirements with an allowance for contingency.

[e] Reflects the performance baseline contained in BCP 06-310 R1 in accordance with DOE Order 413.3A requirements with an allowance for contingency.

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

This project will provide the following:

- Receipt and storage for Canned Sub-Assemblies (CSA's) as well as cans of uranium oxide and metal;
- Docks for SST/SGT shipping/receiving; and
- A small administrative area inside the facility.

The life expectancy of the facilities is 50 years, thereby assuring a viable, long-term HEU storage capability to support the enduring weapons stockpile and strategic reserve for the foreseeable future. The facilities will be designed to meet Conduct of Operations requirements, minimize the number of personnel required for operations, and meet DOE requirements for SNM accountability and control. FY 2008 funding will be utilized to continue facility construction activities.

Compliance with Project Management Order

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

Critical Decision – 0: Approve Mission Need – 1Q FY 1999

Critical Decision – 1: Approve Preliminary Baseline Range – 3Q 2002

Critical Decision – 2: Approve Performance Baseline - 1Q FY2004

External Independent Review Final Report –3Q FY 2003 and October 2006

Critical Decision – 3: Approve Start of Construction – 4Q FY2004

Critical Decision – 4: Approve Start of Operations – 2Q FY2010

5. Financial Schedule (dollars in thousands)

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year *			
2001	17,710[a]	17,710	0
2002	0	0	1,242
2003	24,140[b]	24,140	19,980
2004	44,735[c]	44,735	16,726
2005	113,099[d]	113,099	53,715
2006	80,536[e]	80,536	66,634
2007	101,267[f]	101,267	198,129
2008	77,000	77,000	71,689
2009	8,915	8,915	29,778
2010	0	0	9,509
Total, TEC	467,402	467,402	467,402

*Design funding (PED) on this project was not appropriated separately. All funds for 01-D-124 were appropriated within Construction Funds and is shown above consistently. No long lead procurements were requested prior to validation of the Performance Baseline.

[a] The original FY 2001 appropriation was $17,800,000 that was reduced by $51,000 by the Safeguards and Security Amendment, and by $39,000 for a rescission by Section 1403 of the FY 2001 Consolidated Appropriation Act.

[b] The original FY 2003 appropriation was $25,000,000 that was reduced by $159,000 for a rescission and $567,000 for the Weapons Activities general reduction enacted by P.L. 108-7, FY 2003 Omnibus Appropriations Act, Title VI. The appropriated amount was further decreased by reprogramming of $134,000.

[c] The original FY 2004 appropriation was $45,000,000 that was reduced by $265,514 for the FY 2004 Congressional Omnibus Appropriations Bill rescission of 0.59 percent.

[d] The original FY 2005 request was $64,000,000, which was increased to $114,000,000 and reduced by $901,341 for a 0.8 percent rescission included in the Consolidated Appropriation Act, 2005 (P.L. 108-447).

[e] The original FY 2006 request was $70,350,000, which was increased to $81,350,000 and reduced by $813,500 for a 1 percent rescission included in the Consolidated Appropriations Act, 2006.

[f] The FY 2007 request was $21,267,000, which may be adjusted through a reprogramming request to $101,267,000 consistent with the Baseline Change Proposal 06-310 R1.

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

	Current Estimate	Previous Estimate
Preliminary and Final Design	31,014	27,002
Construction Phase		
Site Preparation	41,095	8,315
Equipment	51,036	36,265
All other construction	271,690	188,839
Contingency	72,567	42,136
Total, Construction	436,388	275,555
Total, TEC	467,402	302,557

Other Project Costs

(dollars in thousands)

	Current Estimate	Previous Estimate
Conceptual Planning	17,275	17,275
Start-up	49,716	29,716
D&D Phase		
D&D for removal of the existing facility	0	0
Other D&D to comply with "one-for-one" requirements	0	0
D&D contingency	0	0
Total D&D	0	0
NNSA Direct Costs	363	363
Contingency for OPC other than D&D	14,724	9,046
Total, OPC	81,715	56,400

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Out years	Total
TEC(Design)incl. below	0	0	0	0	0	0	0	0
TEC (Construction)	356,426	71,689	29,778	9,509	0	0	0	467,402
OPC Other than D&D	40,101	24,071	17,180	0	0	0	0	81,352
NNSA Direct Costs	363	0	0	0	0	0	0	363
D&D Costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Project Costs	396,890	95,760	46,958	9,509	0	0	0	549,117

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	4Q2009
Expected Useful Life (number of years)	50
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	8,000	8,000	475,000	475,000
Maintenance	1,600	1,600	82,000	82,000
Other Capital Expense...........................	N/A*	N/A	300,000	300,000
Total Related funding	9,600	9,600	857,000	857,000

*Other Capital Expense is for facility upgrades every 15 years and was not estimated as annual costs.

9. Required D&D Information

N/A

10. Acquisition Approach

Overall project direction and responsibility for this project resides with the NNSA. The NNSA has assigned day-to-day management of project activities to the Y-12 Operating Contractor, BWXT Y-12. BWXT Y-12 completed Conceptual Design of this project utilizing site forces, and has performed initial site readiness and site preparation activities. Preliminary and detail design for this project was performed by an architectural engineering firm under subcontract to BWXT Y-12. With completion of design, construction and initial component and system testing will be performed via a fixed price construction subcontract to BWXT Y-12. Specialty systems and equipment designed by BWXT Y-12 will be procured by BWXT Y-12 and provided for installation by the construction subcontractor. BWXT Y-12 will perform final connection of the facility to existing plant security and support systems. Following construction, BWXT Y-12 will perform integrated system testing and startup testing of the facility. The NNSA will provide oversight and review of the entire project process, and will perform an Operational Readiness Review at the completion of the project prior to authorization of the facility to begin operations.

Secure Transportation Asset

Overview

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Secure Transportation Asset (STA)			
Operations and Equipment	142,328	130,484	130,845
Program Direction	67,651	78,780	84,801
Total, Secure Transportation Asset	**209,979**	**209,264**	**215,646**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Secure Transportation Asset				
Operations and Equipment	139,603	149,203	165,971	173,311
Program Direction	88,697	88,546	87,066	88,807
Total, Secure Transportation Asset	**228,300**	**237,749**	**253,037**	**262,118**

Mission

The goal of the Secure Transportation Asset (STA) program is to safely and securely transport nuclear weapons, weapons components, and special nuclear materials to meet projected Department of Energy (DOE), Department of Defense (DoD), and other customer requirements.

Benefits

The STA GPRA unit contains two activities that contribute to GPRA Unit Program Goal 2.1.34 – Operations and Equipment, and Program Direction. Although these are two separately funded activities, the STA is managed as a single program because of its unique structure as a government owned/government operated organization.

As reflected in the current NNSA Future-Years Nuclear Security Program (FYNSP), the workload requirements for this program will escalate significantly to support the dismantlement and maintenance schedule for the nuclear weapons stockpile and the Secretarial initiative to consolidate the storage of nuclear material. Whether consolidation of special nuclear material under Complex 2030 planning or the accelerated cleanup schedule planned for Hanford by the DOE Environmental Management Program, projected increases in workload requires planning and funding for higher levels of new vehicle and trailer production, as well as the recruiting and training of additional agents. These are long-lead efforts taking as long as three years 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 the FY 2005 Design Basis Threat (DBT). The STA will increase capacity by 33 percent in equipment and Agents by the end of 2009 to meet projected workload requirements. The security challenge is overcome through technology leverage and enhanced training focused on improving our detect-deter-defend capability. The combination results in a capability to meet projected workload while providing adequate security in a challenging threat environment. Preliminary analysis indicates a potential for additional requirements to meet the FY 2005 DBT. However, additional testing and validation must be conducted to make this determination. NNSA will use FY 2007 resources to accelerate implementation of intelligence-based operations, technology development and focused training to address the 2005 DBT requirements.

With planned NNSA transformation and stockpile reduction and replacement initiatives, workload will generally exceed the STA capacity. In FY 2006, delay of planned work by customers temporarily reduced workload below schedule. Nuclear material consolidation campaigns through FY 2030 will require the STA to continue building resources to meet transportation requirements. In the long-term, the STA will manage the accretion of resources as capacity requirements are reduced when the NNSA Complex 2030 initiatives are concluded.

Major FY 2006 Achievements

- Safely and securely completed 100% of shipments without compromise/loss of nuclear weapons/components or a release of radioactive material.
- Safely and securely completed 93 full-up convoy equivalents at a cost per convoy of $2,100,000.
- Produced 3 Safeguard Transporters (SGTs) for a total of 36.
- Maintained average agent overtime at 1,000 hours.
- Provided transportation support for the W76 Life Extension Program and the W62 dismantlements and retirements.
- Completed the construction phase for Eastern Federal Agent Facility (FAF).
- Albuquerque Transportation Technology Center -STA (ATTC) occupancy agreement signed. Solicitation for offers for construction completed – 39 offers received. The five best offers were chosen and a second solicitation issued.
- Central Command FAF design/build Request for Proposal (RFP) was completed, bids were received, and the contract was awarded.
- Achieved agent end-strength of 324.
- Met the 2003 DBT requirements.

Major Outyear Priorities and Assumptions

The outyear projections for the Secure Transportation Asset total $981,204,000 for FY 2009 through FY 2012. The outyear budget increases will only sustain inflation, not further growth. The workload requirements for this program will escalate significantly to support the dismantlement and maintenance schedule for the nuclear weapons stockpile and the Secretarial initiative to consolidate the storage of nuclear materials. The accelerated cleanup schedule planned for Hanford by the DOE Environmental Management program requires planning and funding for higher level of new vehicle and trailer production, as well as the recruiting and training of additional agents. These are long-lead efforts taking as long as three years to effectively increase mission capacity.

The challenge to increase capacity is coupled with, and impacted by, increasingly complex national security concerns and the requirements of the FY 2005 DBT. This increasingly uncertain threat environment necessitates either the implementation of force multiplier technologies or increasing the number of agents that accompany the convoys.

The primary goal 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 by two per year, to a total of 51 in FY 2014. The number of secure convoys also will increase up to a projected 135 in FY 2008. However, if force multiplier technologies cannot be implemented, the number of agents per convoy will increase, causing capacity to drop back to approximately 115 convoys per year for FY 2009 – FY 2011, and increasing the cost per convoy. The reduction in capacity will also cause an increase in the work backlog. The STA program also intends to add additional agents up to a total agent force of 420 in FY 2009. The mission cost of those additional agents and their training will increase out year expenditures.

Program Assessment Rating Tool (PART)
The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The STA program has incorporated feedback from the OMB into the FY 2008 Budget request and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2006 Budget Request. The OMB gave the STA program scores of 100 percent on the Program Purpose and Design, and Strategic Planning Sections; 86 percent on the Program Management Section; and 67 percent on the Program Results and Accountability Section. Overall, the OMB rated the STA program 81 percent, its second highest rating of "Moderately Effective." The OMB assigned these scores based on the fact that the STA program is well managed, has a clear and unique purpose, and clear, meaningful, and measurable performance metrics that the program is demonstrating good progress in meeting. The OMB assessment found that funds were spent for their intended purpose but the unique nature of the organization results in year-end uncosted balances that are higher than other programs. In addition, the OMB observed that independent evaluations of program effectiveness had not been completed recently to validate prior assessments. In response to the OMB findings, the STA program increased the number of supporting accounts to increase management flexibility in responding to changing security conditions and mission priorities and to improve obligation and costing of funds. The STA program also established an internal independent assessment branch in the organization to ensure more frequent independent evaluations.

Annual Performance Results and Targets
(R = Results; T = Target)

Performance Indicators	FY2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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%	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 : $1.95	R : $1.90	R: $2.10 T: $1.80	T: $1.80	T: $1.63	T: $1.57	T: $1.57	T: $1.57	T: $1.57	By FY 2009, achieve a cost per convoy of $1,570,000.*
Annual number of secure convoys completed (Annual Output)	R: 91 T: 90	R: 106 T: 105	R: 93 T: 115	T: 115	T: 125	T: 135	T: 135	T: 135	T: 135	By FY 2009, achieve 135 convoy equivalents*.
Cumulative number of Safeguard Transporters (SGTs) in operation (Long-term Output)	R: 31 T: 32	R: 33 T: 33	R: 36 T: 36	T: 38	T: 40	T: 42	T: 44	T: 46	T: 48	By FY 2014, achieve an operational SGT fleet of 51.**
Cumulative number of Federal Agents at the end of each year (Long-term Output)	R: 283 T: 266	R: 318 T: 335	R: 324 T: 355	T: 355	T: 385	T: 420	T: 420	T: 420	T: 420	By the end of FY 2009, achieve end strength of 420 Agents.***

* Workload/scheduling cancellation and reduced agent staffing levels, resulted in FY 2006 targets not being met. The FY 2007 and out-year targets are adjusted to track with expected number of agents. The new DBT requirements that go into effect in FY 2009 will require both of these metrics to be re-baselined in that year.

** Due to resource constraints, beginning in FY 2007, SGT production has been slowed to 2 per year, extending the original 2011 endpoint target date to 2014.

*** The program experienced a high number of Agent losses (40) and a recruiting shortfall in FY 2006, which resulted in not meeting the annual target. Accordingly, the endpoint target of 420 has moved from FY 2008 to FY 2009 and FY 2006 and out-year targets are extended one year.

Secure Transportation Asset

Operations and Equipment

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Operations and Equipment			
Mission Capacity	72,283	71,862	72,440
Security/Safety Capability	13,248	16,180	16,624
Infrastructure and C3 Systems	25,602	27,550	26,122
Design Basis Threat Response	19,100	0[a]	0
Program Management	12,095	14,892	15,659
Subtotal, Secure Transportation Asset, Operations and Equipment	**142,328**	**130,484**	**130,845**
Use of Prior Year Balances	0	0	0
Total, Secure Transportation Asset Operations and Equipment	**142,328**	**130,484**	**130,845**
Total, Full Time Equivalents	**499**	**522**	**585**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Operations and Equipment				
Mission Capacity	87,973	91,299	103,088	109,238
Security/Safety Capability	16,372	16,624	17,181	17,522
Infrastructure and C3 Systems	18,684	25,643	29,519	30,046
Design Basis Threat Response	0	0	0	0
Program Management	16,574	15,637	16,183	16,505
Total, Secure Transportation Asset Operations and Equipment	**139,603**	**149,203**	**165,971**	**173,311**

Benefits

Within the Secure Transportation Asset (STA) Operations and Equipment Activity, each of four sub-programs make unique contributions to the GPRA Unit Program Goal 2.1.34 regarding the safety and security of the nuclear stockpile. These sub-programs accomplish the following: (1) Mission Capacity: provides agent candidate courses for an increasing new agent force, 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

[a] FY 2007 funding for DBT compliance is included in projects contained in Mission Capacity, Security/Safety Capability, and Infrastructure and C3 Systems.

Capability: develops and implements new fleet technologies, intensifies agent training, and implements Security, Safety, and Emergency Response programs; (3) Infrastructure and command, control, and communications (C3) systems: provides facility maintenance, support for construction projects, and C3 systems; (4) Program Management: provides corporate functions and business operations that control, assist, and direct secure transport operations.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Mission Capacity	**72,283**	**71,862**	**72,440**

Provides support to the program objective of raising and maintaining the mission capacity of the STA program to meet projected workloads. This goal includes the following activities: (1) Annually, conduct two Agent Candidate Training classes to increase the agent end-strength from approximately 280 agents to 420 agents by the end of FY 2009. Funding supports the recruiting, equipping, and training of approximately 80 students**.** (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, and mobile communication and defensive systems. It also supports the operation of three maintenance facilities. (4) Optimizes the use of agent time through the use of contract drivers, government aircraft, and computer-based planning systems. Contract drivers stage and return empty mission vehicles and trailers to their appropriate destinations. Aircraft are used to move agents and contract drivers to staging points to minimize travel time. Aircraft are also used to support the Limited Life Components Program and 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.

The Office of Secure Transportation Aviation Program will acquire one additional transport category aircraft per year in FY 2009, FY 2010, and FY 2011 as replacements for three aging DC-9 aircraft.

In FY 2008, specific activities focus on: training new agents, increasing the number of secure convoys completed, producing new Safeguard Transporters (SGTs) and escort vehicles, maintaining and refurbishing existing equipment to support increased mission activity, and ensuring that existing agents are fully trained.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Security/Safety Capability	**13,248**	**16,180**	**16,624**

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, the implementation of intelligence gathering/dissemination systems, 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, operational readiness, 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, Force-on-Force validation exercises, and combat simulation computer modeling; conducting safety studies and safety engineering for the Safety Basis, Nuclear Explosive Safety, and over-the-road safety issues. (4) Maintains and upgrades 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 2008 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, testing and evaluating new mission technologies, and ensuring that the appropriate level of agent training is sustained. The STA program expects to validate effectiveness against the FY 2005 DBT at the FY 2008 Joint Testing Exercise (JTX).

Infrastructure and C3 Systems	**25,602**	**27,550**	**26,122**

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, control, and communications (C3) systems activities to enhance required oversight of nuclear convoys. Funding supports operation of the Transportation Emergency Control Centers; communications maintenance; electronic systems depot maintenance; installation of the Mobile Interface Controller upgrades; and the costs for operating relay stations in five states and (2) Expand, upgrade, and maintain the STA facilities and equipment to support the increase in federal agents and workload. Funding supports the maintenance, upgrades, required expansion projects, and leases for 80 facilities and their respective equipment.

The FY 2008 focus will be on the completion of various facility projects, including the completion of the Albuquerque Transportation Technology Center (ATTC) project in cooperation with the General Services Administration and the procurement of furniture and IT equipment for the ATTC. The vehicle communication systems will also be upgraded to meet the regulatory deadline requirements and maintain the most current technology base. Extensive work will be done on the Transportation Command and Control System (TCCS) database to enable it to support larger convoys and an increased workload. Changes to the communications architecture will be implemented to ensure system

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

redundancy and eliminate bottlenecks. This funding also supports the increasing cost of utilities and maintenance in all facilities.

Design Basis Threat Response	**19,100**	**0**	**0**

Funding for FY 2007 and FY 2008 DBT-related activities is included in projects contained in Mission Capacity, Security/Safety Capability, and Infrastructure and C3 Systems.

Program Management	**12,095**	**14,892**	**15,659**

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, Joint Testing Exercises, routine STA Intranet web support, configuration management, and business integration activities by support contractors.

Total, Secure Transportation Asset Operations and Equipment	**142,328**	**130,484**	**130,845**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Mission Capacity	
The net increase is attributable to a combination of factors including: increase in funding in order to cover the rising cost of fuel; increased emphasis on the production of escort vehicles; and the increased cost of agent support equipment and contractor personnel.	**+578**
Security/Safety Capability	
The net increase in funding supports the additional training requirements resulting from the continued growth in the Federal Agent workforce and the enhanced training to equip all agents with necessary, additional skills to defend the shipments of nuclear weapons and nuclear components. It also supports the higher projected costs for the Human Reliability Program.	**+444**
Infrastructure and C3 Systems	
The net decrease is due to: the completion of the relay station MICOM replacement project and the completion of upgrades to the other STA relay stations; the effort to find increased maintenance and operating efficiencies and savings; and the delay and/or completion of construction of some previously planned facilities at various Commands.	**-1,428**
Program Management	
The net increase supports and general site support to all STA Commands and other facilities. It will also support an expansion of the internal review and oversight functions.	**+767**
Total Funding Change, Secure Transportation Asset Operations and Equipment	**+361**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
General Plant Projects			
Multiple Projects at all Sites	925	1,100	0
Capital Equipment	180	3,000	3,000
Total, Capital Operating Expenses	**1,105**	**4,100**	**3,000**

Outyear Capital Operating Expenses

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects				
Multiple Projects at all Sites	2,000	2,000	2,000	2,000
Capital Equipment Replacement Aircraft Acquisition	15,000	20,000	20,000	0
Total, Capital Operating Expenses	**17,000**	**22,000**	**22,000**	**2,000**

Secure Transportation Asset

Program Direction

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Secure Transportation Asset Program Direction			
Salaries and Benefits	60,113	68,003	73,978
Travel	6,008	7,800	8,711
Other Related Expenses	1,530	2,977	2,112
Subtotal, Secure Transportation Asset, Program Direction	**67,651**	**78,780**	**84,801**
Use of Prior Year Balances	0	0	0
Total, Secure Transportation Asset Program Direction	**67,651**	**78,780**	**84,801**
Total, Full Time Equivalents	**499**	**522**	**585**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Secure Transportation Asset Program Direction	88,697	88,546	87,066	88,807

Benefits

The STA Program Direction makes unique contributions to the GPRA 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; (6) staff and operate the Training and Logistics Command, including the conduct of two 18-week training classes per year for new agents; and (7) perform administrative and logistical functions for the organization.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Salaries and Benefits	**60,113**	**68,003**	**73,978**

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	**6,008**	**7,800**	**8,711**

Provides for travel associated with 135 annual secure convoys, training at other United States Government facilities and military installations, and program oversight.

Other Related Expenses	**1,530**	**2,977**	**2,112**

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, Secure Transportation Asset Program Direction	**67,651**	**78,780**	**84,801**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Salaries and Benefits	
The net increase is due to the addition of Federal Agents and direct operational secondary personnel. The increase reflects the impact of two thirty five-person agent candidate training (ACT) classes conducted in FY 2007 and two in FY 2008. The full cost impact of the agents hired in the last class in FY 2007 will not be realized until FY 2008. In FY 2008, these individuals will have transitioned from students to agents; 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. Since projected workload still exceeds capability, the addition of more agents will result in more total overtime hours and thus increase overtime costs.	**+5,975**
Travel	
The net 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.	**+911**
Other Related Expenses	
The decrease in budget for Other Related Expenses is associated with the reduced need for PCS moves between FY 2007 and FY 2008. The FY 2007 PCS moves were required for the organizational structure changes implemented.	**-865**
Total Funding Change, Secure Transportation Asset Program Direction	**+6,021**

Nuclear Weapons Incident Response

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Nuclear Weapons Incident Response			
Emergency Response (Homeland Security)	99,663	118,391	145,984
Emergency Management (Homeland Security)	7,215	7,530	6,860
Operations Support (Homeland Security)	10,730	9,433	8,904
Total, Nuclear Weapons Incident Response	**117,608**	**135,354**	**161,748**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Emergency Response (Homeland Security)	151,885	160,090	168,715	177,782
Emergency Management (Homeland Security)	8,204	8,335	8,468	8,602
Operations Support (Homeland Security)	9,746	9,902	10,060	10,221
Total, Nuclear Weapons Incident Response	**169,835**	**178,327**	**187,243**	**196,605**

Mission

The Nuclear Weapons Incident Response (NWIR) program responds to and mitigates nuclear and radiological incidents worldwide.

The National Nuclear Security Administration (NNSA) Emergency Operations Homeland Security (HS) remains the United States (U.S.) government's primary capability for radiological and nuclear emergency response. 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 constantly maintains a readiness level for protecting and serving the U.S. and its allies. The focus is on providing the U.S. government with a nuclear radiological emergency response capability that is truly ready to respond. The September 11, 2001, attacks signaled a major change in both the intelligence picture and the tactics of the terrorists. The country's national response posture must change to meet the new challenges in the war against terrorism. There is increasing focus on redefining relationships with old partners such as the Federal Bureau of Investigation (FBI), forging new relationships with the Department of Homeland Security (DHS), and enhancing Technology Integration. Lastly, operations tempo (OPSTEMPO) continues to increase.

Effective May 1, 2004, the Department consolidated Emergency Operations Centers and threat assessment by transferring these functions to NNSA. Starting in FY 2006, funding for the Emergency Operations Centers and associated functions are included within this program under "Operations Support."

In recognition of the fact that NWIR's performance metrics were not measuring what was vitally important to the organization, the program has eliminated its measures and adopted a single measure; Readiness. Readiness encompasses trained personnel, reliable and operational equipment and communications ready to respond to and mitigate nuclear and radiological incidents worldwide. This puts NWIR'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. NWIR tested its concepts for three quarters in FY 2005 and fully implemented the readiness measure in FY 2006.

This budget includes continued funding for the Render Safe Research and Development Program and provides additional funds for standup of the National Technical Nuclear Forensics (NTNF) and Stabilization Implementation programs. It further accomplishes some minor reprioritization of requirements and includes price growth at approved escalation rates. There is virtually no program growth in the base program.

This Program budget represents the minimum required to accomplish vital national security missions. It assumes that the Department of Homeland Security will provide the funding required by the Homeland Security Act of 2002.

The entire Nuclear Weapons Incident Response program is a homeland security related activity.

Benefits

Within the Nuclear Weapons Incident Response program, the Emergency Response HS, Emergency Management HS, and Operations Support HS subprograms each make unique contributions to GPRA Unit Program Goal 2.1.35. 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. Operations Support activities support Headquarters' emergency response operations through the Headquarters' Watch Office and Operations Center. Program staff participate in tests and exercises to improve communication and notification capabilities and procedures. NWIR 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 site emergencies.

Major FY 2006 Achievements

- Deployed multiple field teams to conduct operations in support of Homeland Security, including National Special Security Events, National Security Events, and elevated threats. These included: State of the Union; Super Bowl; Winter Olympics; Marine Corp Marathon; Rolling Thunder; 26 Radiological Assistance Program (RAP) Deployments; and two Ongoing Search Operations.

- Participated in multiple interagency national and international counter terrorism exercises, including: Marble Challenge, TOPOFF 4; Flexible Response; CAPEX; and Vigilant Shield.

- Participated in Forward Challenge, a major interagency continuity exercise.

- In support of the February 2005 U.S.-Russian Joint Statement on Nuclear Security Cooperation, NNSA has held five meetings for information exchange and demonstrations, in addition to the first ever full-field joint exercise between the U.S. and their Russian Federation counterparts. These meetings and the exercise allow response experts to exchange views on instrumentation and use this equipment in a real-world environment.

- Continued support to the FBI for its render safe capability.

- Improved the capability of triage, a radiological reach-back capability, to provide first responders with expert analysis of detector readings.

Major Outyear Priorities and Assumptions

The outyear projections for Nuclear Weapons Incident Response total $732,010,000 for FY 2009 through FY 2012. The trend through the five-year period is increasing and reflects funding growth in two specific areas of the program - National Technical Nuclear Forensics and Stabilization Implementation. These initiatives support scientific breakthroughs for Render Safe Research and Development and the Technical Integration programs and 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.

NWIR 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 Emergency Operations Centers.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The NWIR program has incorporated feedback from the OMB into the FY 2008 Budget Request and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2008 Budget Request. The OMB gave NWIR scores of 100 percent on the Program Purpose and Design, Strategic Planning, and Program Management Sections; and 67 percent on the Program Results and Accountability Section. Overall, the OMB rated the NWIR program 84 percent, its second highest category of “Moderately Effective.” The OMB assessment found that the program has improved its ability to respond to nuclear or radiological incidents worldwide and made progress throughout the year in the areas of personnel, training, equipment review of security plans, and equipment deliveries. Additionally, the OMB assessment found

NWIR has an excellent track record in responding to emergencies and events with national security implications, and has made progress in holding its contractors accountable for achieving cost savings. In response to the OMB findings, the NWIR program is continuing to investigate the source of impediments to the program's ability to respond to and mitigate nuclear and radiological incidents worldwide, improve the coordination of priorities across all field offices, and assess emergency response capabilities to help program managers identify and fix deficiencies.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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)	N/A	R :71	R: 82 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 2006	FY 2007	FY 2008
Emergency Response (Homeland Security)	**99,663**	**118,391**	**145,984**

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)**	**75,659**	**93,641**	**92,784**

Under the provisions of the Atomic Energy Act of 1954 and Presidential Decision Directives 39 and 62, government agencies are directed to plan for, train, and resource a 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 six 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), Joint Technical Operations Team (JTOT), and Lincoln Gold Augmentation Team (LGAT). 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.

This budget reflects funding resources in support of the NEST Render Safe R&D program, which was realigned in FY 2007 from the Defense Nuclear Nonproliferation appropriation.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
▪ **Other Assets**	**24,004**	**24,750**	**25,200**

The HS Emergency Response 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 as well as the detection of biological agents. Additionally, these assets 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, measures, and tracks 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 plots generated by sophisticated computer models.
- The Consequence Management Teams provide the technical capabilities to assist and coordinate federal radiological monitoring and assessment activities and effects with 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 treatment and medical consultation for injuries resulting from radiation exposure and contamination and serves as a training facility. Additionally, REAC/TS provides training to the medical community and maintains a database of medical responders trained to treat radiation injuries within the U.S. and abroad.

National Technical Nuclear Forensics	**0**	**0**	**12,000**

The National Technical Nuclear Forensics (NTNF) is a new program request for NWIR in FY 2008, which will support implementation of Operations and R&D. 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. For DOE/NNSA, major FY 2008 Program elements include:

- threat assessment, CONOPS development and techniques, tactics and procedures
- signatures development, knowledge base and data management
- support to FBI in collection of pre-detonation device forensics evidence
- support G-Tunnel operational support to NTNF
- support to FBI in collection and analysis of post-detonation ground samples
- establish Home Team capability
- training and exercises

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Stabilization Implementation	**0**	**0**	**16,000**

Stabilization Implementation is also a new element requested for NWIR beginning in FY 2008. The Stabilization Implementation program will endeavor to leverage and develop Render Safe technologies that can be applied by teams, without extensive training, to isolate and stabilize a nuclear device until the national response teams arrive to render it safe.

The Render Safe Research and Development (R&D) Program looks at the stabilization aspect of nuclear emergencies. Research is promising and it is envisioned that technological breakthroughs in the Stabilization R&D Program will make development of first generation equipment possible. The funding requested, if provided, will make it a reality. Currently, the Stabilization R&D portfolio is focused on delay technologies. The Stabilization Implementation program will expand this portfolio into isolation technologies, leveraged from R&D conducted by other government agencies. The funding requested for Stabilization Implementation will facilitate the interchange of information between NWIR and other agencies; develop the concept of operations for stabilization teams with the FBI; and deploy the first generation of stabilization equipment for operational testing (including training programs) to selected teams across the country, thus improving the national emergency response capability and fully integrating this technology with response elements and associated deployed technologies.

Emergency Management (Homeland Security)	**7,215**	**7,530**	**6,860**

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.

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.

The Emergency Operations Training Academy is an academically accepted training and development center that remains on the cutting edge of technology and innovation. It is the Emergency Operations point of service for training development and oversight.

In late FY 2005, Continuity of Operations Programs (COOP) expanded to include responsibility for all of DOE. These programs develop the Headquarters and the field Continuity of Operations plans that are updated constantly. Periodic training and exercises are required. NNSA and DOE continue to

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		

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.

Operations Support (Homeland Security)	**10,730**	**9,433**	**8,904**

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 emergency situations. The goal of the Emergency Communications Network Program is to provide the DOE/NNSA 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.

Total, Nuclear Weapons Incident Response	**117,608**	**135,354**	**161,748**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Emergency Response (Homeland Security)	
▪ **Nuclear Emergency Support Team (NEST)**	
This decrease reflects efficiencies related to providing a versatile, capable, worldwide nuclear or radiological emergency response and emergency management capability.	**-857**
▪ **Other Assets**	
Consequence Management Response Team (CMRT) has traditionally been sized to provide 12-hour per day coverage. This increase restores the robust Phase I CMRT concept to attain 24-hour per day coverage.	**+450**
▪ **National Technical Nuclear Forensics**	
Increase in funding for new program in support of HSC/NSC sponsored activity to establish missions, institutionalize roles and responsibilities and enable operational support for pre-detonation and post-detonation nuclear forensics and attribution programs.	**+12,000**
▪ **Stabilization Implementation**	
Increase in funding for new program in support of HSC/NSC sponsored 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.	**+16,000**
Subtotal, Emergency Response	**+27,593**
Emergency Management (Homeland Security)	
Net of decreases in funding to Emergency Management, Emergency Management Implementation, and Emergency Operations Training Academy (EOTA) to support response training and exercise needs as well as to provide funding to support higher priority DOE missions. This decrease is largely attributable to a reduction in planned EOTA funding to balance higher priority program needs.	**-1,202**
Increases funding to Continuity Programs to support increased mission for support to all of DOE Continuity planning, training, exercises and operations activities. Funding is also included for Continuity of Government activities previously funded by, and transferred from, the former Office of Security and Safety Performance Assurance ($185,000).	**+532**
Subtotal, Emergency Management	**-670**

	FY 2008 vs. FY 2007 ($000)
Operations Support (Homeland Security)	
Decreases Emergency Operations Centers funding by deferring, completion by a one year, of the Emergency Communications Network (ECN) Internet Protocol security and encryption upgrade program; terminated development of ability to enable multi-level classified computing operations on a single computer workstation; no expansion of satellite communication time for support of emergency response field operations; reduced ECN Imagery Support to support high priority NNSA/DOE missions.	**-529**
Subtotal, Operations Support	**-529**
Total Funding Change, Nuclear Weapons Incident Response	**+26,394**

Capital Operating Expenses and Construction Summary[a]

Capital Operating Expenses

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
General Plant Projects	480	494	509
Capital Equipment	77	79	81
Total, Capital Operating Expenses	**557**	**573**	**590**

Outyear Capital Operating Expenses

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2011
General Plant Projects	524	540	556	573
Capital Equipment	83	85	88	91
Total, Capital Operating Expenses	**607**	**625**	**644**	**664**

[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 2007 and FY 2008 funding shown reflects estimates based on projected FY 2006 obligations.

Facilities and Infrastructure Recapitalization Program

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Facilities and Infrastructure Recapitalization Program			
Operations and Maintenance (O&M)			
Recapitalization	72,166	192,649	179,458
Facility Disposition	19,200	25,000	25,000
Infrastructure Planning	8,474	27,634	26,565
Subtotal, O&M	**99,840**	**245,283**	**231,023**
Construction	49,525	45,935	62,720
Total, Facilities and Infrastructure Recapitalization Program	**149,365**	**291,218**	**293,743**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Facilities and Infrastructure Recapitalization Program				
Operations and Maintenance (O&M)				
Recapitalization	170,589	252,515	269,962	276,743
Facility Disposition	20,000	0	0	0
Infrastructure Planning	33,039	34,557	34,368	35,257
Subtotal, O&M	**223,628**	**287,072**	**304,330**	**312,000**
Construction	62,944	10,024	0	0
Total, Facilities and Infrastructure Recapitalization Program	**286,572**	**297,096**	**304,330**	**312,000**

Mission

The Facilities and Infrastructure Recapitalization Program (FIRP) mission is to restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex.

This mission contributes significantly to the third leg of the new Triad, as identified in the Nuclear Posture Review dated December 2001 and released by the Administration in January 2002, and supports NNSA's transformation of the complex objectives. The program applies new direct appropriations to address an integrated, prioritized series of repair and infrastructure projects focusing on legacy deferred maintenance that is significantly increasing the operational efficiency and effectiveness of the NNSA nuclear weapons complex sites.

FIRP is a capital renewal and sustainability program that was established to reduce the estimated $2,400,000,000 billion backlog of NNSA's deferred maintenance, which developed during the 1990s, to an appropriate level consistent with industry best practices. The FIRP Recapitalization subprogram funds projects in accordance with established criteria and priorities that target legacy deferred maintenance reduction and repair (non-programmatic) of mission facilities and infrastructure projects that support transformation of the complex. These projects are key to restoring the facilities that house the people, equipment, and material necessary to support scientific research, production, or testing to conduct the Stockpile Stewardship Program. The FIRP Facility Disposition subprogram addresses a portion of the necessary footprint reduction of the complex, improves management of the NNSA facilities portfolio, and reduces long-term costs and risks. The FIRP Infrastructure Planning subprogram funds planning activities for next-year Recapitalization projects. Its primary objective is to ensure that projects are adequately planned in advance of project start. This permits the timely use of construction 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*". FIRP Construction funds selected utility line-item construction projects across the weapons complex to further reduce the legacy deferred maintenance backlog. This satisfies a critical need for improvement to NNSA sites' utilities infrastructure.

FIRP is separate and distinct, but 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 weapons complex are restored to an appropriate condition to support the Stockpile Stewardship Program mission and transformation of the complex, and to institutionalize responsible and accountable facility management practices.

Benefits

FIRP supports the overall goals of the Weapons Activities appropriation through improvements to NNSA facilities and infrastructure that result in increased operational efficiency and effectiveness. FIRP is able to readily respond to changing missions, priorities and decisions affecting both sites and their facilities within the nuclear weapons complex through the implementation of its integrated, prioritized project list that targets the worst facilities and infrastructure deficiencies first. Within FIRP, four subprograms each make unique contributions to GPRA Unit Program Number 2.1.36.00. The Recapitalization subprogram funds capital renewal and sustainability projects, focusing on legacy deferred maintenance reduction required to restore the facilities and infrastructure comprising the nuclear weapons complex to an acceptable condition. The Facility Disposition subprogram funds the minor decontamination, dismantlement, removal and disposal of excess facilities that have been deactivated. The Infrastructure Planning subprogram funds planning activities for next-year Recapitalization projects. FIRP project planning and execution follow a graded approach for 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 weapons complex to further reduce the deferred maintenance backlog, and satisfy a critical need for improvement to NNSA sites' utilities infrastructure. These four subprograms combined are effectively addressing the many facilities and infrastructure related problems that exist at NNSA sites due to previous years of underfunding.

FIRP has made excellent progress towards achieving its long-term performance goals including ambitious targets and timeframes, as demonstrated by the results reported to date for excess facilities disposition and deferred maintenance reduction. The program is improving the condition of NNSA's facilities and infrastructure, and has demonstrated significant and measurable progress towards meeting both the NNSA’s corporate long-term performance goals for deferred maintenance reduction and excess facilities disposition.

FIRP is effectively executing the Program and reports the corresponding planned and actual performance results in the congressional budget request, Program Assessment Rating Tool (PART) 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 to date is attributed to strong central management of the program; independent and objective oversight; and an ongoing partnership between Headquarters program partners, NNSA Site Offices, and NNSA M&O contractors.

Major Outyear Priorities and Assumptions

FIRP was established to reduce the NNSA’s large backlog of deferred maintenance and return the condition of the nuclear weapons complex to acceptable standards within a ten-year period (FY 2001-FY 2011). The program’s goals include: elimination of $1,200,000,000 of deferred maintenance, achieving a Facility Condition Index of 5 percent, and elimination of 3,000,000 gross square feet of excess facilities. The outyear projections for FIRP total $1,199,998,000 (sum FY 2009-2012). The trend through the five-year period reflects a decrease of 15 percent from the FY 2007-FY 2011 Congressional Budget Request. The revised outyear funding profiles from the OMB reported in the FY 2006-2010 Congressional Budget Request, coupled with the reduced FY 2006 appropriation, left the FIRP without the resources to achieve the program’s deferred maintenance reduction goal and endpoint target. As reported in the FY 2006 and FY 2007 Congressional Budget Requests, FIRP will not achieve the corporate goal of eliminating $1,200,000,000 of NNSA’s legacy deferred maintenance by FY 2009, which adversely impacts mission support of the Stockpile Stewardship Program and transformation of the complex. During the NNSA’s programming process, NNSA and FIRP evaluated several different funding scenarios and their impact on outyear annual targets and endpoint goals. Performance data were used by the NNSA to justify shifting resources from other programs and within FIRP to minimize the delay in the overall program endpoint. These performance data were also used to support submission of a FY 2007 legislative proposal (subsequently approved by both the House and Senate Authorization Committees) to amend the FIRP end date from 2011 to 2013 to enable successful completion of the FIRP mission.

While FIRP is scheduled to achieve its original 3,000,000 gross square feet footprint reduction goal in FY 2009, an additional 1,700,000 – 2,500,000 gross square feet of excess facilities have been identified that still require disposition. The FYNSP funding profile does not support disposition of these additional excess facilities.

FIRP’s implementation of its Integrated Prioritized Project List (IPPL) will enable 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.

Major FY 2006 Achievements

- FIRP achieved NNSA’s FY 2005 goal to stabilize deferred maintenance in FY 2004 - one year ahead of schedule. In FY 2006, the Program ensured NNSA’s deferred maintenance remained stable by continuing to reduce the legacy deferred maintenance backlog at levels greater than new deferred maintenance growth. The stabilization of deferred maintenance is a major NNSA accomplishment that indicates physical deterioration of the nuclear weapons complex has been arrested.

- The FIRP facility disposition program has eliminated a cumulative total of more than 2,500,000 gross square feet of excess facilities, with strict attention to cost efficiency and within cost parameters that compare favorably to best-in-class organizations.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The FIRP program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2004 Budget Request. The OMB gave the FIRP scores of 80 percent on the Program Purpose and Design Section; 100 percent on the Strategic Planning Section; 90 percent on the Program Management Section, and 67 percent on the Program Results and Accountability Section. Because the FIRP was a new program at the time, with only limited measurable results to date, the OMB's overall PART rating for the FIRP was 78 percent, its second highest rating of "Moderately Effective." The OMB assessment found that the FIRP has a clear and unique purpose; is well managed; and has clear, concise, meaningful, and measurable performance metrics.

The FIRP provided the OMB with an FY 2005 update to its FY 2004 PART, and completed updates in FY 2006, FY 2007, and FY 2008 as an element of its self-assessment program. The Program expects to achieve a rating of "Effective" during the next OMB PART review due to program improvements in response to previous PART recommendations, sustained successful achievement of annual performance targets, and overall progress towards achieving long-term program goals.

Annual Performance Results and Targets

(R = Results; T= Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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 FY 2003 deferred maintenance baseline of $1.2 billion; funded for elimination by FY 2013	R: $97M (8%) T: $79M (7%)	R: $178M (23%) Deferred mainten-ance remains stabilized. T: $155M (21%) Stabilize deferred mainten-ance by the end of FY 2005.	R : $118M (32.8%) T: $60M (28%)	T: $151M (45%)	T: $143 (57%)	T: $125M (68%)	T: $109M (77%)	T: $87M (84%)	T: $79M (91%)	Eliminate $1,200,000,000 of NNSA's legacy deferred maintenance backlog by 2013. Note: The original 2009 date for elimination of $1,200,000,000 of the deferred maintenance backlog slipped to 2013 due to constrained outyear funding. The Defense Authorization Bill extends the FIRP end date by two years (from 2011 to 2013) to enable FIRP to accomplish its mission.
Footprint Reduction: Annual gross square feet (gsf) of NNSA excess facilities space funded for elimination; and cumulative percentage of FY2002-FY2009 total goal of three million gsf eliminated	R: 525,000 (57%) T: 325,000 (45%)	R: 514,000 (75%) T: 350,000 (69%)	R : 316,000* (85%) T: 175,000 (79%)	T: 225,000 (92%)	T: 225,000 (100%)	T : 175,000 (106%)	N/A	N/A		By 2009, eliminate three million gsf of excess facility space. Note: (1) An additional 1.7 million to 2.5 million gsf of excess facilities require disposition that are unfunded.

*Reflects a 3,000 gross square feet adjustment downward from the DOE FY 2006 Performance and Accountability Report.

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Efficiency Measure: Annual NNSA complex-wide aggregate Facility Condition Index (FCI), as measured by deferred maintenance per replacement plant value, for all mission-essential facilities and infrastructure (the industry standard is below 5%) (Efficiency)	R: 7.2% T: 10%	R: 7.4% T: 9%	R : 6.7% T: 7.4%	T: 6.8%	T: 6.4%	T: 6.1%	T: 5.6%	T: 5.5%	T:5.3%	By 2009, return the condition of mission essential facilities and infrastructure to industry standards. Note: (1) FCI Targets based on the latest NNSA Ten Year Site Plans (TYSP) indicate that the FY 2009 endpoint target will not be achieved. (2) NNSA will redefine this performance indicator for 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.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Recapitalization	**72,166**	**192,649**	**179,458**

Recapitalization funds capital renewal and sustainability projects required to restore the facilities and infrastructure comprising the nuclear weapons complex to an acceptable condition. NNSA has established corporate commitments/performance goals to stabilize deferred maintenance by FY 2005 (achieved in FY 2004), and reduce the legacy deferred maintenance by FY 2009 to less than five percent of replacement plant value for mission facilities and infrastructure projects that support transformation of the complex. The primary executor of these corporate commitments is the Recapitalization subprogram. 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 key to restoring the facilities that house 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 $26,000,000 on its complex-wide Roof Asset Management Program and will invest $11,000,000 in FY 2007 and $10,000,000 in FY 2008 to maintain a corporate approach for the management of NNSA's roofing assets. 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, and additional deferred maintenance reduction.

The focus of the Recapitalization subprogram in FY 2008 will be on achieving its annual legacy deferred maintenance reduction target in support of NNSA's aggressive corporate goal to reduce complex-wide deferred maintenance to within industry standards. The Recapitalization subprogram funding profile aligns with current transformation of the complex outyear planning. The FY 2008-2012 Budget Request reflects a decrease in the funding profiles for FIRP from the FY 2007-FY 2011 Budget Request. Specifically, the FIRP funding level for FY 2008 decreases by 5 percent from the FY 2007 Request, and the FYNSP decreases by 12 percent. These reductions do not restore FIRP funding to the previously planned levels. In order to complete activities under this program, the NNSA submitted a legislative proposal, which was subsequently approved, to extend the FIRP end date by two years (from 2011 to 2013) to enable successful completion of the FIRP mission.

Facility Disposition	**19,200**	**25,000**	**25,000**

Facility Disposition provides funds to accomplish 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 has established a performance goal to reduce the NNSA footprint by three million gross square feet by FY 2009. Annual targets are in place that demonstrate aggressive progress towards achieving this goal. Facility Disposition activities reduce Environment, Safety and Health (ES&H), and safeguards and security requirements, address a portion of the necessary footprint reduction of the

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

complex, improve management of the NNSA facilities portfolio, and reduce long-term costs and risks. FIRP Facility Disposition provides an economical approach to meeting the direction of Congress and supports overall NNSA footprint reduction efforts. Recent independent reviews of disposition costs indicate that the unit costs (i.e., dollars per square foot) compare very favorably with industry norms for the disposition of similar facilities.

Infrastructure Planning	**8,474**	**27,634**	**26,565**

Infrastructure Planning funds planning activities for the next-year Recapitalization projects. Its primary objective is to ensure that projects are adequately planned in advance of project start to permit the timely obligation of construction funds and effective project execution. The Infrastructure Planning 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 (OPC) in anticipation of FIRP Project Engineering and Design (PED) and construction for FIRP utility line items. FIRP projects follow a graded approach for the requirements of DOE Order 413.3A, "*Program and Project Management for the Acquisition of Capital Assets*". 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; procurement support of small business contracts; and planning for the repair and renewal of cross-complex roofing projects.

FIRP Construction	**49,525**	**45,935**	**62,720**

FIRP Construction funds selected utility line item construction projects across the weapons complex to further reduce the deferred maintenance backlog, and satisfy a critical need for improvement to NNSA sites utilities infrastructure. These projects are expected to result in increased efficiencies because it is typically more cost effective to replace, rather than maintain, aging utilities. The projects typically include: electrical power distribution, central steam systems and distribution, central chilled water facilities and distribution, water supply systems, sanitary waste disposal systems, and natural gas distribution systems. FIRP Construction also funds the Project Engineering and Design (PED) of utility line item construction projects. Initial planning and conceptual design activities for proposed FIRP utility line item construction projects (i.e., Other Project Costs) are funded from the Infrastructure Planning subprogram. These construction projects meet the criteria for funding within the FIRP program and are managed in accordance with current Department of Energy and NNSA orders and policies, including DOE Order 413.3A, "*Program and Project Management for the Acquisition of Capital Assets*". All FIRP line item construction projects are rated as "Green" by the DOE Office of Engineering and Construction Management.

▪ **08-D-602, Potable Water System Upgrades, Y-12**	**0**	**0**	**22,500**

The Potable Water System Upgrades project supports the Y-12 National Security Complex Missions by making needed repairs and upgrades (i.e., water distribution with two new tank installations, fire hydrants, backflow prevention, and repair/replacement of cast iron piping) to ensure future reliability of the potable water distribution system and meet regulatory requirements. Potable water is a "mission-essential" utility that supports the operation and protection of every facility and process at Y-12. Without this project, Y-12 will experience an ever-increasing risk of system failure, which can have serious impacts on the plant mission and the health and safety of the workers and the public. The project will: 1) correct system deficiencies within the existing potable water distribution system, 2) make operational modifications to provide Y-12 control and monitoring of water entering the Y-12 distribution system to ensure adequate water flow and pressure to support current and future operational needs, and 3) provide enhanced cross connection control between the potable water system and non-potable water systems. Completion of the PWSU Project will eliminate approximately $25,000,000 in deferred maintenance costs associated with the water distribution system at Y-12. FY 2008 funding will be utilized to award and perform construction subcontractor work.

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
▪ **08-D-601, Replace Mercury Highway, NTS**	**0**	**0**	**7,800**

The objective of this project is to rehabilitate and improve approximately 15 miles of the Mercury Highway, which is the primary access highway for any activity at the Nevada Test Site, including subcritical experiments and future missions. The project will provide for replacement of the existing 40-year-old pavement with a renewed base and asphalt concrete surface. All personnel, heavy equipment, and supplies entering or exiting the forward areas at NTS depend on this route in direct support of the test and waste management areas. The pavement surface has severely deteriorated because of age, ground motion from underground testing, and heavy truck traffic. The on-site performance-based management contractor will perform design and inspection activities associated with this project. Construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding. FY 2008 funding will be utilized to prepare the preliminary and final design, solicit proposals and proceed with physical construction.

	FY 2006	FY 2007	FY 2008
▪ **07-D-253, TA-1 Heating Systems Modernization, SNL**	**0**	**14,500**	**13,000**

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. 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 due to the lack of space in the building. This project will be a design-bid-build acquisition. The M&O 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. PED funding was

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

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 FY 2008 funding ($13,000,000) will be used to convert approximately half of the buildings remaining after the FY 2007 conversions. These buildings are in the middle of Technical Area I and are a mix of older and newer buildings.

	FY 2006	FY 2007	FY 2008
▪ **06-D-603, Steam Plant Life Extension (SPLE) Project, Y-12**	**722**	**17,811**	**15,020**

Funding for the Steam Plant Life Extension (SPLE) project at the Y-12 National Security Complex provides for the repair and/or replacement of existing boiler and auxiliary systems and components. Major scope elements include the following: boiler systems, coal receiving and handling system, forced-draft system, induced-draft system, feed-water system, wet and dry ash handling systems, steam plant wastewater system, steam plant control system, steam plant electrical system, and steam plant structural system. Completion of this project will eliminate approximately $22,000,000 in deferred maintenance costs associated with the steam plant facility at Y-12. PED funding was provided under 05-D-160 for Architectural Engineering services to develop and complete preliminary and final (Title I and II) design of the SPLE. The Total Estimate Cost (TEC) and the Total Project Cost (TPC) for this project are currently being re-evaluated in light of bids received indicating that the estimate for the TPC could increase up to $17,000,000.

	FY 2006	FY 2007	FY 2008
▪ **06-D-602, Gas Main & Distribution System Upgrade (GMDSU), PX**	**3,663**	**3,145**	**1,900**

Funding for this project provides for the construction of the Gas Main & Distribution System Upgrade (GMDSU) at the Pantex Plant. This Project will replace the existing Government-owned gas main and distribution system comprised of approximately 8.4 miles of carbon steel pipe offsite, approximately 5.7 miles of carbon steel pipe onsite, and approximately 4.4 miles of high density polyethylene pipe onsite ranging in diameters from ½" to 12". The GMDSU project will reduce the deferred maintenance backlog by $3,100,000. The project cost for the GMDSU has increased $1,900,000 based on small business bid proposals received in FY 2006. The TEC has increased from $7,899,000 to $9,799,000 and TPC from $8,917,000 to $10,817,000.

	FY 2006	FY 2007	FY 2008
▪ **06-D-601, Electrical Distribution System Upgrade (EDSU), PX**	**3,960**	**6,429**	**2,500**

Funding for this project provides for the construction of the Electrical Distribution System Upgrade (EDSU) at the Pantex Plant. The EDSU project will address three areas of the electrical distribution system that are of questionable reliability due to aging, and/or unavailability of spare parts, which have been prioritized by safety and mission criteria: 1) Ground Fault and Surge Arrester Upgrade, 2) Facility Standby Diesel Generators Upgrade, and 3) the Overhead Electrical Power Line Replacement. 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 the EDSU. The project cost for the EDSU has increased based on lessons learned from recent (FY 2006) construction project bids received by the Pantex Site Office. The TEC increases from $11,976,000 to $18,476,000 and TPC increases from $13,101,000 to $19,601,000. Per Title 50 USCA § 2744, *Limits on construction projects*, the data sheet contained in this budget constitutes formal notification of a cost increase greater than 25 percent. No construction funds will be used until the

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

requirements of Title 50 USCA § 2744 have been satisfied. Additionally, no construction funds will be used until the Performance Baseline has been validated.

	FY 2006	FY 2007	FY 2008
▪ **06-D-160, FIRP Project Engineering and Design (PED) Project**	**5,753**	**2,700**	**0**

This FIRP PED project provides for Architect-Engineering (A-E) services (Title I and Title II) for two utility construction projects that began in FY 2006 (i.e., High Pressure Fire Loop, Zone 12, at Pantex Plant, and Potable Water System Upgrade at Y-12 National Security Complex), allowing designated projects to proceed from conceptual design into preliminary design (Title I) and definitive design (Title II). Based on revised out year FIRP funding, the Electrical Distribution System Upgrade project at the Y-12 National Nuclear Security Complex was withdrawn, and the associated FY 2006 PED funding of $1,300,000 was realigned to Y-12's Potable Water System Upgrade (06-04). In addition, the Replace Main Switchgear Project at Kansas City Plant was terminated due to transformation of the complex decisions, and the associated PED funding of $967,000 was realigned to Y-12's Potable Water System Upgrade (06-04). 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.

	FY 2006	FY 2007	FY 2008
▪ **05-D-603, New Master Substation Unit, Technical Areas I and IV, SNL**	**6,831**	**0**	**0**

This project provided for the New Master Substation Unit (NMSU) for Technical Areas I and IV at Sandia National Laboratories (SNL) in Albuquerque, New Mexico. The NMSU incorporated the design basis features for Sandia's standardized master substations. Standardization of substations allowed for the use of components/sub-systems that have proven operating efficiency and reliability, ease of maintenance, personnel and system safety features, and result in lower spare parts inventory. The new 12.47 kilovolt underground distribution feeder cables connect the NMSU to the existing normal service master substations (Subs 35, 36, 37, & 41) in the Technical Area I-IV campus in a radial/loop configuration. The project enabled procurement and delivery of the main transformer to the site in concert with construction start in FY 2006. PED funding was provided under 04-D-203 for Architect-Engineering (A-E) services to develop and complete preliminary and final (Title I and II) design of the NMSU.

	FY 2006	FY 2007	FY 2008
▪ **05-D-602, Power Grid Infrastructure Upgrade, LANL**	**8,415**	**0**	**0**

The primary objectives of this project at the Los Alamos National Laboratory (LANL) was to construct the Southern Technical Area substation, install a new 115kV transmission line, and address deferred maintenance issues at the Eastern Technical Area substation, thus eliminating future vulnerabilities to the power supply and distribution systems in LANL. This project was accomplished through a design-build acquisition method, which is standard industry practice for

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

this type of project. Design and construction proceeded in parallel; therefore, there were no PED funds requested for this project.

▪ **05-D-601, Compressed Air Upgrades Project, Y-12**	**9,644**	**702**	**0**

This project provides funding to construct the Compressed Air Upgrades Project (CAUP). The objective of this project is to rehabilitate the existing compressed air capability at the Y-12 National Security Complex to maintain a reliable, cost-efficient compressed air capability for current and future buildings and facilities that will, in turn, ensure continued operations of Y-12's production facilities. PED funding was provided under 04-D-203 for Architect Engineering services to develop and complete preliminary and final (Title I and II) design of the CAUP.

▪ **05-D-160, FIRP Project Engineering and Design (PED) Project**	**10,537**	**648**	**0**

This FIRP PED project provides for Architect-Engineering (A-E) services (Title I and Title II) for several utility construction projects that began in FY 2005 (i.e., TA I Heating System Modernization at Sandia National Laboratories, Steam Plant Life Extension (SPLE) Project at Y-12 National Security Complex, and Electrical Distribution System Upgrade and Gas Main and Distribution System Upgrade at Pantex Plant) allowing designated projects to proceed from conceptual design into preliminary design (Title I) and definitive design (Title II). The design effort is sufficient to ensure project feasibility, define 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 are 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.

Total, Facilities and Infrastructure Recapitalization Program	**149,365**	**291,218**	**293,743**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Recapitalization	
The decrease (7%) in Recapitalization funding supports the increase in FIRP FY 2008 line item construction project funding. FIRP Recapitalization funding remains essential to continued progress in restoring the condition of mission essential facilities and infrastructure across the nuclear weapons complex to an acceptable condition.	**-13,191**
Infrastructure Planning	
The slight decrease is in alignment with the Recapitalization subprogram's funding decrease, and supports the continuation of credible, up-front planning and baselining of planned outyear Recapitalization projects. These planning activities will ensure the effective and efficient expenditure of program funds.	**-1,069**
Construction	
The increase supports commencement of two new utility line item construction projects (Potable Water System Upgrade at Y-12 and Mercury Highway at NTS) and reflects an increase for two Pantex line item upgrade projects (Electrical Distribution System Upgrade (EDSU) and Gas Main and Distribution System Upgrade (GMDSU)) that will result in reductions to NNSA's deferred maintenance.	**+16,785**
Total Funding Change, Facilities and Infrastructure Recapitalization Program	**+2,525**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	39,751	81,888	84,344
Capital Equipment	3,008	6,196	6,382
Total, Capital Operating Expenses	**42,759**	**88,084**	**90,726**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	86,874	89,480	92,164	94,928
Capital Equipment	6,574	6,772	6,976	7,186
Total, Capital Operating Expenses	**93,448**	**96,252**	**99,140**	**102,114**

Construction Projects[bc]

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
08-D-601, Mercury Highway, NTS	15,800	0	0	0	7,800	8,000
08-D-602, Potable Water System, Y-12	50,166	0	0	0	22,500	27,666
07-D-253, TA-1 Heating Systems Modernization, SNL	49,524	0	0	14,500	13,000	22,024
06-D-160, Facilities and Infrastructure Recapitalization Program Project Engineering and Design, VL	8,453	0	5,753	2,700	0	0

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2007 and FY 2008 funding shown reflects estimates based on actual year to date FY 2006 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 TEC estimates. Design TEC estimates are reported in the appropriate PED project.

	(dollars in thousands)					
	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
06-D-601, Electrical Distribution System Upgrade, PX	16,889	0	3,960	6,429	2,500	4,000
06-D-602, Gas Main and Distribution System Upgrade, PX	8,708	0	3,663	3,145	1,900	0
06-D-603, Steam Plant Life Extension Project, Y-12	44,831	0	722	17,811	15,020	11,278
05-D-160, Facilities and Infrastructure Recapitalization Program, Project Engineering and Design, VL	19,815	8,630	10,537	648	0	0
05-D-601, Compressed Air Upgrades Project, Y-12	14,711	4,365	9,644	702	0	0
05-D-602, Power Grid Infrastructure Upgrade, LANL	18,336	9,921	8,415	0	0	0
05-D-603, New Master Substation Unit, Technical Area I & IV, SNL	7,426	595	6,831	0	0	0
Total, Construction			**49,525**	**45,935**	**62,720**	**72,968**

Outyear Construction Projects

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
08-D-602, Potable Water System Upgrades, Y-12	27,666	0	0	0
08-D-601, Mercury Highway, NTS	8,000	0	0	0
07-D-253, TA-1 Heating Systems Modernization, SNL	12,000	10,024	0	0
06-D-603, Steam Plant Life Extension Project, Y-12	11,278	0	0	0
06-D-601, Electrical Distribution System Upgrade, PX	4,000	0	0	0
Total, Construction	**62,944**	**10,024**	**0**	**0**

08-D-602 Potable Water System Upgrades (PWSU) Project
Y-12 National Security Complex, Oak Ridge, Tennessee

1. Significant Changes

- None

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2008	2Q FY 2006	1Q FY 2008	2Q FY 2008	4Q FY 2010	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2008	56,933	5,625	N/A	62,558	62,558	N/A

4. Project Description, Justification, and Scope

Project Description

The Potable Water System Upgrades (PWSU) project will support the Y-12 National Security Complex Missions by making needed repairs and upgrades to ensure future reliability of the potable water distribution system and meet regulatory requirements.

Potable water is a “mission-essential” utility that supports the operation and protection of every facility and process at Y-12. Without this project, Y-12 will experience an ever-increasing risk of system failure, which can have serious impacts on the plant mission and the health and safety of the workers and the public.

This project directly supports the Y-12 mission including the Stockpile Stewardship Program and supports the recommendation of the December 2001 Nuclear Posture Review to revitalize the defense infrastructure. The project will increase system reliability, enhance worker health and safety, and provide Y-12 control and monitoring of water supplies while reducing the deferred maintenance backlog by an estimated $25,000,000.

Justification

The Y-12 National Security Complex supports the National Nuclear Security Administration (NNSA) Defense Programs Stockpile Stewardship Program (SSP) and Stockpile Life Extension Program (SLEP) by performing missions vital to NNSA.

For Y-12 to continue to meet its mission, the existing water distribution system must be upgraded to a condition that will provide a reliable, cost-effective source of water to the Y-12 NSC. Without the PWSU Project, the reliability of the existing water system will continue to degrade, and at some point, major maintenance actions will be required to continue service. To continue to operate the water system in the current condition is not considered a viable option as it would increase the vulnerability of losing water service to critical facilities, which in turn could result in loss of mission capability at Y-12.

Scope

The project will include: 1) correction of system deficiencies within the existing potable water distribution system, 2) upgrades to increase water pressure while providing Y-12 control and monitoring of water entering the Y-12 distribution system to ensure adequate water flow and pressure to support current and future operational needs, and 3) provision of enhanced cross connection control between the potable water system and non-potable water systems which do not currently exist.

First, correction of system deficiencies will include inspection and selective repair or replacement of distribution mains, replacement of potable and firewater building supply lines, and replacement of obsolete fire hydrants.

Second, the PWSU project will supply water from a new pumping station to two new tanks located along the east of Bear Creek Road. These two tanks will feed the plant distribution system via new supply lines. This will allow Y-12 to maintain increased and stable water pressure in the event of a water main break in Oak Ridge.

Finally, National, State, and Local laws require backflow prevention and cross connection control between potable and non-potable water sources. All process uses at Y-12 are required to have an approved backflow prevention device (BFPD) installed. Site design standards also require that all new or modified automatic fire suppression systems be supplied with approved BFPDs. This project will install BFPDs on existing fire suppression systems which contain additives.

Completion of the PWSU Project will eliminate approximately $25,000,000 in deferred maintenance costs associated with the water distribution system at Y-12. As part of that amount, a $6,500,000 reduction in the deferred maintenance backlog has been realized as a result of the pipe evaluation program.

FY 2008 funding will be utilized to award and perform construction subcontractor work.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

The project has received approval of Critical Decision 0 (CD-0), Approval of Mission Need in August 2004, Critical Decision 1 (CD-1) in January 2006, and Critical Decision (CD-2) in December 2006.

Compliance with Project Management Order

- Critical Decision – 0: Approve Mission Need – 08/20/2004
- Critical Decision – 1: Approve Preliminary Baseline – 01/23/2006
- Critical Decision – 2: Approve Performance Baseline – 12/1/2006
- External Independent Review Final Report – 6/16/2006
- Critical Decision – 3: Approve Start of Construction – 3Q FY 2007
- Critical Decision – 4: Approve Start of Operations – 4Q FY 2010
- Project Closeout: 1Q FY 2011

5. Financial Schedule (dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
2006	4,067[a]	4,067	1,654
2007	2,700	2,700	4,302
2008	0	0	811
Total, Design (PED No. 06-D-160-04)	6,767	6,767	6,767
Construction			
2008	22,500	22,500	17,345
2009	27,666	27,666	31,776
2010	0	0	866
2011	0	0	179
Total, Construction	50,166	50,166	50,166
Total TEC	56,933	56,933	56,933

[a] The FY 2007 Congressional Budget 06-D-160 PED-FIRP Construction Project Data Sheet reflected $3,100,000 for Potable Water System Upgrade (06-04), FY 2006 PED funds in the amount of $967,000 were realigned within the PED project for a total of $4,067,000 for the PWSU project.

6. Details of Project Cost Estimate

Total Estimated Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Preliminary and Final Design	6,767	N/A
Construction Phase		
Site Preparation	N/A	N/A
Equipment	N/A	N/A
All other construction	39,998	N/A
Contingency	10,168	N/A
Total, Construction	50,166	N/A
Total, TEC	56,933	N/A

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	2,500	N/A
External Independent Review	125	N/A
Pre-Existing Pipe Evaluation/Inspection and hazard analysis	2,384	N/A
Start-up	179	N/A
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with “one-for-one” requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D (and other OPC's)	437	N/A
Total, OPC	5,625	N/A

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Outyears	Total
TEC(Design)	0	1,924	4,032	811	0	0	0	6,767
TEC (Construction)	0	0	0	17,345	31,776	866	179	50,166
OPC Other than D&D	2,000	1,525	400	400	600	700	0	5,625
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	2,000	3,449	4,432	18,556	32,376	1,566	179	62,558

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	4Q 2010
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	602	N/A	18,060	N/A
Maintenance	422	N/A	12,660	N/A
Total Related funding	1,024	N/A	30,720	N/A

9. Required D&D Information

N/A

10. Acquisition Approach

The Management and Operating (M&O) Contractor will accomplish portions of the design and construction using subcontracts. Acquisition strategies that will be used for subcontracts include various project delivery systems such as design-bid-build and design build. Various construction contracting methods including competitive bidding and self-performance along with best value to the government will be considered.

08-D-601, Mercury Highway
Nevada Test Site

1. Significant Changes

- None.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2008	1QFY2008	4QFY2008	3QFY2009	4QFY2009	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate TPC Range
FY 2008	15,800	450	N/A	16,250	N/A[a]	15,500-18,700

4. Project Description, Justification, and Scope

Project Description

The project will provide for the rebuilding and restoration of approximately 15 miles of the Mercury Highway at the Nevada Test Site (NTS).

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.

[a] Construction funds will be used to complete final design and solicit proposals prior to Performance Baseline being validated.

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.
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 of some of the more important programs and/or facilities that depend on Mercury Highway as their primary access route.

- The Device Assembly Facility (Area 6)
- U1a/U1h Complex (Area 1)
- The Control Point (CP) Complex (Area 6)
- Area 6 Construction Facilities (includes the Atlas Machine facility)
- High Explosives Facilities (Area 4), which includes the Big Explosives Experimental Facility (BEEF)
- Explosive Ordnance Disposal Site (Area 11)
- The Area 3 Radioactive Waste Management Site (Area 3)
- Industrial Complex (Area 1)
- Test Readiness (Areas 6, 2, 3, 12, 19, and 20)

Scope

This project will rehabilitate and improve approximately 15 miles of the Mercury Highway including widening from 24 to 26 feet and increasing the pavement section. This project will significantly extend the useful life of Mercury Highway (20-30 years or more). In addition, this project increases the structural capacity of the road allowing for increased load carrying capability and a greater number of vehicle trips than before. The increased capacity also improves the long-term "safety" aspect of the highway. Since Mercury Highway was first put into service over 40 years ago, the requirements of the NTS Missions that depend on this highway have substantially increased in terms of vehicle types, loads, and numbers of trips. The end product of this project will be a safer and better quality road that can handle a higher capacity of traffic than the original road. This project will realize approximately $17,000,000 of deferred maintenance buy-down, which ties into the Fiscal Year (FY) 2003 Baseline.

The FY 2008 funding will be utilized to complete final design, solicit proposals and proceed with physical construction.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

<u>Compliance with Project Management Order</u>

- Critical Decision – 0: Approve Mission Need – July 7, 2006
- Critical Decision – 1: Approve Alternative Selection and Cost Range – 4Q FY 2007
- External Independent Review (if required) Final Report – 2Q FY 2009
- Critical Decision 2/3: Approve Performance Baseline/Approve Start of Construction – 2Q FY 2009

- Critical Decision – 4: Approve Start of Operations – 1Q FY 2010

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design/Construction			
2008	7,800	7,800	250
2009	8,000	8,000	15,450
2010	0	0	100
Total, Design/Construction	15,800	15,800	15,800
Total TEC	15,800	15,800	15,800

6. Details of Project Cost Estimate

Total Estimated Costs

Cost Element	Current Estimate ($000)
Design and Construction Phase	
Site Preparation	N/A
Equipment	N/A
All other construction	12,750
Contingency	3,050
Total, Design/Construction	15,800
Total, TEC	15,800

Other Project Costs

Cost Element	Current Estimate ($000)
Conceptual Planning	410
Start-up	N/A
Offsetting D&D	
D&D for removal of the offsetting facility	N/A
Other D&D to comply with “one-for-one” requirements	N/A
D&D contingency	N/A
Total, D&D	N/A
Contingency for OPC other than D&D	40
Total, OPC	450

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC (Design and Construction)	0	0	250	15,450	100	0	0	15,800
OPC Other than D&D	300	150	0	0	0	0	0	450
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	300	150	250	15,450	100	0	0	16,250

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	1QFY2010
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	TBD	N/A	TBD	N/A
Maintenance	TBD	N/A	TBD	N/A
Total Related funding	TBD	N/A	TBD	N/A

9. Required D&D Information

N/A.

10. Acquisition Approach

Design and inspection will be performed by the on-site performance-based management contractor. Construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

07-D-253 TA-1 Heating Systems Modernization
Sandia National Laboratories, New Mexico[a]

1. Significant Changes

- None.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2006	2Q FY 2005	3Q FY 2006	2Q FY 2007	2Q FY 2011	1Q FY 2010	1Q FY 2011
FY 2007	2Q FY 2005	3Q FY 2006	2Q FY 2007	2Q FY 2011	1Q FY 2010	1Q FY 2011
FY 2008	2Q FY 2005	3Q FY 2006	2Q FY 2007	2Q FY 2011	1Q FY 2010	1Q FY 2011

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs[b]	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2007	55,393[c]	3,178	6,159	58,571[c]	58,678	54,000-63,500
FY 2008	55,393	3,178	6,159	58,571	58,678	58,678

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 fuel oil system that serves as a second energy source for the central steam plant will have the inventory reduced through burning, and the remainder pumped out for removal. The tanks and piping will be removed and made available for reapplication or salvage. Finally, the steam pits that contain

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, new starts may be deferred. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] D&D costs are included in the Total Estimated Cost (TEC).

[c] 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.

asbestos materials will be abated and abandoned in place. All steam and condensate piping will be abandoned in place.

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% 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.
- Comply with applicable environmental regulations.

The FY08 funding ($13,000,000) will be used to convert approximately half of the buildings remaining after the FY07 conversions. These buildings are in the middle of Technical Area I and are a mix of older and newer buildings.

The anticipated deferred maintenance reduction associated with this project is $37,420,000.

The project has been and will be conducted in accordance with the project management requirements in DOE Order 413.3 "Program and Project Management for the Acquisition of Capital Assets" and DOE Manual 413.3-1, "Project Management for the Acquisition of Capital Assets."

Compliance with Project Management Order:

- Critical Decision – 0: Approve Mission Need – December 2003
- Critical Decision – 1: Approve Preliminary Baseline Range – March 2005
- External Independent Review Final Report – November 2005
- Critical Decision – 2: Approve Performance Baseline – November 2005
- Critical Decision – 3: Approve Start of Construction – 1Q FY07
- Critical Decision – 4: Approve Start of Operations – 2Q FY11

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design[a]			
2005	2,976[b]	2,976	1,896
2006	2,893[c]	2,893	2,703
2007	0	0	1,270
Total, Design (05-D-160)	5,869	5,869	5,869
Construction			
2007	14,500	14,500	12,992
2008	13,000	13,000	11,496
2009	12,000	12,000	14,997
2010	10,024	10,024	8,601
2011	0	0	1,438
Total, Construction	49,524	49,524	49,524
Total, TEC	55,393	55,393	55,393

[a] Design funding was appropriated in 05-D-160, Project Engineering and Design.

[b] The FY 2005 appropriated amount of $3,000,000 was reduced by $24,000 to $2,976,000 by a rescission (P.L. 108-447).

[c] The FY 2006 appropriated amount of $3,000,000 was reduced by $106,440 to $2,893,560 by a rescission (P.L. 109-148).

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Costs	Previous Costs
Preliminary and Final Design	5,869	5,869
Construction Phase		
Utilities	93	93
Buildings	25,243	25,243
Demolition	6,035	6,035
Standard Equipment	3,159	3,159
Inspection, Design and project liaison, testing, checkout and acceptance	4,438	4,438
Construction Management	3,717	3,717
Contingency	6,839	6,839
Total, Construction	49,524	49,524
Total, TEC	55,393	55,393

Other Project Costs

(dollars in thousands)

Cost Element	Current Costs	Previous Costs
Conceptual Planning	1,081	1,081
External Independent Review[a]	125	125
ES&H	1,636	1,636
Start-up	134	134
D&D Phase		
D&D for removal of the existing facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total D&D	N/A	N/A
Contingency for OPC other than D&D	202	202
Total, OPC	3,178	3,178

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC(Design)	4,599	1,270	0	0	0	0	0	5,869
TEC (Construction)	0	12,992	11,496	14,997	8,601	1,438	0	49,524
OPC Other than D&D	1,249	221	551	860	163	134	0	3,178
D&D Costs	0	0	0	0	0	0	0	0
Total Project Costs	5,848	14,483	12,047	15,857	8,764	1,572	0	58,571

[a] Other Project Costs increased by $100,000 reflecting Congressional requirement for program to fund External Independent Review.

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	2QFY2010
Expected Useful Life (number of years)	30
Expected Future start of D&D for new construction (fiscal quarter)	1QFY2010

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	1,659	N/A	36,389	N/A
Maintenance	450	N/A	8,596	N/A
Total Related funding	2,109	N/A	44,985	N/A

9. Required D&D Information

This project includes the potential for building small, utility buildings or building additions to house new boilers (up to 5,000 square feet based on the Conceptual Design). The existing central steam plant will be decommissioned, decontaminated and demolished as part of the project. The central steam plant includes 18,307 square feet of space. New construction will be offset with banked gross square footage (GSF) when excess facilities are demolished; when the older steam plant is eliminated, the GSF will then be banked. Thus at least 13,307 (18,307 less 5,000) square feet will be removed over and above the planned project space addition. Due to the nature of the project, the additions will occur first, as early as FY2007, while the removal will occur in FY2010.

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

Building 605, Steam Plant, at SNL NM

D&D Information Being Requested	Square Feet
Area of new construction	~5,000
Area of existing facility(ies) being replaced	18,307
Area of any additional space that will require D&D to meet the “one-for-one” requirement	N/A

10. Acquisition Approach

This project will be a design-bid-build acquisition. The Managing 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.

06-D-603, Steam Plant Life Extension (SPLE) Project
Y-12 National Security Complex, Oak Ridge, Tennessee[a]

1. Significant Changes

- On August 25, 2006, the Y-12 Site Office (YSO) was notified by BWXT that a re-evaluation of the estimated Total Project Costs (TPC) for this project had been completed in light of bids received and indicated that the estimate for the TPC of this project could increase up to $17,000,000. Rather than accepting the proposed 27% cost increase, the Acquisition Executive directed a complete re-examination of all reasonable alternatives, including line item cancellation, a reduced scope option; and an analysis of a gas fired boiler option to be performed by an independent third party (Sandia National Laboratory). It appears likely that the results of this analysis will allow the project to not only maintain the current baseline, but may also result in a cost reduction from the baseline. Pending the results of this study in 2Q FY 2007, expenditure of the FY 2007 and FY 2008 (requested) appropriations will remain on "hold".

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2006	3Q FY 2005	4Q FY 2006	3Q FY 2007	1Q FY 2010	N/A	N/A
FY 2007	2Q FY 2005	3Q FY 2008	3Q FY 2007	1Q FY 2010	N/A	N/A
FY2008	2Q FY 2005	3Q FY 2008	3Q FY 2007	1Q FY 2010	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC [bc]	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2006	44,867	5,363 [d]	N/A	50,230	12/05	47,700-60,000
FY 2007	56,099	5,358	N/A	61,457[d]	11/05	61,457
FY 2008	56,099	5,358	N/A	61,457[d]	61,457	N/A

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] The TEC and TPC reflect a rescission of 1 percent included in the Department of Defense Appropriations Act 2006, P.L. 109-148.

[c] The TEC and TPC for this project are currently being re-evaluated.

[d] Two Baseline Change Proposals were executed to increase the Other Project Costs (OPC) funds.

4. Project Description, Justification, and Scope

Project Description

The objective of the Steam Plant Life Extension (SPLE) Project is to refurbish the existing steam service to ensure the reliability and affordability of this "mission essential" utility service in support of NNSA and other DOE missions at the Y-12 National Security Complex. The end-of-life for the existing steam plant is currently projected to be nominally year 2010.

This project directly supports the recommendation of the December 2001 Nuclear Posture Review to revitalize the defense infrastructure to increase confidence in the deployed forces, eliminate unneeded weapons, and mitigate the risks of technological surprise. It directly contributes to the DOE Strategic Theme 2, Nuclear Security: Ensuring America's Nuclear Security. It also supports achievement of DOE Goal 2.1, Nuclear Deterrent: Transform the Nation's nuclear weapons stockpile and supporting infrastructure to be more responsive to the threats of the 21st Century.

In FY 2008, the project will award the second portion of the construction subcontract and continue construction activities on the steam plant. The final design effort will be completed during this period. This period will include the second boiler system outage and repairs/replacements.

Justification

The existing steam plant has been operating continuously since its construction in 1954. A service life extension upgrade completed in the mid-1980s extended the life of three of the four boilers (boilers 1, 2, and 4) and supporting auxiliaries to about 2010 (boiler 3 was not upgraded). The steam plant has undergone no other significant modifications or upgrades.

In its current condition, the plant is approaching the end of its useful life. An inspection in FY2003 found boiler 4 to be in good condition. Boilers 1 and 2 have a history similar to that of boiler 4 and are also judged to be in reasonable condition. Boiler 3 has been placed in safe shutdown and is planned to remain out of service due to reduced steam production requirements and significant costs for restoring it to a safe and reliable operating condition. Some components of the auxiliary equipment, including the coal-handling system, feedwater system, forced-draft system, induced-draft system, ash-handling systems, electrical systems, and the plant instrumentation and control systems, are antiquated and in various states of deterioration. These components are deemed to be unreliable, technologically obsolete, and inefficient. Spare parts for many systems are not readily available.

For Y-12 to continue to meet its mission, the existing steam-generating capability must be replaced or restored to a condition that will provide a reliable, cost-effective source of steam to the Y-12 National Security Complex.

If the SPLE Project is not completed by 2010, failure of the existing steam service may occur, and major restoration actions will be required to restore service. Failure of steam service would potentially result in loss of mission capability at Y-12.

As noted in the "Significant Changes" section, several new approaches, including utilizing gas-fired boilers is currently being evaluated.

Scope

If the coal fired option is maintained, this project includes the repair and/or replacement of existing boiler and auxiliary systems and components. Major scope elements include the following: Boiler systems, coal receiving and handling system, forced-draft system, induced-draft system, feedwater system, wet and dry ash handling systems, steam plant wastewater treatment facility (SPWTF), steam plant control system, steam plant electrical system, and steam plant structural system.

Completion of this project will eliminate $21,970,000 in deferred maintenance costs associated with the steam plant facility at Y-12.

FY 2008 funding will be utilized to continue the fixed price construction work along with equipment tie-ins, testing, and checkout.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

<u>Compliance with Project Management Order</u>

- Critical Decision – 0: Approve Mission Need – November 13, 2003
- Critical Decision – 1: Approve Preliminary Baseline Range – October 19, 2004
- External Independent Review Final Report – November 16, 2005
- Critical Decision – 2/3A: Approve Performance Baseline and Long-Lead Procurement – November 22, 2005
- Critical Decision – 3B: Approve Start of Construction – 2Q FY 2007
- Critical Decision – 4: Approve Start of Operations – 4Q FY 2010

5. Financial Schedule

	(dollars in thousands)		
	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design[a]			
2005	2,976	2,976[b]	2,583
2006	7,644	7,644	6,825
2007	648	648	1,075
2008	0	0	785
Total, Design (PED No. 05-D-160)	11,268	11,268	11,268
Construction			
2006	722[c]	722	0
2007	17,811	17,811	16,660
2008	15,020	15,020	13,178
2009	11,278	11,278	13,000
2010	0	0	1,993
Total, Construction	44,831	44,831	44,831
Total TEC	56,099[d]	56,099	56,099

[a] Design accomplished in 05-D-160, Project Engineering and Design (PED).

[b] The FY 2005 appropriated amount of $3,000,000 was reduced by $24,000 by a rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

[c] The FY 2006 appropriated amount of $729,000 was reduced by $7,290 by a rescission of 1 percent included in the Department of Defense Appropriations Act 2006 (P.L. 109-148).

[d] The TEC and TPC for this project are currently being re-evaluated.

6. Details of Project Cost Estimate

Total Estimated Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Preliminary and Final Design	11,268	11,268
Construction Phase		
Site Preparation	0	0
Equipment	4,800	4,800
All other construction	31,038	31,038
Contingency	8,993	8,993
Total, Construction	44,831	44,831
Total, TEC	56,099[a]	56,099

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	1,066	1,066
External Independent Review	125	125
Start-up	3,952	3,952
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with “one-for-one” requirements	0	0
D&D contingency	0	0
Total, D&D	0	0
Contingency for OPC other than D&D	215	215
Total, OPC	5,358	5,358

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC(Design)	9,408	1,075	785	0	0	0	0	11,268
TEC (Construction)	0	16,660	13,178	13,000	1,993	0	0	44,831
OPC Other than D&D	2,665	728	1,045	600	320	0	0	5,358
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	12,073	18,463	15,008	13,600	2,313	0	0	61,457[a]

[a] The TEC and TPC for this project are currently being re-evaluated.

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter).................	4Q FY 2010
Expected Useful Life (number of years)..	15
Expected Future start of D&D for new construction (fiscal quarter).....	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	3,800	3,800	57,000	83,600
Maintenance	3,300	3,300	49,500	72,600
Total Related funding	7,100	7,100	106,500	156,200

9. Required D&D Information

N/A

10. Acquisition Approach

Overall project direction and responsibility for this project resides with the NNSA. NNSA has assigned day-to-day management of project activities to the Y-12 management and operating (M&O) contractor, BWXT Y-12, including design, procurement, construction, and commissioning.

The M&O will be responsible for the management of all design activities. Preliminary design (Title I), final design (Title II), and Title III/construction support for the overall scope of work will be performed primarily by fixed price Architect/Engineer (A/E) subcontractors. BWXT Y-12 Engineering will perform Title I, II and III for the Steam Plant Wastewater Treatment Facility subproject and other small items.

A specialty control systems subcontractor working with the A/E and the construction subcontractor will design and supply the control systems equipment and components. The M&O will procure long lead equipment based on performance specifications provided by the overall A/E subcontractor. The construction subcontractor will procure normal construction materials and commodities.

The M&O will be responsible for the management of all construction, installation, and demolition. To the extent practical, construction will be performed using a subcontract that is awarded based on fixed-price competitive bidding. When allowed by labor standards, M&O maintenance forces will provide tie-ins and other support to the construction subcontractor. The M&O direct hire, Q-cleared forces may be required for specific construction activities. The A/E and the M&O will perform Title III/construction support with support from the control systems subcontractor and vendors.

The M&O will perform all transition to operations activities including the preparation of operating and maintenance procedures, training of the M&O staff, startup testing of facilities, transition, and all readiness assessments. Subcontractors and vendors may be used to provide task-based support for these activities.

06-D-602, Gas Main and Distribution System Upgrade
Pantex Plant, Amarillo, Texas[a]

1. Significant Changes

- The project cost for the Gas Main and Distribution System Upgrade (GMDSU) has increased following a bid proposal received in FY 2006. There is an increase of $1,900,000 in construction cost based on the small business construction proposals received. The project TEC has increased from $7,899,000 to $9,799,000 and the TPC has risen from $8,917,000 to $10,817,000.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2005	1Q FY 2005	3Q FY 2006	3Q FY 2006	4Q FY 2007	N/A	N/A
FY 2006	2Q FY 2006	2Q FY 2007	3Q FY 2006	3Q FY 2008	N/A	N/A
FY 2007	4Q FY 2005	2Q FY 2007	1Q FY 2007	2Q FY 2008	N/A	N/A
FY 2008	4Q FY 2005	1Q FY 2008	1Q FY 2008	2Q FY 2009	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2005	4,800[b]	1,570	0	6,370	N/A	3,700 – 5,970
FY 2006	4,791	1,570	0	6,361	N/A	3,700 – 5,970
FY 2007	7,899	920	0	8,819	N/A	7,700 – 10,214
FY 2008	9,799	1,018	0	10,817	N/A*	9,600 – 12,114

** No construction funds will be used until the Performance Baseline has been validated.*

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] The TEC was reduced to $4,791,000 due to the FY2005 rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

4. Project Description, Justification, and Scope

The Gas Main and Distribution System Upgrade project has been identified as a high priority project in the 2006 Pantex Ten Year Site Plan (TYSP). The existing gas distribution system was installed in the 1940s, and consists of schedule 40 carbon steel pipe and high-density polyethylene (HDPE) pipe in diameters ranging from ½ inch to 12 inches. This project addresses those areas of the gas main and distribution system that are of questionable reliability due to aging and use of old technologies. Specific areas of concern are as follows:

- Pipe Line Replacement / Upgrade

  Failures in the gas main and distribution lines are occurring in the ductile iron pipe sections that were installed in 1940s. This project will replace all steel / metal pipelines with high-density polyethylene plastic pipe.

- Upgrade of Appurtenances

  Instrumentation required to regulate and meter the natural gas flow from the supplier will be upgraded with the latest technological devices. The installation of a new isolation valve will allow for the isolation of the gas main at the Pantex Plant boundary. This will provide shutdown capability should an incident occur that requires gas isolation.

- Cathodic Protection Installation

  Sacrificial anodes for the valves and connection rings will provide cathodic protection for the new pipeline. The existing deep well anode beds associated with the existing metal pipeline will be abandoned in-place.

The Pantex Plant is a critical resource in the NNSA nuclear weapons mission, and the Gas Main and Distribution System Upgrade is a Facilities and Infrastructure Recapitalization Project (FIRP) Line Item project designed to extend the life of the gas distribution system, reduce operational impacts, and reduce maintenance.

The anticipated deferred maintenance reduction associated with this Project is $3,100,000.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3A and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

Compliance with Project Management Order

- Critical Decision – 0: Approve Mission Need – November 2003

- Critical Decision – 1: Approve Preliminary Baseline Range – October 2005
- External Independent Review Final Report – Not Required

- Critical Decision – 2/3: Approve Performance Baseline, and
  Approve Start of Construction – 3Q FY 2007 *

- Critical Decision – 4: Approve Start of Operations – 3Q FY 2009 *

* *Performance baseline has not been validated and milestones are preliminary.*

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design[a]			
2005	1,091[b]	1,091	50
2006	0	0	550
2007	0	0	491
Total, Design (06-D-602)	1,091	1,091	1,091
Construction			
2006	3,663[c]	3,663	
2007	3,145	3,145	2,500
2008	1,900	1,900	4,345
2009	0	0	1,863
Total, Construction	8,708	8,708	8,708
Total TEC	9,799	9,799	9,799

[a] Design funding was appropriated in 05-D-160, Project Engineering and Design (PED).

[b] The FY 2005 appropriated amount of $1,100,000 was reduced by $9,000 to $1,091,000 by a rescission (P.L. 108-447).

[c] The FY 2006 appropriated amount of $3,700,000 was reduced by $37,000 to $3,663,000 by a rescission (P.L. 109-148).

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design	1,091	1,091
Construction Phase		
Site Preparation	65	65
Equipment	0	0
All other construction	7,343	4,480
Contingency	1,300	2,263
Total, Construction	8,708	6,808
Total, TEC	9,799	7,899

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	676	553
External Independent Review (EIR)	0	125
Start-up	195	195
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with “one-for-one” requirements	0	0
D&D contingency	0	0
Total, D&D	0	0
Contingency for OPC other than D&D	147	47
Total, OPC	1,018	920

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC (Design)	600	491	0	0	0	0	0	1,091
TEC (Construction)	0	2,500	4,345	1,863	0	0	0	8,708
OPC Other than D&D	848	100	70	0	0	0	0	1,018
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	1,448	3,091	4,415	1,863	0	0	0	10,817

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	3Q FY09
Expected Useful Life (number of years)	25
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	143	200	3,575	5,000
Maintenance	40	50	1,000	1,250
Total Related funding	183	250	4,575	6,250

9. Required D&D Information

N/A

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

N/A

D&D Information Being Requested	Square Feet
Area of new construction	N/A
Area of existing facility(ies) being replaced	N/A
Area of any additional space that will require D&D to meet the “one-for-one” requirement	N/A

10. Acquisition Approach

NNSA is tentatively proposing a small business set aside design-build acquisition, to be administered by DOE/NNSA. The small business design-build firm will provide Title I, II, and III services, and the USACE, with support from the M&O contractor, is tentatively planned to perform the Construction management services. The design-build contract will be awarded by DOE/NNSA to a Native American owned small business firm.

06-D-601, Electrical Distribution System Upgrade
Pantex Plant, Amarillo, Texas[a]

1. Significant Changes

- The project cost for the Electrical Distribution System Upgrade (EDSU) has increased based on lessons learned from recent (FY 2006) other construction project bids received by the Pantex Site Office. There is an increase of $6,500,000 ($2,500,000 in FY 2008 and $4,000,000 in FY 2009) in construction cost based on the small business construction proposals received.

- The project TEC (construction & contingency) increases from $11,976,000 to $18,476,000 and TPC increases from $13,101,000 to $19,601,000. Per Title 50 USCA § 2744, *Limits on construction projects*, this data sheet constitutes formal notification of cost increases greater than 25 percent. No construction funds will be used until the requirements of Title 50 USCA § 2744 have been satisfied.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2006	1Q FY 2005	4Q FY 2006	4Q FY 2006	3Q FY 2008	N/A	N/A
FY 2007	1Q FY 2005	4Q FY 2006	4Q FY 2006	4Q FY 2008	N/A	N/A
FY 2008	1Q FY 2005	4Q FY 2006	4Q FY 2007	4Q FY 2009	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2005	9,700	1,000	0	10,700	N/A	9,630-13,380
FY 2006[b]	9,687	1,000	0	10,687	N/A*	9,630-13,380
FY 2007	11,976	1,125	0	13,101	13,101*	9,630-13,380
FY 2008	18,476	1,125	0	19,601	19,601	16,130-19,880

* *No construction funds will be used until the Performance Baseline has been validated.*

4. Project Description, Justification, and Scope

The Electrical Distribution System Upgrade project has been identified as a high priority project in the Pantex Plant Ten Year Comprehensive Site Plan. A key element of the site infrastructure is the electrical power distribution system. This project addresses three areas of the electrical distribution system that are of questionable reliability due to code noncompliance, aging equipment, and unavailability of replacement parts. Specifically the three areas are as follows:

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] The TEC was reduced to $9,687,000 due to the FY2005 rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

- Generator / UPS / Panelboard / HVAC Replacement: A short circuit/coordination study of the Pantex Plant's 12470, 480, and 208-volt distribution systems completed in 1994/1995 identified substations and equipment that had ground fault/coordination deficiencies in violation of the National Electrical Code. These codes were adopted subsequent to Pantex electrical distribution equipment installation and require substations and distribution equipment to be protected from ground faults and line surges. The project design and construction will bring Pantex distribution equipment into compliance with the National Electrical Code. Facility generators and Uninterruptible Power Supplies (UPS) will be replaced that have operations and maintenance problems due to their age, obsolescence and difficulty in obtaining parts as the equipment ages. HVAC unit associated with the UPS must also be replaced, in order to keep UPS batteries below required operating temperature. Facilities utilizing these generators and UPS have been deemed critical or mission essential, to Pantex Plant operations.

- Overhead Electrical Power Line Replacement: The existing overhead primary pole and underground secondary lines are 30 to 50 years old. Lines are deteriorating to the point that a major fault or weather incident could destroy lines affecting critical facilities, systems and equipment, and potentially cause a major outage to the Pantex plant.

The deferred maintenance reduction associated with this project is $2,970,000 (FY 2003 baseline).

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

<u>Compliance with Project Management Order</u>

- Critical Decision – 0: Approve Mission Need – October 2003

- Critical Decision – 1: Approve Preliminary Baseline Range – September 2004

- Critical Decision – 2: Approve Performance Baseline – December 2005

- External Independent Review Final Report – August 2005

- Critical Decision – 3: Approve Start of Construction – 4 Q FY 2007

- Critical Decision – 4: Approve Start of Operations – 4 Q FY 2009

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design [a]			
2005	1,587[b]	1,587 [b]	900
2006	0	0	400
2007	0	0	287
Total, Design (06-D-601)	1,587	1,587	1,587
Construction			
2006	3,960[c]	3,960[c]	2
2007	6,429	6,429	498
2008	2,500	2,500	9,500
2009	4,000	4,000	6,889
2010	0	0	0
Total, Construction	16,889	16,889	16,889
Total TEC	18,476	18,476	18,476

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design	1,587	1,587
Construction Phase		
Site Preparation	0	0
Equipment	0	0
All other construction	14,303	8,803
Contingency	2,586	1,586
Total, Construction	16,889	10,389
Total, TEC	18,476	11,976

[a] The TEC includes the cost of preliminary and final design ($1,600,000) which was appropriated in 05-D-160-03, Project Engineering and Design (PED).

[b] The FY 2005 appropriated amount of $1,600,000 was reduced by $13,000 to $1,587,000 by a rescission (P.L. 108-447)

[c] The FY 2006 appropriated amount of $4,000,000 was reduced by $40,000 to $3,960,000 by a rescission (P.L. 109-148)

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	700	700
External Independent Review [a]	125	125
Start-up	100	100
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with "one-for-one" requirements	0	0
D&D contingency	0	0
Total, D&D	0	0
Contingency for OPC other than D&D	200	200
Total, OPC	1,125	1,125

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC (Design)	1,300	287	0	0	0	0	0	1,587
TEC (Construction)	2	498	9,500	6,889	0	0	0	16,889
OPC Other than D&D	1,025	100			0	0	0	1,125
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	2,327	885	9,500	6,889	0	0	0	19,601

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	4Q FY09
Expected Useful Life (number of years)	25
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	560	560	14,000	N/A
Maintenance	200	200	5,000	N/A
Total Related funding	760	760	19,000	N/A

[a] Other Project Costs increased by $125,000 reflecting congressional requirement for program to fund External Independent Review.

9. Required D&D Information

N/A

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

N/A

D&D Information Being Requested	Square Feet
Area of new construction	N/A
Area of existing facility(ies) being replaced	N/A
Area of any additional space that will require D&D to meet the “one-for-one” requirement	N/A

10. Acquisition Approach

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

Environmental Projects and Operations

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Environmental Projects and Operations – Program			
Long-Term Stewardship	0	17,211	17,518
Total, Environmental Projects and Operations – Program	**0**	**17,211**	**17,518**

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Environmental Projects and Operations – Program				
Long-Term Stewardship	32,471	29,923	30,864	31,574
Total, Environmental Projects and Operations – Program	**32,471**	**29,923**	**30,864**	**31,574**

Mission

Environmental Projects and Operations Program (EPO) activities continue to reduce risks to human health and the environment at National Nuclear Security Administration (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 as part of Long-Term Stewardship (LTS) that assures compliance with federal, state, and local requirements. The mission of the NNSA's EPO Management Team is to provide effective oversight of these activities and ensure integration of a responsible environmental stewardship program with the NNSA's stockpile stewardship and national security efforts.

Beginning in FY 2007, NNSA assumed responsibility for the funding and management of Long-Term Stewardship at NNSA sites that have a continuing mission and current operations. The EPO program supports LTS activities such as groundwater treatment; environmental monitoring of surface water, ground water, soils, and landfill remedies; reporting and liaison requirements for various states and surveillance/monitoring of contaminated decommissioned buildings that were not demolished under the previous Environmental Management program cleanup mission. These LTS activities are funded within the Weapons Activities appropriation.

The NNSA, working in concert with other Federal agencies, states, and affected stakeholders, will execute its LTS activities in a cost-effective, compliant and safe manner consistent with end states that support the nuclear weapons complex mission. The NNSA's business strategy for accomplishing these LTS responsibilities have been integrated into the NNSA's business model and Planning, Programming, Budgeting, and Evaluation (PPBE) process. The NNSA EPO Program has adopted a set of management practices similar to those of the NNSA's Facilities and Infrastructure Recapitalization Program. Specifically, the Program has prioritized actions to reduce risk and ensure the successful accomplishment of the LTS program; to ensure continued consistency between remediation end states and site uses, to ensure critical stakeholder interaction; and to implement a budget structure that integrates clarity of financial accountability with program performance.

Benefits

The EPO program was established to ensure LTS activities are properly conducted and that environmental compliance at NNSA sites is being maintained and managed in support of the overall goals of the ongoing programs within the Weapons Activities appropriation. The LTS program was initiated in FY 2007 at three NNSA sites, Kansas City Plant (KCP), Lawrence Livermore National Laboratory (LLNL)-Main Site, and Sandia National Laboratories (SNL), to meet post-completion regulatory cleanup requirements. The program goal is to continue to reduce risks to human health and the environment at NNSA Sites and adjacent areas, by operating and maintaining environmental cleanup systems installed by the Office of Environmental Management, and performing long-term environmental monitoring activities and analyses in a cost-effective manner that assures compliance with federal, state, and local requirements and integrates a responsible environmental stewardship program with the NNSA's Stockpile Stewardship and National Security efforts. This is also consistent with the EPO GPRA unit program goals.

Under NNSA, this Program is continuing the operation of installed remediation systems and other actions necessary to accelerate environmental risk reduction as appropriate during the LTS period; thereby, maintaining the progress already made in the cleanup of the environmental legacy at NNSA Sites in accordance with applicable environmental laws and regulations, existing regulatory agreements, and in consultation with affected stakeholders and tribal governments. The successful execution of these LTS activities has a direct impact on the success of the NNSA's Stockpile Stewardship Program maintaining environmentally safe and effective operations at NNSA Sites.

Major Outyear Priorities and Assumptions

The outyear projects for EPO total $124,832,000, which is sufficient to meet the LTS requirements for all sites that will have completed environmental cleanup (in FY 2006 and FY 2008) and to maintain compliance. There is a significant increase (over 50%) beginning in FY 2009 due to the addition of two NNSA sites (Pantex and LLNL Site 300) requiring LTS funding subsequent to the completion of the legacy environmental cleanup projects by EM. This outyear funding profile allows EPO to meet its LTS regulatory requirements for conducting the necessary Operating and Maintenance functions and ensuring that installed remedies remain protective of human health and the environment. NNSA will evaluate these outyear requirements during the FY 2009 through FY 2013 Planning and Programming process.

Annual Performance Results and Targets
(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.38.00, Environmental Projects and Operations										
Annual percentage of environmental monitoring and remediation deliverables that are required by regulatory agreements to be conducted at NNSA sites that are on schedule and in compliance with all acceptance criteria (Annual Output)	N/A	N/A	N/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 by regulatory agreements.
Cumulative cost reduction in actual costs of performing annual environmental monitoring deliverables at NNSA sites as compared to annual planned costs using Earned Value Management controls (Efficiency)	N/A	N/A	N/A	N/A	T : 2%	T: 4%	T: 6%	T: 8%		By 2012, achieve a cumulative 10% cost reduction in actual costs of performing annual environmental monitoring deliverables at NNSA sites as compared to annual planned costs using Earned Value Management controls.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

Long-Term Stewardship

The NNSA is responsible for the formulation and execution of the LTS budget when the Office of Environmental Management (EM) mission is completed at the NNSA sites. The LTS includes activities such as ground water treatment, environmental monitoring of surface water and ground water, continued cleanup remedies associated with soils and landfills, reporting and liaison activities required by various states and regulatory agencies, and surveillance/monitoring of contaminated decommissioned buildings that have not been demolished upon completion of the EM mission at the site. The LTS activities initiated in FY 2007 will continue to be funded in FY 2008 at the Kansas City Plant (KCP), Lawrence Livermore National Laboratory (LLNL)-Main Site, and Sandia National Laboratories (SNL) sites where environmental cleanup activities were completed by the Office of Environmental Management in FY 2006. The LTS activities will start at LLNL-Site 300 and the Pantex Plant in FY 2009.

KCP LTS	**0**	**1,697**	**2,000**

The LTS activities at KCP cover all activities required to continue to protect human health and the environment and are based on the remediation work completed through FY 2006. The cleanup activities at the KCP are regulated by a Resource Conservation and Recovery Act (RCRA) Post Closure Permit issued by the Missouri Department of Natural Resources. In FY 2008, LTS activities continue to cover program management and oversight and the administration of environmental restoration project activities, in addition to the operation and maintenance of a treatment and monitoring system. The KCP's RCRA Post Closure Permit requires monitoring of both ground and surface water, and the maintenance and upkeep of a comprehensive ground water monitoring system consisting of over 190 individual wells. The purpose is to ensure that ground water contaminant plumes derived from historical plant operations are contained, and do not impact ground water and surface waters adjacent to the KCP. This Permit requires the operation of a ground water treatment system to capture and treat ground water contaminated with volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). Ten interceptor wells, a ground water seepage collection system to prevent ground water migration into a National Pollutant Discharge Elimination System (NPDES) permitted outfall, and 18 building footing tile drains are used to contain contaminated ground water. Storm sewers will be maintained to keep contamination from past release sites from entering the system and reaching nearby waterways. The Permit also requires institutional controls and maintenance of three RCRA landfill caps. Also included in this request is the cost to support the Agreement In Principle with the State of Missouri.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
LLNL LTS	**0**	**12,556**	**12,521**

Past operations at the LLNL Main Site, which involved the handling and storage of hazardous materials, resulted in the release and subsequent migration of contaminants into the soil and ground water. The major contaminants are VOCs, primarily trichloroethylene. The LLNL-Main Site environmental restoration project completed in FY 2006 by EM consisted of activities to remediate contamination from past operations; control contaminated ground water migration; and effectively remediating soil and ground water where contaminants exceed regulatory limits to protect human health, the environment, and beneficial uses of natural resources.

In FY 2008, the LTS activities performed at the Main Site will continue to include: facility operation and maintenance (O&M) of treatment systems, regulatory interactions and compliance, soil vapor and ground water monitoring and well field O&M, 3-D modeling as a cost-effective means of estimating future VOC concentrations and risk to human health and the environment, optimize remediation, evaluate the effectiveness of cleanup, relay progress of cleanup to the stakeholders, maintain the data information system that is required to support planning, collection, tracking, verification, validation, reporting, interpretation and use of data, implementation of new/optimized remedial actions as necessary, and program management. The LTS activities for Site 300 are similar to those being performed at the Main Site and are included in the outyear funding profile beginning in FY 2009.

SNL LTS	**0**	**2,958**	**2,997**

In FY 2008, the SNL LTS includes all activities necessary to protect human health and the environment during operation of installed cleanup systems at legacy release sites where contamination remains. This project will focus on maintenance of remedies at 265 Environmental Restoration release sites at SNL/New Mexico (NM) and ground water monitoring at SNL/California (CA) beginning in FY 2007. In addition to routine ground water, vadose zone, and landfill cover monitoring, SNL LTS activities include: management to implement LTS, site and environmental monitoring, institutional controls, information management, and public participation and outreach.

Total, LTS	**0**	**17,211**	**17,518**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Long-Term Response Actions/Long-Term Stewardship	
KCP LTS	
▪ The increase is needed to fund compliance oversight activities associated with requirements of the Consent Judgment and the 95th Terrace.	+303
LLNL LTS	
▪ No significant change.	-35
Sandia LTS	
▪ No significant change.	+39
Total Funding Change, Long-Term Stewardship	**+307**

Safeguards and Security

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Safeguards and Security (S&S)			
Defense Nuclear Security			
Operations and Maintenance (Homeland Security)	666,690	665,701	721,318
Construction (Homeland Security)	40,590	0	57,496
Overseas Combating Terrorism (OCT)	0	0	0
Subtotal, Defense Nuclear Security	707,280	665,701	778,814
Offset for S&S Work for Others	-32,000	-33,000	-34,000
Total, Defense Nuclear Security with Offset	675,280	632,701	744,814
Cyber Security (Homeland Security)	90,471	88,711	102,243
Total, Safeguards and Security with Offset	765,751	721,412	847,057

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Safeguards and Security (S&S)				
Defense Nuclear Security				
Operations and Maintenance (Homeland Security)	732,082	795,158	867,876	935,983
Construction (Homeland Security)	84,973	62,000	31,340	7,344
Subtotal, Defense Nuclear Security	817,055	857,158	899,216	943,327
Offset for S&S Work for Others	-35,000	-36,000	-37,000	-38,000
Subtotal, Defense Nuclear Security with Offset	782,055	821,158	862,216	905,327
Cyber Security (Homeland Security)	107,355	112,723	118,359	124,277
Total, Safeguards and Security with Offset	889,410	933,881	980,575	1,029,604

Mission

This program will provide protection for National Nuclear Security Administration (NNSA) personnel, facilities, nuclear weapons, and information from a full spectrum of threats, most notably from terrorism, which has become of paramount concern post the September 11, 2001, attacks in the Homeland.

The Safeguards and Security GPRA Unit Program is comprised of two subprograms: Defense Nuclear Security managed by NNSA’s Associate Administrator for Defense Nuclear Security and Cyber Security managed by the NNSA Chief Information Officer.

The FY 2007-2011 budget request proposed that the Physical Security portion of NNSA's Safeguards and Security GPRA unit be renamed "Defense Nuclear Security" to distinguish this program and associated funding from the cyber security efforts. Two separate funding controls were established. The entire Safeguards and Security program is a Homeland Security related activity.

Beginning in FY 2005, the cost of conducting External Independent Reviews (EIRs) for Capital Asset Projects greater than $5 million within the Safeguards and Security, Defense Nuclear Security have been funded by this program. Examples of EIRs including conducting performance baseline EIRs prior to Critical Decision-2 (CD-2) to support independent validation of the performance baseline, conducting construction/execution readiness EIRs prior to Critical Decision-3 (CD-3) for major system projects, and tailored EIRs. These funds, managed by the Office of Engineering and Construction Management (OECM), are used for EIRs directly related to these projects within this program. Beginning in FY 2007, the EIR business line will be financed via the Working Capital Fund to achieve parity on how EIRs are funded and to standardize the administration of these critical activities.

Benefits

Within the Safeguards and Security program, the **Defense Nuclear Security** Program makes unique contributions to Strategic Goal 02.1.37.00.00. Physical Security constitutes the largest funding allocation of the NNSA security effort and includes (1) Protective Forces – a site's front-line protection, consisting primarily of armed uniformed officers; (2) Physical Security Systems – provides intrusion detection and assessment barriers, access controls, tamper protection monitoring, and performance testing and maintenance of security systems; (3) Transportation – security for intra-site transfers of special nuclear material (including safe havens), weapons, and other classified material that is not funded through NNSA's Secure Transportation Asset; (4) Information Security – provides protection for the classification and declassification of information, critical infrastructure, technical surveillance countermeasures (TSCM), and operations security; (5) Personnel Security – encompasses the processes for administrative determination that an individual is eligible for access to classified matter, or is eligible for access to, or control over, special nuclear material or nuclear weapons; and (6) Materials Control and Accountability (MC&A) – provides for the control and accountability of special nuclear material. Defense Nuclear Security also includes the following construction projects: 05-D-170-01, Project Engineering and Design (PED), Nuclear Materials Safeguards and Security Upgrades (NMSSUP), Phase II, LANL and 08-D-701, Line Item, NMSSUP, Phase II, and 05-D-170-02, PED, Security Improvements Project, Y-12.

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.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The Safeguards and Security program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The OMB re-assessed the Safeguards and Security Program in FY 2006, using the PART. The results of the OMB review are reflected in the FY 2006 Budget Request. The OMB gave the Safeguards and Security program scores of 60 percent on the Program Purpose and Design Section, 88 percent on the Strategic Planning Section, 100 percent on the Program Management Section, and 73 percent on the Program Results and Accountability Section. The OMB rated the Safeguards and Security (S&S) program 77 percent, its second highest category of "Moderately Effective." This represents a significant improvement over the FY 2004 OMB PART assessment of the program, which resulted in a rating of 59 percent or "Adequate." Per OMB's recommendations in FY 2006, the S&S program has improved the meaningfulness and measurability of its performance measures. The OMB was satisfied with both the program's new measures and the progress the program has made in achieving results against these new measures.

The FY 2006 OMB PART resulted in additional OMB recommendations, which the program is aggressively working to implement. They are (1) improve program design and resource allocation to make sure that post-September 11, 2001, threats are addressed as cost-effectively as possible; (2) improve contractors commitment to achieving program goals and targets; and (3) demonstrate improved efficiencies. The program is addressing these recommendations by measuring the progress in implementing post-September 11, 2001, security upgrades that meet the 2005 Design Basis Threat; and implementing solutions to reduce the time it takes to process Q-clearances for both contractor and Federal employees.

Defense Nuclear Security

Major FY 2006 Achievements

The Defense Nuclear Security Program took the following actions to improve the security posture across the weapons complex:

- The 2005 class of Defense Nuclear Security interns (future leaders) graduated in June 2006, and the 2006 class of Defense Nuclear Security interns began training;

- The NNSA achieved compliance with the 2003 Design Basis Threat;

- Conducted special reviews to improve site performance in specific high-interest program areas, notably firearms safety, personnel security/human reliability program, and MC&A;

- Hosted major workshops on Classified Matter Protection and Control, Incidents of Security Concern, and the Human Reliability Program;

- Supported NNSA goals for international cooperation and communications, including security information exchanges with Russian, United Kingdom, and Belgian counterparts;

- Established a security risk management framework to better manage and allocate security resources;

- Made significant improvements in the access authorizations process by initiating the use of electronic questionnaire for investigations processing (e-QIP), providing desktop access to the

Personnel Investigative Processing System (PIPS), and streamlining personnel security processes at the Service Center; and,

- The Nuclear Materials Safeguards and Security Upgrades Project Phase II achieved CD-0 and CD-1 on schedule.

Los Alamos National Laboratory

- Automation of Accountable Classified Removable Electronic Media (ACREM) accountability with the Laboratory Accountability System.

Y-12 National Security Complex

- Installed large vehicle gates, engineered barriers, and a detection system as part of the Perimeter Upgrades project.

- Completed significant material consolidation initiatives with the removal of the majority of Special Nuclear Material from 9204-4.

- Developed and implemented Interim Human Reliability Program (HRP) process which put more people to work, reducing escorting costs and reducing Security Police Officer (SPO) overtime.

Pantex

- Introduced the Elite Force Training Facility at Pantex, a state-of-the-art simulator to train SPOs in weapons manipulation, small unit tactics and target engagement simulations for personnel, as well as ground and air vehicles.

- Opened a new firing range that enables SPOs to engage targets at 1000 meters with the high velocity 40 millimeter weapon system.

Lawrence Livermore National Laboratory

- Procured the Mobile Weapon Platform, mounting the Dillon Aero Gatling gun, to meet DBT objectives.

- Established Ballistic Resistant Enclosures (BREs) and Armored Fighting Positions (AFPs) at key strategic points within the Superblock to meet DBT objectives.

Savannah River/Tritium Facilities

Achieved significant reduction in security incidents through implementation of enhanced security initiatives which included: the centralization of all classified copying, the use of distinctive envelopes when transporting classified information in the area, the use of movement activated voice sensors to remind personnel not to bring cell phones into the limited area, and the use of visual reminders for individuals processing classified information in their offices.

Major Outyear Priorities and Assumptions

The outyear projections for Defense Nuclear Security total $3,370,756,000 for FY 2009 through FY 2012. The trend through the five-year period is level, reflecting the program's focus on sustaining the NNSA sites 2003 Design Basis Threat baseline operations and implementing the 2005 Design Basis

Threat Policy upgrades at Pantex, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Nevada Test Site, and Y-12.

Defense Nuclear Security will pursue Baseline Funding Evaluations to ensure efficient use of budgets and staffs. Using the Protective Force Comparability Study as a model, DNS will review other topical areas to ensure field operations are right-sized to support security and programmatic needs.

Defense Nuclear Security will partner with Defense Programs in the Complex 2030 reconfiguration process, to ensure seamless integration with operations and the security mission.

Through a rigorous selection process, Defense Nuclear Security, in partnership with DOE and other government agencies, will pursue technology applications that improve the effectiveness of the security system while promoting the overall efficiency of our security operation.

Ongoing activities will maintain strong control and accountability of special nuclear material, increase experience and knowledge base of scarce highly-specialized technical resources, and expand efforts to implement a risk management-based approach to materials control and accountability.

Annual Performance Results and Targets
(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.37.00, Safeguards and Security										
Cumulative percentage of Physical Security reviews conducted by the Office of Independent Oversight and Performance Assurance (OA) at NNSA sites that resulted in the rating of “effective” (based on last OA review at each site over 6 physical security topical areas)	R: 53% T: 80%	R: 72% T: 65%	R: 64% T: 70%	T: 75%	T: 80%	T: 85%	T: 85%	T: 85%	T: 85%	By 2012, achieve an effective rating on 85% of OA Physical Security reviews.
Annual average calendar days per applicant for NNSA Service Center to complete the processing needed to grant Q Security Clearance for federal and contractor employees in the NNSA complex, other than Headquarters (does not include days for Office of Personnel Management or the Federal Bureau of Investigation to conduct background checks) (Efficiency)	N/A	R: 100 T: 85	R : 97 T: 110	T: 110	T: 65	T: 65	T: 50	T: 30	T: 30	By 2015, reduce average number of days for Service Center to process Q Security Clearance to 30 days; 90 days is OPM Standard (Baseline is 110 days in FY 2005).
Cumulative percentage of progress, measured in milestones completed, towards implementation of 2005 Design Basis Threat (DBT) Policy at NNSA sites	N/A	N/A	N/A	N/A	T 100%	T: 100%	T: 50%	T:100%	N/A	By FY 2008, % of completed milestones for Pantex and Lawrence Livermore National Laboratory. By FY 2009, % of completed milestones for Nevada Test Site. By FY 2010, % of completed milestones for Los Alamos and Y-12. Fy FY 2011, % of completed milestones for Los Alamos and Y-12.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Physical Security	**666,690**	**665,701**	**721,318**

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.

Preliminary analyses have identified critical security enhancements needed at NNSA sites for continuation of activities already begun. Vulnerability Assessments will be completed in FY 2006 to validate the level of enhancements necessary at NNSA sites.

During FY 2008, the DNS Program will focus on eliminating or mitigating identified vulnerabilities across the weapons complex. Measures will include additional protective force training, acquiring updated weapons and support equipment, improving physical barrier systems and standoff distances, and reducing the number of locations with "targets of interest." Physical security systems will be upgraded and deployed to enhance detection and assessment, add delay and denial capabilities, and to improve perimeter defenses at several key sites.

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.

▪ **Protective Forces**	**334,483**	**427,620**	**439,106**

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 defensive tactics and procedures to protect site interests. The increase for ongoing support will allow sites to begin implementation of the 2005 DBT and 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.

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		
Congressionally Directed Activity	**25,000**	**0**	**0**

The Conference Report provided $25 million for Pantex protection measure actions in support of the 2003 Design Basis Threat (DBT) effort.

Congressionally Directed Activity	**60,000**	**0**	**0**

The Conference Report provided $60 million for Y-12 protection requirements for compliance with the 2003 DBT.

▪ **Physical Security Systems**	**53,696**	**64,000**	**120,873**

Physical Security Systems provide intrusion detection and assessment capabilities, access controls, tamper protection monitoring, and performance testing and maintenance of security systems according to the approved site performance testing plan. We will focus on life cycle replacement of our 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**	**890**	**908**	**1,007**

Includes all security-related transportation budget estimates for intra-site transfers of special nuclear material (including safe havens), weapons, and other classified material that is not funded in the Secure Transportation Asset account (STA).

▪ **Information Security**	**21,398**	**25,145**	**18,803**

Information Security provides protection for the classification and declassification of information, critical infrastructure, technical surveillance countermeasures (TSCM), and operations security. Through periodic reviews of classified and sensitive information, Information Security ensures proper document marking, storage and protection of information.

▪ **Personnel Security**	**27,041**	**28,200**	**27,192**

Personnel Security encompasses the processes for administrative determination that an individual is eligible for access to classified matter, or is eligible for access to, or control over, Special Nuclear Material or nuclear weapons. Although the NNSA is responsible for ensuring that all personnel with access to NNSA sites (including current employees, new hires, and visitors) have been appropriately reviewed for access to classified and sensitive matter and materials, the actual NNSA security clearance reviews by the Federal Bureau of Investigation and/or the Office of Personnel Management are budgeted for in the Office of Health, Safety, and Security budget. Personnel Security represents all other functions of the personnel security process in the NNSA, including badge office operations, Human Reliability Program administration and visitor control programs. In accordance with the NNSA Reengineering effort, the NNSA Service Center has the lead for NNSA Personnel Security initiatives.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
▪ **Materials Control and Accountability**	**26,889**	**27,940**	**21,710**

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. MC&A is complementary to physical protection requirements and functions as a primary deterrent against unauthorized use or diversion of special nuclear material. MC&A is also responsible for tracking movements of accountable nuclear materials between sites and reporting those movements to a national level tracking system.

▪ **Program Management**	**109,293**	**83,888**	**82,627**

Program Management provides direction, oversight and administration, planning, training, and development for security programs. Activities include 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 development of annual performance baselines for each site's security program, is in place.

▪ **Technology Deployment, Physical Security**	**8,000**	**8,000**	**10,000**

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. The technology deployment effort will focus on promising, emerging technologies that will provide operational efficiencies for the NNSA security program.

Construction	**40,590**	**0**	**57,496**

The Construction program includes the cost of new and ongoing line-item construction projects that support the safeguards and security mission within the nuclear weapons complex. Funding provided in FY 2006 will sustain ongoing projects under 05-D-170, Project Engineering and Design, to continue design in FY 2007 for two subprojects: Nuclear Materials Safeguards and Security Upgrades (NMSSUP), Phase II to upgrade and replace the existing physical security system at the Los Alamos National Laboratory; and the Y-12 Security Improvements Project (SIP). FY 2008 Line Item funding of $49.5 million is requested for the NMSSUP Phase II project and $8.0 million to complete design of the Y-12 SIP project.

Total, Defense Nuclear Security	**707,280**	**665,701**	**778,814**

Cyber Security

Major FY 2006 Achievements

Initiated the move to enterprise-wide solutions to include continuous asset monitoring, authentication, authorization and public key infrastructure (PKI) licensing. Continued development of the expanded Los Alamos National Laboratory classified network during FY 2006 to support the conversion of laboratory activities to diskless workstation operations. Other FY 2006 accomplishments include:

- maintenance of the cyber security posture of NNSA sites despite increasing numbers, complexity, and sophistication of cyber attacks on the nuclear weapons complex;
- limited the number of successful penetrations of NNSA unclassified computer systems and networks;
- continued to respond to and implement the increasing number of requirements set by OMB through the Federal Information Security Management (FISMA) legislation;
- developed and deployed an automated tool to facilitate development, approval, certification, and accreditation of NNSA cyber security plans, and
- enhanced the Multi-Platform Trusted Copy (MPTC) tool.

Major Outyear Priorities and Assumptions

The outyear projections for Cyber Security total $462,714,000 for FY 2009 through FY 2012. The trend through the five-year period shows an escalated increase for cyber activities that continue to challenge NNSA's ability to respond to future risks.

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.

To provide improved correlation between current NNSA cyber security program efforts and future revitalization plans, the program will focus on a broad set of areas that link directly to its budget requirements, and then use specific areas to establish performance metrics and begin implementation in FY 2009.

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.

Cyber security revitalization will continue to become increasingly critical to NNSA's ability to respond to highest priorities and to address current and future risks.

Certification and Accreditation (Classified and Unclassified) will allow NNSA to properly document risks and justification of associated operations for many systems at NNSA sites.

Ongoing activities will be in support of the Department's classified diskless-at-the-workstation operations and continued support of extraordinary infrastructure and conversion activities at federal and contractor facilities.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Strategic Goal 2.1 (Nuclear Deterrent) GPRA Unit Program Goal 2.1.37.00, Safeguards and Security										
Cumulative percentage of Cyber Security reviews conducted by the Office of Independent Oversight and Performance Assurance (OA) at NNSA sites that resulted in the rating of "effective" (based on last OA review at each site over 2 Cyber Security topical areas)	R: 83% T: 80%	R: 57% T: 80%	R : 41% T: 57%	T: 57%	T: 57%	T: 57%	T: 57%	T: 57%	T : 57%	Annually, achieve an effective rating on at least 57% of OA Cyber Security reviews.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Cyber Security (Homeland Security)	**90,471**	**88,711**	**102,243**

Cyber Security implements policies and procedures for information protection and the design, development, integration, and deployment of all Cyber Security-related and infrastructure components of the Stockpile Stewardship Program and other activities at NNSA landlord sites. The Cyber Security Plan addresses the level of security required for information and equipment in the cyber structure. During FY 2008, the Cyber Security Program will continue to support the cyber security infrastructure within, and between, all NNSA federal offices and contractor locations. The infrastructure activities will upgrade elements to address the latest cyber threats from both external and inside attacks as well as, deploying the latest available cyber security technologies to meet the NNSA mission and performance requirements of the mission activities. The infrastructure activities include support for on-going operation of the unclassified cyber security, classified cyber security, communications security, and TEMPEST programs within each NNSA contractor location.

The individual cyber security improvements initiated under the Integrated Cyber Security Initiative have been, or soon will be completed. Ongoing cyber security improvement activities, such as the Cyber Security Revitalization program, will remain integrated within the Cyber Security Infrastructure program while the operations of the Enterprise Secure Network will be focused within a coordinated set of Enterprise Secure Computing assets.

▪ **Infrastructure Program**	**46,716**	**55,776**	**68,733**

The infrastructure program supports the cyber security operations and activities at NNSA landlord sites. The cyber security operations and activities provide a foundation that includes detection of intrusions (hackers and other forms of attacks), vulnerability scanning and correction within each site, implementation of Department and NNSA cyber security policies and practices, and continuous improvement of network and computing system cyber security technologies. The infrastructure program provides the personnel and cyber security technology (hardware and software) to maintain a cyber security posture that complies with all Department and NNSA policies while addressing the increasing number and complexity of cyber security threats.

Congressionally Directed Activity	**20,000**	**0**	**0**

The Conference Report earmarked $20 million for the Los Alamos expansion of the Red Network Project.

Congressionally Directed Activity	**1,900**	**0**	**0**

The Conference Report earmarked $1.9 million for the Sandia National Laboratories to support the DOE-wide public key infrastructure effort.

▪ **Enterprise Secure Computing**	**19,855**	**21,135**	**19,500**

Enterprise Secure Computing provides enterprise level classified computing infrastructure for the NNSA complex. Focus of activities are on completing and bringing Phase I of the Enterprise Secure Network (ESN) online during the first half of FY 2008 and transitioning the effort to fully managed operations. Components of Phase I of the ESN will include the ESN Test and

	FY 2006	FY 2007	FY 2008

Certification Laboratory for the security evaluation and testing of enterprise classified components in an isolated, non-production, controlled environment; two-factor strong authentication to ensure consistent and compliant authentication of classified network asset users across NNSA sites; and secure trusted "single sign-on" for weapons programs scientists and engineers to support the data and application access across NNSA sites as necessary to support the weapons program;

(dollars in thousands)	FY 2006	FY 2007	FY 2008
▪ **Technology Application Cyber Security**	**2,000**	**2,000**	**2,010**

Research and Technology Development will address both short and long-term solutions to specific cyber security needs at NNSA sites. The research and technology development efforts will focus on emerging technologies that will provide cost-effective improvements to the NNSA Safeguards and Security Cyber Security program. In FY 2008, additional specific technologies will be identified for further research and technology development.

(dollars in thousands)	FY 2006	FY 2007	FY 2008
▪ **Classified Diskless Workstation Operations**	**0**	**9,800**	**12,000**

Activities to transition the Department's classified workstation computing to diskless-at-the-workstation operations will continue. FY 2008 funding will be allocated across the Department, at federal and contractor facilities, to support extraordinary infrastructure and conversion activities that cannot be supported within currently planned program and site funding levels.

(dollars in thousands)	FY 2006	FY 2007	FY 2008
Total, Cyber Security	**90,471**	**88,711**	**102,243**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
▪ **Defense Nuclear Security (Physical Security)**	
Protective Forces: Increase for additional protective forces and specialized training to meet the 2005 DBT and to sustain protective forces hired in FY 2006 in support of the 2003 DBT. Also supports Advanced Technology weapons including Remotely Operated Weapons Systems (ROWS) upgrades.	**+11,486**
Physical Security Systems: The increase supports ongoing upgrades to existing physical security systems to meet the 2005 DBT, as well as systems maintenance, and improvements to compensate for life-cycle concerns.	**+56,873**
Transportation: Continues to support the movement and consolidation of special nuclear material inventories pending implementation of DBT enhancements at facilities.	**+99**
Information Security: The decrease reflects streamlined, electronic procedures for documentation and storage of classified and sensitive information.	**-6,342**
Personnel Security: The decrease reflects streamlined, electronic procedures for submitting and processing clearance packages.	**-1,008**
Materials Control and Accountability (MC&A): The decrease reflects streamlined, automated special nuclear material inventory procedures, in accordance with Departmental requirements.	**-6,230**
Program Management: The decrease reflects efficiencies and improvements in management processes.	**-1,261**
Technology Deployment, Physical Security: The increase reflects expanded efforts to address specific physical security and MC&A needs at NNSA sites.	**+2,000**
Construction	
The increase supports phased continuation costs for the Y-12 SIP design subproject in line item 05-D-170, Project Engineering and Design (+8,000) and Line Item funding for 08-D-701, the NMSSUP Phase II project (+$49,496).	**+57,496**
Total, Defense Nuclear Security	**+113,113**

	FY 2008 vs. FY 2007 ($000)
▪ **Cyber Security (Homeland Security)**	
Infrastructure Program: This increase supports infrastructure at NNSA landlord sites.	**+12,957**
Integrated Cyber Security: The decrease reflects the transition of the NNSA enterprise-wide network efforts consistent with the program plan.	**-1,635**
Technology Application Development: The increase reflects escalation.	**+10**
Classified Diskless Workstation Operations: The increase supports ongoing conversion activities throughout the Department.	**+2,200**
Total, Cyber Security	**+13,532**
Total Funding Change, Safeguards and Security	**+126,645**

Capital Operating Expenses and Construction Summary[a]

Capital Operating Expenses

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	57,499	59,224	61,001
Capital Equipment	6,323	6,513	6,708
Total, Capital Operating Expenses	**63,822**	**65,737**	**67,709**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	62,831	64,716	66,657	68,657
Capital Equipment	6,909	7,116	7,329	7,549
Total, Capital Operating Expenses	**69,740**	**71,832**	**73,986**	**76,206**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
05-D-170 Project Engineering and Design, (PED), VL	73,094	16,866	40,590	0	8,000	0
08-D-701, NMSSUP II, LANL	213,740	0	0	0	49,496	0
Total, Construction			**40,590**	**0**	**57,496**	**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 2007 and FY 2008 funding shown reflects estimates based on projected FY 2006 obligations.

Outyear Construction Projects

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
05-D-170 PED, Y-12	607	0	0	0
08-D-701, NMSSUP II, LANL	46,000	49,000	27,165	0
09-D-xxx, SIP, Y-12	36,866	7,000	0	0
09-D-xxx, Security PIDAS Upgrade, Pantex	1,500	6,000	4,175	0
Future Years Construction	0	0	0	7,344
Total, Construction	**84,973**	**62,000**	**31,340**	**7,344**

08-D-701, Nuclear Materials Safeguards and Security Upgrades Project (NMSSUP) Phase II, Los Alamos National Laboratory (LANL) Los Alamos, New Mexico

1. Significant Changes

None, this is the first year of project CPDS request for capital construction funding.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start[a]	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2008	2QFY2007	1QFY2008	2QFY2008	3QFY2012	N/A	N/A

3. Baseline and Validation Status

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2008	214,755	25,245	N/A	240,000	240,000	240,000

4. Project Description, Justification, and Scope

Project Description:

The Nuclear Materials Safeguards and Security Upgrades Project (NMSSUP) Phase II will support the viability of stockpile management and other current missions carried out in Technical Area (TA)-55 at the Los Alamos National Laboratory (LANL) by providing an effective, robust physical security system to address the 2005 Design Basis Threats (DBT), protection strategies, and security requirements.

The LANL nuclear missions, as they currently exist and as they are planned in the future, require a reliable safeguards and security system to assure the protection and control of special nuclear materials (SNM), classified matter, and NNSA property. The nuclear materials operation at TA-55 involves the ability to securely store, move, process, and track nuclear materials that are attractive to the adversaries both in terms of the quantity of materials and the forms. The NMSSUP Phase II project plays a key role in the support of this mission by replacing or improving the aging exterior physical security systems and installing enhanced systems to support a new protection strategy for the TA-55 site.

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[a] Project design is phased such that construction may begin as packages are completed; therefore, not all design may be completed before construction starts.

The primary components of the project include, at a minimum:

- Technical Area Isolation Zone (TAIZ)
- Perimeter Intrusion Detection, Assessment, and Delay System (PIDADS)
- Entry Control Facility (ECF)
- Utility Infrastructure (to support the items above)

Compliance with Project Management Order:

- Critical Decision – 0: Approve Mission Need – 4Q FY 2002
- Critical Decision – 1: Approve Preliminary Baseline Range – 3Q FY 2006
- External Independent Review Final Report – 1Q FY 2008
- Critical Decision – 2: Approve Performance Baseline – 1Q FY 2008
- Critical Decision – 3: Approve Start of Construction – 1Q FY 2008
- Critical Decision – 4: Approve Start of Operations – 3Q FY 2012

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design (05-D-170)[a]			
2005	10,000	10,000	0
2006	33,094	33,094	770
2007	0	0	34,658
2008	0	0	0
Construction (08-D-701)[b]			
2008	49,496	49,496	29,299
2009	46,000	46,000	41,497
2010	49,000	49,000	43,107
2011	27,165	27,165	44,654
2012	0	0	20,770
Total, TEC	214,755	214,755	214,755

[a] NNSA and LANL are actively working to reduce design costs in order to maximize the amount of construction possible within the project TPC resulting in need to reprogram $7.66 million in design funds to construction as reflected in financial schedule.

[b] Reflects $1.496 million of obligational authority reallocated within 05-D-170.

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design[a]	29,454	N/A
Construction Phase		
Site Preparation	38,049	N/A
Equipment	48,629	N/A
All other construction	62,778	N/A
Total, Construction	149,456	N/A
Contingency	35,845	N/A
Total, TEC	214,755	N/A

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	11,925	N/A
Conceptual design	3,700	N/A
Start-up	7,464	N/A
D&D Phase		
D&D for removal of the existing facility	0	N/A
Other D&D to comply with "one-for-one" requirements	0	N/A
D&D contingency	0	N/A
Total D&D	0	N/A
Contingency for OPC other than D&D	2,156	N/A
Total, OPC	25,245	N/A

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC(Design)	770	34,658	0	0	0	0	0	35,428[b]
TEC (Construction)	0	0	29,299	41,497	43,107	44,654	20,770	179,327
OPC Other than D&D	15,625	1,191	2,386	1,785	1,866	658	1,734	25,245
D&D Costs	0	0	0	0	0	0	0	0
Total Project Costs	16,395	35,849	31,685	43,282	44,973	45,312	22,504	240,000

[a] NNSA and LANL are actively working to reduce design costs in order to maximize the amount of construction possible within the project TPC. The preliminary and final design costs of $29.454 million does not include contingency of $5.974 million

[b] Reflects TPC which includes contingency for design.

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	3Q FY 2012
Expected Useful Life (number of years)	50
Expected Future start of D&D for new construction (fiscal quarter)	4Q FY 2062

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	42,962	N/A	2,148,100	N/A
Maintenance	1,510	N/A	75,500	N/A
Total Related funding	44,472	N/A	2,223,600	N/A

9. Required D&D Information

N/A, The limited D&D is considered incidental to construction and has been included in the construction costs.

10. Acquisition Approach

NNSA has assigned management and execution of this project to LANL. LANL had pursued a Design-Build strategy for project execution; however the bidding environment was not conducive to this approach. In order to assure best value to the government, LANL adopted a traditional design-bid-build strategy. Major contracts will be a firm-fixed price. Interfaces between the contractor(s) and other entities at LANL 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.

05-D-170, Project Engineering and Design (PED) – S&S, Various Locations[a]

1. Significant Changes

Security Improvement Project (SIP)

- The scope of the SIP project has been reevaluated. The scope will be limited to the installation of the Argus Security System in existing facilities.

Nuclear Materials Safeguards and Security Phase II

- None.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Existing Facilities Start	D&D Existing Facilities Complete
FY 2005	2Q FY 2005	1Q FY 2007	2Q FY 2007	1Q FY 2012	N/A	N/A
FY 2006	3Q FY 2005	1Q FY 2007	2Q FY 2007	2Q FY 2011	N/A	N/A
FY 2007[b]	3Q FY 2006	4Q FY 2008	2Q FY 2008	3Q FY 2012	N/A	N/A
FY2008	3Q FY 2006	TBD	TBD	TBD	N/A	N/A

3. Baseline and Validation Status*

(dollars in thousands)

TEC	OPC, except D&D Costs	D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate

* Note: Preliminary estimates for each subproject are presented separately below.

4. Project Description, Justification, and Scope

Project Description:

This project provides for Architect-Engineering (A-E) services (Title I and Title II) for Defense Nuclear Security construction projects, allowing designated projects to proceed from conceptual design into preliminary design (Title I) and definitive design (Title II). This project also allows for the similar design efforts under a design/build acquisition strategy. 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

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] FY 2007 schedule presented reflects the NMSSUP Phase II project because the Preliminary Design starts earlier and the Physical Construction completes later than the SIP. Specific critical decision milestones for the two "various locations" projects are presented on subsequent pages.

support construction or long-lead procurements in the fiscal year in which line item construction funding is requested and appropriated. In the case of using a design/build acquisition strategy, the design effort included in this project is the processing of the design/build Request for Proposal and the subsequent design efforts by the selected design/build team.

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 cost estimate and schedule.

The PED design projects are described below. While not anticipated, some changes may occur due to continuing conceptual design studies or developments occurring after submission of this data sheet. These changes will be reflected in subsequent years. Preliminary estimates for the cost of Title I and II design and engineering efforts for each subproject are provided, as well as very preliminary estimates of the Total Estimated Cost (including physical construction) of each subproject. The final Total Estimated Cost and Total Project Cost for each project described below will be validated and the Performance Baseline will be established at Critical Decision 2 following completion of preliminary design.

FY 2005 Design Projects

05-01: Nuclear Materials Safeguards and Security Upgrades (NMSSUP) Phase II, LANL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q FY 2006	1Q FY 2008	2Q FY 2008	3Q FY 2012	43,094[a]	125,000 - 239,996

Fiscal Year	Appropriations	Obligations	Costs
2005	10,000	10,000	0
2006	33,094[a]	33,094	1,887
2007	0	0	19,251
2008	0	0	21,956

This subproject provides for design of the proposed Nuclear Materials Safeguards and Security Upgrades Project (NMSSUP) Phase II. The objective of the NMSSUP Phase II is to upgrade and replace the existing exterior perimeter, physical security intrusion, detection, assessment, and delay systems at the LANL. The upgrades and replacement are required in order to address the new Design Basis Threat and Secretary of Energy mandated denial protection for the Laboratory's key nuclear facilities that house and process Category I quantities of Special Nuclear Materials. It is also the proposed site for consolidation of the nuclear missions for the laboratory, including the Chemistry and Metallurgy Research Replacement Project.

NMSSUP Phase II project includes the upgrade or replacement of the existing exterior detection, delay, access control, and security equipment for TA-55. These systems will be integrated with the Argus security control system that has been installed under NMSSUP Phase I.

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[a] The FY 2006 appropriated funding for this subproject of $35,000,000 was reduced by $410,000 by a rescission of one percent in accordance with the DOD Appropriations Act, 2006, P.L. 109-148. In addition, $1,496,000 was realigned to 05-02, Security Improvements Project, Y-12 for FY 2006.

Compliance with Project Management Order

- Critical Decision – 0; Approve Mission Need – 4Q FY 2002
- Critical Decision – 1; Approve Preliminary Baseline Range – 3Q FY 2006
- External Independent Final Report – 1Q FY 2007
- Critical Decision – 2; Approve Performance Baseline – 1Q FY 2007
- Critical Decision – 3; Approve Start of Construction –1Q FY 2007
- Critical Decision – 4; Approve Start of Operations – 3Q FY 2012

05-02, Security Improvements Project, Y-12

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
1Q FY 2008	2Q FY 2009	2Q FY 2010	1Q FY 2014	$10,103	$42,000 - 60,900

Fiscal Year	Appropriations	Obligations	Costs
2005	0[ab]	0	0
2006	1,496[cb]	0	0
2007	0	0	0
2008	8,000	7,013	7,013
2009	607	2,613	2,613
2010	0	477	477

This subproject provides for preliminary and final (Title I and Title II) design for the proposed Security Improvements Project at the Y-12 National Security Complex (NSC).

The SIP scope will be reduced to a subset of that previously planned. The scope will be limited to:

- Install Argus Host System in existing CAS/SAS,
- Implement Argus for HEUMF,
- Connect balance of plant using gateways
- 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.

[a] The FY 2005 appropriated funding for this subproject of $7,000,000 was reduced by $134,000 for a rescission of 0.8 percent included in the Consolidated Appropriations Act, 2005 (P.L. 108-447).

[b] Project scope reduced. Propose to support ARGUS in HEUMF project ($12.866 million).

[c] $1,496,000 of obligational authority is being reallocated within 05-D-170.

Compliance with Project Management Order

- Critical Decision – 0: Approve Mission Need January 7, 2004
- Critical Decision – 1: Approve Preliminary Baseline Range 4Q FY 2007
- External Independent Review Final Report: – 3Q FY 2008
- Critical Decision – 2: Approve Performance Baseline – 4Q FY 2008
- Critical Decision – 3: Approve Start of Construction – 4Q FY 2009
- Critical Decision – 4: Approve Start of Operations – 2Q FY 2014

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
2005	10,000	10,000	0
2006	34,590[a]	33,094	1,887
2007	0	0	19,251
2008	8,000	7,013	28,969
2009	607	2,613	2,613
2010	0	477	477
Total, TEC (05-D-170)	53,197	53,197	53,197

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Costs	Previous Costs
Preliminary and Final Design	53,197	75,000
Construction Phase		
Site Preparation	N/A	N/A
Equipment	N/A	N/A
All other construction	N/A	N/A
Contingency	N/A	N/A
Total, Construction	N/A	N/A
Total, TEC	N/A	N/A

[a] The FY 2006 appropriated funding was reduced by $410,000 based on a rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Other Project Costs

Cost Element	Current Costs	Previous Costs
	(dollars in thousands)	
Conceptual Planning	N/A	N/A
Start-up	N/A	N/A
D&D Phase		
D&D for removal of the existing facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	N/A	N/A

As a result of the revised scope for the Security Improvements Project, the cumulative conceptual design costs are estimated to reach $2.71 million. Current project estimates do not indicate that the project will exceed the $3 million congressional reporting threshold for conceptual design costs.

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design)	21,138	28,969	2,613	477	0	0	0	53,197
TEC (Construction)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OPC Other than D&D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D&D Costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Project Costs	21,138	28,969	2,613	447	0	0	0	53,197

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	Various
Expected Useful Life (number of years)	Various
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

9. Required D&D Information

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

N/A

D&D Information Being Requested	Square Feet
Area of new construction	N/A
Area of existing facility(ies) being replaced	N/A
Area of any additional space that will require D&D to meet the "one-for-one" requirement	N/A

10. Acquisition Approach

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

Defense Nuclear Nonproliferation

Defense Nuclear Nonproliferation

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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 atomic energy defense, 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, $1,672,646,000 to remain available until expended.

Defense Nuclear Nonproliferation

Funding Profile by Subprogram

(dollars in thousands)

	FY 2006 Current Appropriation	FY 2007 Request	FY 2007 CR	FY 2008 Request
Defense Nuclear Nonproliferation				
Nonproliferation and Verification Research and Development	312,658	268,887		265,252
Nonproliferation and International Security	74,250	127,411		124,870
International Nuclear Materials Protection and Cooperation	422,730	413,182		371,771
Global Initiatives for Proliferation Prevention	39,600	0	0	0
HEU Transparency Implementation	19,288	0	0	0
Elimination of Weapons-Grade Plutonium Production	187,100	206,654		181,593
Fissile Materials Disposition	468,773	637,956		609,534
Global Threat Reduction Initiative	96,995	106,818		119,626
Subtotal, Defense Nuclear Nonproliferation	**1,621,394**	**1,760,908**	**1,655,596**	**1,672,646**
Use of Prior Year Balances	-2,215	-34,695	-34,695	0
Total, Defense Nuclear Nonproliferation	**1,619,179**	**1,726,213**	**1,620,901**	**1,672,646**

NOTE: The FY 2006 Current Appropriation column includes additions for international contributions to the Elimination of Weapons-Grade Plutonium Production Program in the amount of $12,677,000, and the use of prior year balances in the amount of $2,215,000 for an approved appropriation transfer action to the Office of the Administrator.

Public Law Authorization:
John Warner National Defense Authorization Act of 2007, (P.L. 109-364)

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Defense Nuclear Nonproliferation				
Nonproliferation and Verification Research and Development	305,105	335,564	353,047	364,528
Nonproliferation and International Security	133,041	158,693	166,479	174,276
International Nuclear Materials Protection and Cooperation	408,209	402,458	407,161	414,009
Elimination of Weapons Grade Plutonium Production	138,929	24,507	0	0
Fissile Materials Disposition	660,796	771,190	802,786	813,378
Global Threat Reduction Initiative	151,920	152,588	163,527	175,809
Total, Defense Nuclear Nonproliferation	**1,798,000**	**1,845,000**	**1,893,000**	**1,942,000**

Major Outyear Priorities and Assumptions

The Defense Nuclear Nonproliferation budget for FY 2009-2012 supports the completion of the Elimination of Weapons Grade Plutonium Production in the Russian Federation by FY 2011. A decrease in FY 2008 funding is due to the ramp-down for completion of the Seversk Project offset by an increase in construction activities for the Zheleznogorsk Project. The scheduled completion of the latter project by FY 2011 leads to a decrease of $182,000,000 in the EWGPP line over the five year period. The budget also shows a decrease due to the completion of the Kazakhstan Spent Fuel work in CY 2010 under the Global Threat Reduction Initiatives Program. In addition, funding in the International Nuclear Materials Protection and Cooperation program will decrease by approximately $100 million in the outyears with the completion of work to secure in Russia a total of 73 warhead sites and approximately 210 buildings containing weapons usable nuclear material by the end of 2008. The program will install radiation detection equipment at approximately 380 border sites and in approximately 35 Megaports by the end of 2013. The decreases noted are offset over the five year period by increases for work to continue significant advancement in the prevention and detection of illicit transfer of nuclear material through shipping ports; significant reduction of risk of terrorists acquiring radiological materials; and the disposition of surplus U.S. and Russian Weapons-Grade Fissile material.

Mission

The convergence of heightened terrorist activities and the ease of moving materials, technology and information across borders has made the potential of 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 2008 budget request for Defense Nuclear Nonproliferation represents an effort 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.

Beginning in FY 2005, the cost of conducting External Independent Reviews (EIRs) for Capital Asset Projects greater than $5,000,000 within the Nonproliferation and Verification Research and Development, Elimination of Weapons Grade Plutonium and Fissile Materials Disposition programs, are funded within these programs. Examples of EIRs include conducting Performance Baseline EIRs prior to Critical Decision-2 (CD-2) to verify the accuracy of costs and schedule baseline estimates and conducting Construction/Execution Readiness EIRs, which are done for all Major System projects prior to CD-3. These funds, which are managed by the Office of Engineering and Construction Management, are exclusively used for EIRs directly related to these projects funded within these programs. Beginning in FY 2007, the EIR business line will be financed via the Working Capital Fund to achieve parity on how EIRs are funded and to standardize the administration of these critical activities.

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.

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 Defense Nuclear Nonproliferation is $363,082 for FY 2007 and $348,782 for FY 2008, to be paid from program funding.

Strategic and GPRA Unit Program Goals

The Department's Strategic Plan identifies five Strategic Themes (one each for nuclear, energy, science, management, and environmental aspects of the mission) plus 16 Strategic Goals that tie to the Strategic Themes. The Defense Nuclear Nonproliferation appropriation supports the following goal:

Strategic Goal 2.2, Weapons of Mass Destruction: Prevent the acquisition of nuclear and radiological materials for use in weapons of mass destruction and other acts of terrorism. The Defense Nonproliferation program has
6 GPRA Unit Program Goals which contribute to Strategic Goal 2.2 in the "goal cascade".

Contribution to GPRA Unit Program Goal 2.2.39, Nonproliferation and Verification Research and Development

The Nonproliferation and Verification Research and Development program (Program Goal 2.2.39) contributes to this goal by developing new technologies to improve U.S. capabilities to detect and monitor nuclear weapons production, proliferation, and prohibited nuclear explosions worldwide.

Contribution to GPRA Unit Program Goal 2.2.40, Elimination of Weapons-Grade Plutonium Production

The Elimination of Weapons-Grade Plutonium Production program (Program Goal 2.2.40) contributes to Strategic Goal 2.2 by enabling the Russian Federation to permanently cease production of weapons-grade plutonium by replacing plutonium producing nuclear reactors with fossil-fueled power plants to provide alternative sources of heat and electricity and provide for the shutdown of the reactors.

Contribution to GPRA Unit Program Goal 2.2.41, Nonproliferation and International Security

The Nonproliferation and International Security program (Program Goal 2.2.41) now includes the former HEU Transparency program (formerly Program Goal 02.41.00.00) and the former Global Initiatives for Proliferation Prevention (GIPP) (formerly Program Goal 02.45.00.00). The Nonproliferation and International Security program contributes to this goal by preventing and countering Weapons of Mass Destruction (WMD) proliferation by providing policy and technical support to implement and monitor transparent WMD reductions; strengthen indigenous international safeguards and export controls systems in other countries; transition WMD expertise and infrastructure to peaceful purposes; and improve international and multinational international safeguards, export control, and interdiction regimes.

Contribution to GPRA Unit Program Goal 2.2.42, International Nuclear Materials Protection and Cooperation

The International Nuclear Materials Protection and Cooperation program (Program Goal 2.2.42) contributes to Strategic Goal 2.2 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 border crossings and Megaports to prevent and detect the illicit transfer of nuclear material.

Contribution to GPRA Unit Program Goal 2.2.43, Fissile Materials Disposition

The Fissile Materials Disposition program (Program Goal 2.2.43) contributes to Strategic Goal 2.2 by eliminating surplus Russian plutonium and surplus U.S. plutonium and highly enriched uranium (HEU).

Contribution to GPRA Unit Program Goal 2.2.44, Global Threat Reduction Initiative

The Global Threat Reduction Initiative (GTRI) (Program Goal 2.2.44) contributes to Strategic Goal 2.2 by reducing and protecting vulnerable nuclear and radiological materials located at civilian sites worldwide.

Funding by Strategic and GPRA Unit Program Goal

	FY 2006	FY 2007	FY 2008
Strategic Goal 2.2, Defense Nuclear Nonproliferation			
GPRA Unit Program Goal 2.2.39 Nonproliferation and Verification Research and Development	312,658	268,887	265,252
GPRA Unit Program Goal 2.2.40 Elimination of Weapons Grade Plutonium Production	187,100	206,654	181,593
GPRA Unit Program Goal 2.2.41 Nonproliferation and International Security[a]	133,138	127,411	124,870
GPRA Unit Program Goal 2.2.42 International Nuclear Materials Protection and Cooperation	422,730	413,182	371,771
GPRA Unit Program Goal 2.2.43 Fissile Materials Disposition	468,773	637,956	609,534
GPRA Unit Program Goal 2.2.44 Global Threat Reduction Initiative	96,995	106,818	119,626
Subtotal, Strategic Goal 2.2, Defense Nuclear Nonproliferation	**1,621,394**	**1,760,908**	**1,672,646**
Use of Prior Year Balances	-2,215	-34,695	0
Total, Strategic Goal 2.2, Defense Nuclear Nonproliferation	**1,619,179**	**1,726,213**	**1,672,646**

NOTE: The FY 2006 column includes additions for international contributions in the amount of $12,677,000 to the EWGPP Program, 2006, and the use of prior year balances in the amount of $2,215,000 for an approved appropriation transfer action to the Office of the Administrator.

[a] Includes Global Initiatives for Proliferation Prevention (GIPP) now contained within Global Security Engagement and Cooperation and HEU Transparency Implementation (HEU TIP) now contained within Dismantlement and Transparency elements of the Nonproliferation and International Security Program.

Outyear Funding by Strategic and GPRA Unit Program Goal

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Strategic Goal 2.2, Defense Nuclear Nonproliferation				
GPRA Unit Program Goal 2.2.39 Nonproliferation and Verification Research and Development	305,105	335,564	353,047	364,528
GPRA Unit Program Goal 2.2.40 Elimination of Weapons Grade Plutonium Production	138,929	24,507	0	0
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Total, Defense Nuclear Nonproliferation	**1,798,000**	**1,845,000**	**1,893,000**	**1,942,000**

Means and Strategies

The Defense Nuclear Nonproliferation program will use various means and strategies to achieve its program goals, including numerous collaborative activities with a variety of partners. However, various external factors may impact our ability to achieve these goals on schedule.

The Defense Nuclear Nonproliferation program goal is to detect, prevent, and reverse the proliferation of Weapons of Mass Destruction (WMD). Our programs address the danger 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 pursuit of nuclear weapons by terrorists and states of concern makes it clear that our threat detection 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 detection 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 and Commerce. We continually leverage our considerable nuclear nonproliferation research and development base within the National Laboratory complex to achieve program goals. In addition, NNSA coordinates with the Nuclear Regulatory

Commission on selected aspects of the fissile materials disposition program, and works with the International Atomic Energy Agency to further international safeguards. The United States Enrichment Corporation (USEC) and the Tennessee Valley Authority are involved in the surplus U.S. Highly Enriched Uranium (HEU) disposition program 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 involved in some programs. Finally, we anticipate continued frequent collaborations with the Department of Homeland Security as that department fulfills its role in the national security arena.

Securing Nuclear Weapons and Material: 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.

Security upgrades were completed for Russian Navy nuclear fuel and weapons storage at the end of FY 2006 and will be complete for Rosatom facilities by the end of 2008--both two years ahead of the original schedule. Cooperation with the nuclear warhead storage sites of the Russian Strategic Rocket Forces and the Russian Ministry of Defense's 12th Main Directorate will be complete by the end of 2008.

Global Nuclear Energy Partnership: On February 6, 2006, Secretary Bodman announced a new, comprehensive strategy to promote the global expansion of nuclear energy. This strategy, the Global Nuclear Energy Partnership (GNEP), will focus on developing new nuclear fuel cycle technologies that reduce waste and improve efficiency, enhancing safeguards and security to reduce proliferation risks, and developing international arrangements for reliable supply and management of nuclear fuel. While GNEP is a long-term vision for the future of international nuclear power, the Department has begun to re-orient its activities to promote GNEP goals. In FY 2007, NNSA will use ongoing activities in the areas of safeguards technology development, international safeguards cooperation, and fuel supply arrangements to begin to support the policy aims embodied in GNEP and $10 million has been identified for this purpose in FY 2008, within Nonproliferation and International Security.

Countering Illicit Supplier Networks: DOE has a long history of providing the technical edge within the interagency community in the various nuclear interdiction activities conducted by the U.S. Government. However, in light of the needed escalation in these activities catalyzed by the uncovering of A. Q. Khan's clandestine nuclear supply network, the Nonproliferation and International Security program must develop 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 must be able to communicate its value in context and in a timely manner to facilitate a wide range of counter proliferation and counterterrorism interdiction options.

This capability will require new tools and unprecedented access to information. The backbone of this capability would likely be comprised of various customized electronic database applications that exploit information and would support other capabilities. Other functions of this task may include providing rapid response to HQ on interagency requests for visas; assessing vulnerabilities to technology in the DOE complex and U.S. industry; tracking and updates on A. Q. Khan network off-shoots; State-to-state transfers and cooperation; supporting the new International Atomic Energy Agency (IAEA) role investigating proliferation networks; and, evaluating the impact of proliferation networks on how safeguards and export controls are and should be implemented.

Pre-Screening Cargo Containers for Nuclear and Radiological Materials: The world's shipping network, with millions of cargo containers in various stages of transit, could conceal nuclear and radiological materials. However, the busiest seaports also provide the opportunity for law enforcement officials to pre-screen the bulk of the cargo in the world trade system. Under the Megaports Initiative, DOE cooperates with international partners to deploy and equip key ports with the technical 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 2008 budget supports the completion of 2 ports, which will increase to fifteen, 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 Russian 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 Russian "closed cities" in the Russian nuclear weapons complex.

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 U.S. weapon-grade plutonium and HEU and supports efforts to dispose of Russian surplus weapon-grade plutonium. The FY 2008 budget request supports construction of the U.S. MOX Facility at the Savannah River Site, the continuation of the design of the Pit Disassembly and Conversion Facility, the completion of the design of the Waste Solidification Building, and related plutonium disposition activities in Russia. It also provides funding for continuing efforts to dispose of surplus U.S. HEU, supports the Reliable Fuel Supply Program, and supports other Fissile Materials Disposition program activities. These activities are of critical importance because they will ensure that surplus fissile materials in the U.S. and Russia are permanently disposed of, so that they can never fall into the hands of terrorists or rogue states.

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 Nuclear or Radiological Materials: The Global Threat Reduction Initiative (GTRI) will reduce the risk of terrorists acquiring the nuclear and radiological materials for a weapon of mass destruction (WMD) or radiological dispersal device (RDD) by working at civilian sites worldwide to: 1) convert reactors from the use of WMD-usable highly enriched uranium (HEU) material to low enriched uranium (LEU) material; 2) remove or dispose of excess WMD-usable nuclear and radiological materials; and 3) protect at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented.

GTRI is one of the key programs specifically highlighted in the President's March 2006 *National Security Strategy of the United States of America* to protect the American people. In addition, GTRI is also an important element of the recently announced Global Initiative to Combat Nuclear Terrorism since it is reduces the risk of terrorists acquiring vulnerable nuclear and radiological materials. GTRI is also part of the Bratislava Summit Statement on Nuclear Security Cooperation between the United States and the Russian Federation. In accordance with the Bratislava Presidential Joint Statement, GTRI has developed an aggressive, prioritized timeline to complete all shipments of Russian-origin fresh HEU by the end of 2006 and all shipments of Russian origin spent HEU fuel stored outside reactor cores by the end of 2010.

Global Partnership: The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, formed at the G-8 Kananaskis Summit in June 2002 has recommitted the G-8 nations (the U.S., Canada, France, Germany, Italy, Japan, Russia, and the United Kingdom) to address nonproliferation, disarmament, counter-terrorism, and nuclear safety issues. The G-8 leaders have 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 President has committed the U.S. to provide $10 billion over ten years to be matched by $10 billion from the other members, attesting to the belief that nonproliferation concerns are of the highest government priority; and therefore that this program's work is of paramount importance for the security of the nation and the world. The following table reflects the Department of Energy activities, by country and program.

There are three agencies that fund the $1 billion per year U.S. commitment to Global Partnership. The Department of Energy and Department of Defense carry the majority of this responsibility with the Department of State contributing a smaller portion. In FY 2006 through 2009, DOE contributes more than than 50 percent of the required interagency funding for Global Partnership. Although DOE projects a lower contribution in the outyears, over the course of the FYNSP, DOE contributes approximately $350,000,000 per year. The OMB monitors the coordination of the three agencies' contributions ensuring that the overall U.S. commitment is met.

U.S. Nonproliferation and Threat Reduction Assistance to Former Soviet States

($ in millions)

Summary by Country	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Russia	604.6	497.0	403.5	269.4	235.9	244.5
Kazakhstan	27.3	43.8	38.6	7.2	0	0
Ukraine	22.4	2.0	6.3	0	0	0
Uzbekistan	3.5	0	0	0	0	0
Azerbaijan	8.5	.2	.1	.1	0	0
Georgia	8.6	.1	0	0	0	0
Turkmenistan	0	0	0	0	5.3	5.3
Total, Russia & FSU	**674.9**	**543.1**	**448.5**	**276.7**	**241.2**	**249.8**

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) the Office of Management and Budget's (OMB) Program Assessment Rating Tool (PART);
(2) NNSA Administrator Program Reviews; (3) Program Managers Detailed Technical Reviews;
(4) quarterly reporting of progress through the Department's Joule performance tracking system; and
(5) the NNSA Administrator's Annual Performance Report.

NNSA is using the OMB PART process to perform annual internal self-assessments of the management strengths and weaknesses of each NNSA program. Among other things, the PART 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. Independent PART assessments conducted by OMB provide additional recommendations to strengthen NNSA programs.

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 (Joule) 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.

Additionally, NNSA performs a validation of approximately 20 percent of its budget on an annual basis. A new two-step process was developed for use during FY 2006. This consisted of Phase 1: Validation of the Need for the Program's Proposed Activities (Program Review) and Phase 2: Pricing Validation of Selected Programs (Pricing Review).

Budget validation efforts focused 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 2008 process, the Office of Nonproliferation and International Security (other than HEU Transparency Initiatives), the Office of Fissile Material Disposition and the Office of Global Threat Reduction Initiative participated in Phase I. The Office of Global Threat Reduction Initiative also participated in Phase II. These reviews found the overall process for developing the budgets for FY 2008 satisfactory and the cost estimates were found valid and reasonable.

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.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The PART process links seamlessly with NNSA's PPBE concept, and we have initiated PART "self-assessments" for all NNSA programs as a prominent aspect of the annual program review cycle.

The Department has incorporated feedback from OMB into the FY 2008 Budget Request and will take the necessary steps to continue to improve performance.

Results of PART assessments in prior years are summarized in the table below:

FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
International Materials Protection and Cooperation (IMP&C) – *Effective*	Elimination of Weapons Grade Plutonium Production (EWGPP) (new program) – *Results Not Demonstrated (reassessed in FY 2007 as Effective)*	Nonproliferation and International Security (NIS) – *Effective*	Nonproliferation and Verification Research and Development (R&D) – *Moderately Effective*	Global Threat Reduction Initiative (GTRI) –*Effective*
			Global Initiatives for Proliferation Prevention (GIPP) – *Effective*	Fissile Materials Disposition (FMD) – *Moderately Effective*

Major FY 2006 Achievements
Nonproliferation and Verification R&D
Transitioned state-of-the-art proliferation detection persistent surveillance airborne system (Sonoma) to Department of Defense under the rapid-results initiative to support war on terrorism efforts.

Through the long term development of an electro-optical system, the Program has supported a multi-agency national security program for detecting nuclear proliferation worldwide.

Completed a multi-agency test to characterize and validate advanced remote sensing instrumentation for detection of nuclear and other weapons of mass destruction proliferation.

Sustained and improved the Nation's operational nuclear explosion monitoring (NEM) system by:

- Delivering operational space-based nuclear explosion monitoring sensors to the Air Force on a schedule that supports Air Force launch timelines – thus sustaining the nation's capability to monitor and report nuclear detonations that occurs on or above the Earth's surface.

- Providing updated calibration and geophysical models to improve the monitoring performance of regional seismic stations--, improving the nation's capability to monitor and report underground nuclear detonations in specific threat regions of the globe.

- Completing development and testing of the next generation space-based optical explosion monitor, delivering to the Air Force in early FY 2006 launch on a future Air Force satellite. This enhanced sensor has greater sensitivity and will improve the nation's monitoring capability for very small surface explosions. This enhanced sensor is now the baseline for all future replenishment optical payloads.

Nonproliferation & International Security
Since inception of the program, NNSA has trained over 1,000 officials from licensing, scientific/technical, customs, and border guard organizations on WMD commodity recognition, nonproliferation principles, license review, and multilateral export controls.

The International Nuclear Safeguards and Engagement Program (INSEP) and International Nuclear Materials Protection and Cooperation conducted one of the first civilian nuclear facility security engagements with China in October 2005 with the Joint U.S.-China Integrated Nuclear Materials Management Technology demonstration in Beijing.

GIPP has successfully coordinated private sector and local government interests to launch a series of water purification and desalination projects that will redirect Libyan scientists and engineers formerly engaged in WMD production toward peaceful activities. GIPP has also worked to encourage the establishment of a machining center of excellence at the Center for Mechanical Industries in the fall of 2006.

As part of the HEU Transparency program, 30 MTs of HEU is downblended annually. As of September 2006, the program has monitored the conversion of 285 MT of weapons-usable HEU. This represents the equivalent of 10,000 nuclear weapons permanently eliminated, per IAEA defined standards.

International Nuclear Materials Protection & Cooperation
Completed Materials Protection Control and Accounting (MPC&A) upgrades to 1 Strategic Rocket Forces site.

Secured a cumulative total of 175 buildings in Russia containing weapons usable material or warheads.

Concluded Second Line of Defense Core Program country agreements with Georgia, Azerbaijan, Armenia and Kazakhstan and Megaports agreements with 98 countries and Taiwan.

Completed installations of radiation detection equipment to detect the illicit trafficking of nuclear and other radiological materials at a cumulative total of 8 strategic transit/ bordering crossings, air and sea transshipment hubs in Russia and other countries and at accumulative total of 6 Megaports.

Trained a cumulative total of 5,599 students in Material, Control and Accounting related technologies and trained a cumulative total of 1,913 students in Physical Protection/Protective Force related technologies.

Elimination of Weapons-Grade Plutonium Production
At Seversk, the official ground-breaking ceremony for refurbishing an existing fossil-fueled facility occurred in April 2005. As of the end of FY 2006, the project achieved 50% completion. Currently the project is on schedule for a December 2008 completion, thus eliminating 800 kilograms per year of weapons-grade plutonium production, and shutting down two of the three production reactors, That is enough material for approximately 200 nuclear weapons annually.

In 2006 the Zheleznogorsk Plutonium Production Elimination project established its performance baseline, and it received approval to start full construction. During the year the project was able to place contracts for over $80M worth of equipment (about 80% of the total). Equipment procurements include the low and high pressure boilers, low and high pressure precipitators, coal handling system, turbine, generator, and electrical equipment. In August the project held a start of construction ceremony and since then, the project has awarded a construction contract for the main boiler house valued at over $20M. Schedule and cost performance continue to exceed the project baseline, and the project remains on schedule for a December 2010 completion. The completion will provide the heat to allow the shutdown of the ADE-2 reactor and eliminate the production of 400kg of Plutonium per year.

Fissile Materials Disposition
Site preparation for the U.S. MOX Facility, the Pit Disassembly and Conversion Facility, and the Waste Solidification Building began in November 2005 with completion of excavation for the MOX foundation in August 2006. A total of 120 acres were cleared and grubbed and over 900,000 cubic yards of dirt moved.

In July, the Department and the Federal Atomic Energy, Russian Federation (Rosatom) reaffirmed their commitment to implementing the 2000 Plutonium Management and Disposition Agreement to dispose of 34 MT each of surplus weapon-grade plutonium.

In September, Duke Engineering Services, COGEMA Inc., and Stone and Webster (DCS) submitted an operating license application to the U.S. Nuclear Regulatory Commission (NRC) for the MOX facility.

NNSA has downblended a cumulative total of 93 MT of surplus U.S. HEU for peaceful use as nuclear reactor fuel.

Global Threat Reduction Initiative (GTRI)
Converted an additional 5 HEU reactors to LEU increasing the total to 46 HEU reactors converted (and another reactors shutdown prior to conversion for a total of 47).

Removed or disposed of and additional 261 kilograms of nuclear material (HEU and plutonium) increasing the total to 1,366 kilograms, enough for over 50 crude nuclear weapons.

Removed or disposed of an additional 2,089 radiological sources increasing the total to 13,877 sources containing almost 170,000 curies, enough for over 1,400 radiological dirty bombs.

Protected an additional 266 high priority radiological sites increasing the total to 500 sites containing 7.7 million curies, enough for over 7,700 radiological dirty bombs.

Historically Black Colleges and Universities (HBCU) Support
A research and education partnership program with the HBCU's and the Massie Chairs of Excellence was initiated by the Congress through earmarks in the Office of the Administrator appropriation in FY 2005 and FY 2006. NNSA has established an effective program to target national security research opportunities for these institutions to increase their participation in national security-related research and to train and recruit HBCU graduates for employment within NNSA. The NNSA's goal is a stable $10 million effort annually. The majority of the efforts directly support program activities, and it is expected that programs funded by the Defense Nuclear Nonproliferation appropriation will fund research with the HBCU's totaling approximately $2 - $3 million in FY 2008, in areas including engineering, radiochemistry, material sciences and sensor development.

Nonproliferation and Verification Research and Development

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Nonproliferation and Verification R&D			
Operations and Maintenance (O&M)			
Proliferation Detection	173,817	148,204	147,107
Homeland Security-Related Proliferation Detection [Non-Add]	[49,500]	[48,708]	[50,000]
Nuclear Explosion Monitoring	122,035	106,601	112,650
Supporting Activities	3,936	6,162	5,495
Subtotal, O&M	**299,788**	**260,967**	**265,252**
Construction	12,870	7,920	0
Total, Nonproliferation and Verification R&D	**312,658**	**268,887**	**265,252**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Nonproliferation and Verification R&D				
Operations and Maintenance (O&M)				
Proliferation Detection	177,166	203,904	214,767	221,995
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]	[50,000]
Nuclear Explosion Monitoring	122,342	125,931	132,300	136,413
Supporting Activities	5,597	5,729	5,980	6,120
Subtotal, O&M	**305,105**	**335,564**	**353,047**	**364,528**
Construction	**0**	**0**	**0**	**0**
Total, Nonproliferation and Verification R&D	**305,105**	**335,564**	**353,047**	**364,528**

Mission

This program develops new technologies to improve United States (U.S.) capabilities to detect and monitor nuclear weapons production, proliferation, and prohibited nuclear explosions worldwide.

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.

Beginning in FY 2005, the cost of conducting External Independent Reviews (EIRs) for Capital Asset Projects greater than $5,000,000 within the Nonproliferation and Verification Research and Development are funded within this program. Examples of EIRs include conducting Performance

Baseline EIRs prior to Critical Decision-2 (CD-2) to verify the accuracy of costs and schedule baseline estimates and conducting Construction/Execution Readiness EIRs, which are done for all Major System projects prior to CD-3. These funds, which are managed by the Office of Engineering and Construction Management, are exclusively used for EIRs directly related to these projects funded within these programs. Beginning in FY 2007, the EIR business line will be financed via the Working Capital Fund to achieve parity on how EIRs are funded and to standardize the administration of these critical activities.

Benefits

The Nonproliferation and Verification Research and Development program has three subprograms that make unique contributions to GPRA Unit Program Goal 2.2.39.

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 weapons of mass destruction programs and to prevent the diversion of special nuclear materials, including use by terrorists.

The Nuclear Explosion Monitoring subprogram builds the nation’s operational sensors that monitor the entire planet from space to detect and report surface, atmospheric, or space nuclear detonations; and produces and updates the regional geophysical datasets enabling operation of the nation’s ground-based seismic monitoring networks to detect and report underground detonations. This subprogram also conducts research to support improvements in satellite operational systems to meet future requirements and size/weight constraints, and conducts research in radionuclide sampling techniques for detection of prohibited nuclear proliferant explosions.

The Supporting Activities elements include crosscutting support in: strategic initiatives, participation in DOE’s Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs, management of university broad agency announcements, peer review of ongoing projects, and support for the NNSA Historically Black Colleges and Universities Program.

In addition, the R&D program profile also supports a joint effort with the DOE Office of Science (SC) and the Department of Homeland Security (DHS) to construct 335,000 gross square feet of laboratories, offices, and radiological or nuclear facilities to accommodate a portion of the existing research capabilities being displaced as a result of the closure and cleanup of in the Hanford 300 Area. The existing facilities must be vacated by January 2011, so that the Department’s Offices of Environmental Management (EM) contractor can complete remediation objectives by 2015. Previously, this project was on an accelerated completion schedule, but, further consideration by all Department organizations involved, along with DHS, has lead to the development of a “most reasonable” and achievable project schedule. Recently, SC was granted approval from the Deputy Secretary to reevaluate the project scope and schedule. Current budget profile is shown as zero pending the outcome of the project reviews.

Major Outyear Priorities and Assumptions

The outyear projections for the Nonproliferation and Verification Research and Development (R&D) Program total $1,358,244,000 and supports long term research and development leading to prototype demonstrations and 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. Out-year increases to the program reflect a combination of inflation plus increased national emphasis shown in National Security Presidential Decisions (NSPD) and Homeland Security Presidential Decisions (HSPD) for basic and applied research and development for advanced radiation, special nuclear materials detection, and detection of nation and sub-national group prohibited nuclear weapons programs.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The Nonproliferation and Verification R&D program has incorporated feedback from OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2007 Budget Request. The OMB gave the Nonproliferation and Verification R&D program very high scores of 100 percent on the Program Purpose and Design Section, 88 percent on the Program Management Section; 90 percent on the Strategic Planning Section; and a 60 percent on the Program Results and Accountability Section. Overall, the OMB rated the Nonproliferation and Verification R&D program 77 percent, its second highest category of "Moderately Effective." The OMB assessment found that the program has a clear and unique purpose, and has an excellent track record in delivering nonproliferation products and services on schedule and in accordance with customer requirements. In addition, OMB found that the program's performance measures are new and as such there has been only limited progress in terms of achieving these new measures. OMB also indicated that the program should continue to strengthen its prioritization process to guide budget requests. In response to the OMB findings, the NNSA is developing an activity prioritization process to guide funding decisions. NNSA is also ensuring that the new performance measures are tied to documented R&D goals, operational expectations, technical milestones and decision/end points. The following "Annual Performance Results and Targets" table shows that the program has revised its metrics toward more measurable key outcomes, as desired by the PART process.

Annual Performance Results and Targets

(R= Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program 2.2.39 (Nonproliferation and Verification R&D)										
Cumulative percentage of progress toward demonstrating the next generation of technologies and methods to detect Uranium-235 Enrichment activities. (Progress is measured against the baseline criteria and milestones published in the "FY 2006 R&D Requirements Document") (Long-term Outcome)	N/A	R: 3%	R: 10% T : 10%	T: 15%	T: 20%	T: 25%	T: 30%	T: 50%	T: 60%	By 2016, demonstrate the next generation of technologies and methods to detect Uranium-235 Enrichment activities.
Cumulative percentage of progress toward demonstrating the next generation of technologies and methods to detect Plutonium Reprocessing activities. (Progress is measured against the baseline criteria and milestones published in the "FY 2006 R&D Requirements Document") (Long-term Outcome)	N/A	R: 3%	R: 10% T : 10%	T: 20%	T: 25%	T: 30%	T: 50%	T: 65%	T: 75%	By 2015, demonstrate the next generation of technologies and methods to detect Plutonium Reprocessing 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)	N/A	R: 5%	R: 10% T : 10%	T: 20%	T: 27%	T: 33%	T: 60%	T: 80%	T: 90%	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 nuclear explosion monitoring R&D deliveries that improve the nation's ability to detect nuclear explosions (Annual Output	N/A	R: 9%	R: 90% T : 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	T: 90%	Annually achieve timely delivery of NNSA nuclear explosion monitoring products (90% target reflects good on-time delivery. Index considers factors beyond NNSA's control and impact on customer schedules).

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Cumulative percentage of active research projects for which an independent R&D peer assessment 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 those projects found to be of merit) (Efficiency)	R: 37% T: 40%	R: 100% T: 70%	R: 100% T : 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 100%	T: 90%	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.
Annual number of articles published in peer reviewed professional journals/ forums representing leadership in advancing science and technology knowledge (Annual Output)	R: 202 T: 200	R: 283 T: 200	R: 200 T : 200	T: 200	T: 200	T: 200	T: 200	T: 200	T: 90%	Annually, achieve goal of 200 articles published in peer reviewed professional journals/forums representing leadership in advancing science and technology knowledge.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Nonproliferation and Verification R&D O&M			
▪ **Proliferation Detection**	**162,567**	**148,204**	**147,107**

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 weapons of mass destruction, with special emphasis on nuclear weapons technology and the diversion of special nuclear materials.

Additionally, the PD program provides developed and validated technical know-how to U.S. Government acquisition programs and the U.S. industrial base to support national 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.

▪ **Homeland Security-Related Proliferation Detection [Non-Add]**	**[49,500]**	**[48,708]**	**[50,000]**

The PD program applies the unique skills and capabilities of researchers at the NNSA and DOE national laboratories and plants to support non-proliferation research and development requirements. The PD program also conducts fundamental research in fields such as radiation detection, which also support the Department of Homeland Security (DHS) and the greater 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.

▪ **Congressionally Directed Activity**	**11,250**	**0**	**0**

In the FY 2006 appropriation, the Conference Report (109-275) accompanying the Energy and Water Development Appropriations Act, 2006 (P.L. 109-103) included $11,250,000 relevant to the Proliferation Detection program. From within available funds, the conference agreement includes the following projects: $4,000,000 for portable high purity germanium detectors for incident response and radiation detection applications; $1,000,000 for the Offshore Detection Integrated System (OH); $750,000 for developing neutron dosimeter and Gamma-Beta Survey meter (OH); $500,000 for Mega Cargo Imaging program at the Nevada Test Site (NV); and up to $5,000,000 to support a chemical and biological detection research and development program in the NNSA.

▪ **Nuclear Explosion Monitoring**	**98,035**	**106,601**	**112,650**

The Nuclear Explosion Monitoring (NEM) program builds the Nation's operational treaty monitoring space sensors, and produces and updates the regional geophysical datasets and analytical understanding to enable operation of the Nation's ground-based treaty monitoring networks.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

The satellite-based segment of the program builds the Global Burst Detector payloads for monitoring atmospheric detonations. These payloads are launched as part of each Global Positioning System (GPS) replenishment satellite. In addition to building the payloads, the program supports the integration, initialization, and operation of these payloads. The satellite segment also supports the maintenance, integration, and testing of the previously built high altitude detection system payloads on the Defense Support Program (DSP) satellites, and produces the high altitude follow-on sensors, the Space and Atmospheric Burst Reporting System (SABRS). The NEM program supports the engineering and development efforts to prepare next generation sensors. For FY 2008, production and delivery of Global

Burst Detectors will continue at a pace to support timely Air Force launch of GPS replenishment satellites. Work on the SABRS payload will be accelerated to meet host satellite schedule constraints.

The ground-based segment of the nuclear explosion monitoring research program provides classified, focused, applied research and development products integrated into a knowledge base, 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. monitoring 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. This classified knowledge base is developed in coordination with the installation of seismic stations by monitoring agencies. The NEM 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 classified knowledge base systems integration function is performed at the national laboratories and is supplemented in part by research from open competition.

▪ **Congressionally Directed Activity**	**24,000**	**0**	**0**

In the FY 2006 appropriation, the Conference Report (109-275) accompanying the Energy and Water Development Appropriations Act, 2006 (P.L. 109-103), identified $24,000,000 to be used for ground based treaty monitoring and directed the Department to conduct a free and open competitive process for at least $7,500,000 of its research and development activities.

▪ **Supporting Activities**	**3,936**	**6,162**	**5,495**

Supporting activities provide crosscutting support for the two main subprograms (PD and NEM). These activities include strategic initiatives such as technology roadmapping and assessment, nonproliferation analysis and studies, Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR) programs, peer review of ongoing projects, and university open competitions, including Historically Black Colleges and Universities. Supporting Activities also supports publication activities to enhance communications between the technologists in the DOE ommunity, policymakers, and the general public.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
▪ **Congressionally Directed Activity [Non-Add]**	**[3,800]**	**0**	**0**

In the FY 2006 appropriation, the Conference Report (109-275) accompanying the Energy and Water Development Appropriations Act, 2006 (P.L. 109-103) included $3,800,000 that does not apply directly to the missions of either the Proliferation Detection or Nuclear Explosion Monitoring programs. From within available funds, the conference agreement includes the following projects: $2,500,000 for the UNLV Research Foundation to support nonproliferation activities at the Institute for Security Studies; $1,000,000 for the National Center for Biodefense at George Mason University (VA); and $300,000 for the Texas A&M Moscow Physics Institute-Nonproliferation and International Security Program (TX).

	FY 2006	FY 2007	FY 2008
Total, Nonproliferation and Verification Research and Development O&M	**299,788**	**260,967**	**265,252**
Construction			
▪ **06-D-180, Physical Sciences Facility, PNNL (PED)**	**12,870**	**3,700**	**0**
▪ **07-SC-05, Physical Sciences Facility, PNNL (Construction)**	**0**	**4,220**	**0**

This project supports a joint effort with the DOE Office of Science to construct 335,000 gross square feet of laboratories, offices, and radiological or nuclear facilities to accommodate a portion of the existing research capabilities being displaced as a result of the closure and cleanup of facilities in the Hanford 300 Area, which are expected to be vacated by January 2011. NNSA continues to work with the Office of Science and the Department of Homeland Security to manage this project. NNSA draws upon PNNL capabilities in the 300 Area to conduct science, technology, and analytical activities to prevent the proliferation of weapons of mass destruction, promote international nuclear safety, ensure compliance with international treaties and agreements, and protect the Nation's critical infrastructure.

	FY 2006	FY 2007	FY 2008
Total, Construction	**12,870**	**7,920**	**0**
Total, Nonproliferation and Verification Research and Development	**312,658**	**268,887**	**265,252**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
▪ **Proliferation Detection (Includes Homeland Security)**	
The net decrease reflects organizational transfer of funds to complete higher priority programmatic projects.	**-1,097**
▪ **Nuclear Explosion Monitoring**	
Increase primarily reflects the need to accelerate SABRS production to meet satellite platform launch schedule.	**+6,049**
▪ **Supporting Activities**	
Slight decrease is due to efficiency gain in the reduction of total R&D dollars to reduce funding for Small Business Innovative Research.	**-667**
Subtotal Funding Change, Nonproliferation Verification R&D O&M	**+4,285**
▪ **Construction**	
The net decrease reflects organizational transfer of funds to higher priority programmatic projects.	**-7,920**
Total Funding Change, Nonproliferation Verification R&D	**-3,635**

Capital Operating Expenses & Construction Summary

Capital Operating Expenses[a]

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
General Plant Projects	460	474	488
Capital Equipment	34,280	35,308	36,367
Total, Capital Operating Expenses	**34,740**	**35,782**	**36,855**

Outyear Capital Operating Expenses

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	503	518	534	550
Capital Equipment	37,458	38,582	39,739	40,931
Total, Capital Operating Expenses	**37,961**	**39,100**	**40,273**	**41,481**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior-Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
O6-D-180, Physical Sciences Facility, PNNL, (PED), VL[a]	27,486	0	12,870	3,700	0	0
07-SC-05, Physical Sciences Facility, PNNL, (Construction), VL[b]	180,000-245,000	0	0	4,220	0	TBD
Total, Construction			**12,870**	**7,920**	**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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

[b] This is a joint project funded by two DOE programs, the Office of Science (SC) and NNSA and the Department of Homeland Security. This table reflects NNSA funding only except for the TEC.

Elimination of Weapons-Grade Plutonium Production

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Elimination of Weapons Grade Plutonium Production (EWGPP)			
Seversk Plutonium Production Elimination	125,753	84,730	19,400
Zheleznogorsk Plutonium Production Elimination	59,285[a]	119,924[b]	160,793
Crosscutting and Technical Support Activities	2,062	2,000	1,400
Total, EWGPP	**187,100**	**206,654**	**181,593**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Elimination of Weapons Grade Plutonium Production (EWGPP)				
Seversk Plutonium Production Elimination	0	0	0	0
Zheleznogorsk Plutonium Production Elimination	137,629	22,507	0	0
Crosscutting and Technical Support Activities	1,300	2,000	0	0
Total, EWGPP	**138,929**	**24,507**	**0**	**0**

Mission

The Elimination of Weapons-Grade Plutonium Production (EWGPP) program enables the Russian Federation to permanently cease production of weapons-grade plutonium by replacing plutonium-producing nuclear reactors with fossil-fueled power plants to provide alternative sources of heat and electricity and shutting down the reactors.

Benefits

The EWGPP program achieves a major United States (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.

The Seversk Plutonium Production Elimination Project subprogram shuts down two of the last three weapons-grade plutonium production reactors by refurbishing an existing 1950s fossil-fueled facility.

The Zheleznogorsk Plutonium Production Elimination Project subprogram shuts down the last weapons-grade plutonium production reactor by constructing a replacement fossil-fueled facility.

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[a] This amount includes international contributions of $12,677,000 in FY 2006, to the EWGPP Program, Zheleznogorsk Project, as authorized by the National Defense Authorization Act of FY 2005.

[b] This amount does not include international contributions, based on commitments to date of $4,200,000.

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. For instance, the Reactor Shutdown project monitors the *quid pro quo* milestone schedule, linking the shutdown of reactor activities with the project construction activities to ensure the reactors are permanently shut down when replacement construction is completed.

Major Outyear Priorities and Assumptions

The EWGPP program outyear funding profile totals $163,436,000 and supports efforts to permanently cease production of weapons-grade plutonium by replacing three plutonium-producing nuclear reactors with two fossil-fueled power plants. These plants will provide alternate sources of heat and electricity and provide for the shutdown of the reactors in Russia. The slight decrease in the FY 2008 request is due to Seversk beginning its ramp-down for completion and the increase in construction activities for Zheleznogorsk as it moves toward a 2010 completion. Beyond FY 2008, significant decreases in funding during the outyears reflect the completion of construction of the plants in December 2008 for Seversk and December 2010 for Zheleznogorsk. The Program will be complete in FY 2011 when the last of the three reactors will be shut down.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of PART provides a means through which programs can assess their activities differently than through traditional reviews. The EWGPP program has incorporated feedback from OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The OMB reassessed the EWGPP program in FY 2007, using PART. The results of the OMB review are reflected in the FY 2007 Budget Request. OMB gave the EWGPP program very high scores of 100 percent on the Strategic Planning and Program Management Sections; 80 percent on the Program Purpose and Design Section; and 84 percent on the Program Results and Accountability Section. Overall, OMB rated the EWGPP 88 percent, its highest category of “Effective”. OMB found the program has a clear and unique purpose, is well-managed, and has a demonstrated track record of achieving good progress towards its annual and long-term goals. In addition, OMB noted that the ultimate goal of the program is to shut down the three existing Russian plutonium production reactors and therefore, the program must ensure the reactors are shut down as the new coal plants are constructed. In response to the OMB findings, the NNSA is working with Russia to ensure replacement reactor construction milestones are linked to nuclear reactor shutdown.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.40 (Elimination of Weapons-Grade Plutonium Production)										
Cumulative percentage of progress towards refurbishing a fossil plant in Seversk shutting down two weapons-grade plutonium production reactors (Long-term Output)	R: 12.9% T: 16%	R: 25.7% T: 32%	R :50% T: 55%	T: 79%	T: 93%	T: 100%	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: 1.02	R: 1.01 T: 1.0	R :1.0 T: 1.0	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).
Cumulative percentage of progress towards constructing a fossil plant in Zheleznogorsk shutting down one weapons-grade plutonium production reactor. (Long-term Output) *	R: 5% T: 3%	R: 4.9%* T: 4.8%*	R:11.4.% T: 9.6%	T: 33.6%	T: 62.6%	T: 96.4%	T: 98.0%	T: 100%	N/A	T: By December 2010, complete construction of fossil plant at Zheleznogorsk.
Annual percentage of Russian weapons-grade plutonium production capability eliminated from its 2003 baseline of 1.2 MT/yr (0.4 MT per reactor) (Annual Outcome)***	N/A	N/A	N/A	N/A	N/A	T: 67%	T: 67%	T: 100%		T: By 2011, eliminate 100% of Russia's current capability to produce 1.2 MT of weapons-grade plutonium per year (0.4 MT at each of three reactors).

* The FY 2007 thru FY 2011 FYNSP Target percentages assume receipt of the committed International Participation contribution amounts of $4.2 million in only FY 2007.

** The Zheleznogorsk project received Critical Decision-1 approval for Preliminary Baseline Range/cost estimates in December 2004. The CD-1 total project cost (TPC) was higher than the original TPC estimate. Hence, the 2005 cumulative completion percentage Target, 4.8%, is lower than the 2004 non-comparable Result amount of 5%.

***Two reactors shutdown in December 2008 and the remaining reactor shutdown will take place in December 2010.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Seversk Plutonium Production Elimination	**125,753**	**84,730**	**19,400**

The Seversk Plutonium Production Elimination Project provides for the shutdown of two of the last three weapons-grade plutonium production reactors by December 2008, by refurbishing an existing 1950s era fossil-fueled facility to provide replacement energy. The Russian Federation (R.F.) began upgrades in 1978 to the fossil-fueled facility and the U.S. has built on those efforts. Final approval of Critical Decision-0, Justification of Mission Need, occurred in December 2002. In August 2003, Washington Group International was selected as the U.S. contractor to interface with the R.F. integrating contractor, provide technical project implementation and management support efforts, verify the Russian work performed, and provide appropriate payments after verification. The R.F. integrating contractor subcontracts most of the on-site work to Russian performance contractors.

The FY 2008 funding requirements decrease further as the final stage of installation occurs. The refurbishment of Boiler 2 and installation of Boilers 3, 4, 7, 8, Turbines 8, 10, Coal Handling Final Stage, DCS, and acceptance and testing of remaining systems will be completed.

Zheleznogorsk Plutonium Production Elimination	**59,285**	**119,924**	**160,793**

The Zheleznogorsk Plutonium Production Elimination Project provides for the shut down of the last remaining weapons-grade plutonium production reactor in Russia by constructing a replacement fossil-fueled facility. The project has been broken in three startup areas. Area one is the first two low-pressure boilers and the related infrastructure. Area two is the third and fourth low-pressure boilers. Area three is the high-pressure boiler and power generation facilities.

In FY 2008, the U.S. contractor will 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 contractor will complete the off-site rail modifications, the coal handling facility for Startup area One, initiate first fire in the boilers in Startup area One, and make significant progress on Startup area Two and Three. The U.S. contractor will continue to track the Russian progress against the mutually agreed to Quid Pro Quo reactor shutdown plan.

▪ **International Participation Contributions, Zheleznogorsk Plutonium Production Elimination [Non-add]**	**[12,677]**	**0**	**0**

International participation in the EWGPP program was first proposed in the FY 2003 National Defense Authorization Act legislation that transferred the program from DoD to DOE. Later, FY 2005 authorization language was enacted allowing the program to accept and utilize non-U.S. government contributions. To date NNSA has received commitments of $29.7 million, and actual contributions of $25.5 million from international participants; including the United Kingdom, Canada, the Netherlands, the Republic of Korea, the Republic of Finland, and New Zealand.

The $25.5 million in contributions received during FY 2005 and FY 2006 will provide for work towards the completion of several design activities, for the commencement of construction-related activities, and for the procurement of long-lead items of equipment.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

In FY 2007, it is estimated that $4.2 million, will be received from current international contributors and others that have expressed interest in contributing to this international cooperative effort. There are currently no pledges of funds beyond FY 2007.

Crosscutting and Technical Support Activities	**2,062**	**2,000**	**1,400**

The crosscutting and technical funding supports project reviews and external reporting (including reports to Congress), contract administration, intergovernmental contract negotiation support, quality assurance, foreign logistical support, and other communications products and services funding. The crosscutting and technical support activities also provide the necessary supporting technical and engineering expertise and independent analyses, crosscutting of project management system support, and support to the Moscow Office, and the Resident Officer for Construction.

Other major crosscutting efforts also include reactor shutdown planning and International Participation efforts utilizing foreign contributions for the Zheleznogorsk project. A detailed Reactor Shutdown Plan for each site has been developed, which provides linkage between construction milestones for the power plant and the shutdown of the reactors.

Total, Elimination of Weapons-Grade Plutonium Production	**187,100**	**206,654**	**181,593**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
▪ **Seversk Plutonium Production Elimination**	
Decrease reflects reduced construction and refurbishment activities as project approaches its December 2008 completion date.	**-65,330**
▪ **Zheleznogorsk Plutonium Production Elimination**	
Increase will support the ramp up of construction activities to support the December 2010 completion schedule.	**+40,869**
▪ **Crosscutting and Technical Support Activities**	
Decrease reflects the reduced support activities required for the Serversk project as it nears completion in December 2008.	**-600**
Total Funding Change, Elimination of Weapons-Grade Plutonium Production	**-25,061**[a]

[a] Differences calculated between FY 2007 and FY 2008 do not include $4,200,000 in estimated international contributions for FY 2007 based on commitments received to date. While these cannot be reflected in the control tables until received, they are assumed in the Zheleznogorsk outyear funding profile.

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	0	0	0
Capital Equipment	0	0	0
Total, Capital Operating Expenses	**0**	**0**	**0**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	0	0	0	0
Capital Equipment	0	0	0	0
Total, Capital Operating Expenses	**0**	**0**	**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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

HEU Transparency Implementation

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
HEU Transparency Implementation			
HEU Transparency Implementation	19,288	0	0
Total, HEU Transparency Implementation	19,288	0	0

Budget Structure Changes

These activities have been realigned to Nonproliferation and International Security. For FY 2007, this reflected a funding shift of $17,531,000 to the Office of Dismantlement and Transparency within the Office of Nonproliferation and International Security.

Global Initiatives for Proliferation Prevention

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Global Initiatives for Proliferation Prevention			
Global Initiatives for Proliferation Prevention	39,600	0	0
Total, Global Initiatives for Proliferation Prevention	39,600	0	0

Budget Structure Changes

These activities have been realigned to Nonproliferation and International Security. For FY 2007, this reflected a funding shift of $28,140,000 from Global Initiatives for Proliferation Prevention to the Office of Global Security Engagement and Cooperation within the Office of Nonproliferation and International Security.

Nonproliferation and International Security

Funding Schedule by Activity

(dollars in thousands)

	FY 2006	FY 2007[a]	FY 2008
Nonproliferation and International Security			
Dismantlement and Transparency	0	38,967	38,053
Global Security Engagement and Cooperation	0	50,232	41,256
International Regimes and Agreements	0	31,787	36,288
Treaties and Agreements	1,185	1,995	4,224
International Emergency Management Cooperation	4,754	4,430	5,049
Nonproliferation Policy	23,835	0	0
International Safeguards	25,413	0	0
Export Control	19,063	0	0
Total, Nonproliferation and International Security	74,250	127,411	124,870

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Nonproliferation and International Security				
Dismantlement and Transparency	37,863	43,325	47,038	48,410
Global Security Engagement and Cooperation	44,207	57,613	60,086	58,557
International Regimes and Agreements	33,960	37,945	39,305	47,512
Treaties and Agreements	12,281	14,409	14,541	14,177
International Emergency Management Cooperation	4,730	5,401	5,509	5,620
Nonproliferation Policy	0	0	0	0
International Safeguards	0	0	0	0
Export Control	0	0	0	0
Total, Nonproliferation and International Security	133,041	158,693	166,479	174,276

Budget Structure Change

Beginning in FY 2007, Highly Enriched Uranium (HEU) Transparency and Global Initiatives for Proliferation Prevention (GIPP) have been realigned into the Dismantlement and Transparency and Global Security Engagement and Cooperation subprograms above, respectively. A dedicated program to support the nonproliferation activities under the Department's Global Nuclear Energy Partnership will begin in FY 2008.

[a] FY 2007 reflects the Office of Global Initiatives for Proliferation Prevention (formerly Russian Transition Initiatives) funding shift of $28,140,000 to the Office of Global Security Engagement and Cooperation and shift of the Office of HEU Transparency Implementation funding of $17,531,000 to the Office of Dismantlement and Transparency.

Mission

The Nonproliferation and International Security (NIS) mission is to prevent and counter weapons of mass destruction (WMD) proliferation by strengthening international nonproliferation regimes, institutions, and arrangements, promoting foreign compliance with nonproliferation norms and commitments, eliminating or reducing proliferation programs and stockpiles, and improving international emergency management capabilities. The program supports implementation of major nonproliferation agreements, such as the Non-Proliferation Treaty and its associated export control and international safeguards elements; works closely with the International Atomic Energy Agency, the Nuclear Suppliers Group, and other international organizations; maintains partnerships with more than 40 foreign governments; addresses risks of WMD expertise proliferation through scientist engagement efforts; cooperates with Russia to eliminate Cold War legacy stocks and address risks of nuclear terrorism; and implements U.S. statutory commitments relating to the Atomic Energy Act and arms reduction agreements; and works with foreign partners to improve the effectiveness of emergency management programs.

Benefits

Within the Nonproliferation and International Security program, five subprograms make unique contributions to Program Goal 2.2.41. These five subprograms are described below.

The Dismantlement and Transparency (D&T) subprogram works to reduce/eliminate proliferation programs by providing policy and technical support for nonproliferation and arms control treaties and agreements; developing effective verification options for dismantlement of nuclear equipment, weapons and components; and developing monitoring equipment, technology and tools to ensure obligations of foreign governments are being met.

The Global Security Engagement and Cooperation (GSEC) subprograms promote foreign compliance with nonproliferation regimes through global cooperative efforts that strengthen the capacity of international partners to indigenously meet their nonproliferation commitments. Through GSEC programs, states develop the tools and expertise to strengthen their national safeguards and export control systems and give WMD experts the tools they need to redirect their expertise to non-weapons related activities.

The International Regimes and Agreements (IRA) subprogram strengthens the nonproliferation regime by reinforcing and enhancing IAEA safeguards, multilateral supplier regimes, nuclear interdiction efforts and nonproliferation treaties and agreements and international physical protection initiatives, and ensuring U.S. compliance with its nonproliferation and licensing obligations.

The Treaties and Agreements subprogram supports implementation of bilateral or multilateral, Presidentially-directed or Congressionally-mandated nonproliferation and international security requirements stemming from high-level nonproliferation initiatives, agreements and treaties.

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.

Major Outyear Priorities and Assumptions
The outyear projections for the Nonproliferation and International Security total $632,489,000. The trend for the five-year period is slightly increasing. The Program will continue to prevent and counter weapons of mass destruction (WMD) proliferation by providing policy and technical support to implement and monitor transparent WMD reductions; strengthen indigenous safeguards and export control systems in other countries; transition WMD expertise and infrastructure to peaceful purposes; and improve international and multinational international safeguards, export control, and interdiction regimes. In out years, emerging areas of support include the secure, proliferation-resistant growth of nuclear energy use worldwide. The President's Global Nuclear Energy Partnership (GNEP) recommends new approaches to the nuclear fuel cycle that limit the spread of the most dangerous nuclear technologies and set requirements for states to acquire peaceful nuclear programs. Setting nuclear supply policies, building infrastructure for states to control nuclear imports and shipments, and updating the international safeguards technology base are also needed to promote GNEP's broad purposes. Beginning in FY 2008, NNSA anticipates dedicated funding for nonproliferation activities supporting GNEP. Additional considerations for the program include the opportunities and requirements that arise from expanded nuclear cooperation with Russia, India, and China, as well as increasing responsibilities in the area of WMD interdiction.

Program Assessment Rating Tool (PART)
The Department implemented a tool to evaluate selected programs, PART, developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The PART framework provides a means by which programs can assess their activities differently than through traditional reviews.

The results of the OMB review of NIS are reflected in the FY 2004 Budget Request. OMB gave the NIS program scores of 100 percent on the Program Purpose and Design; Strategic Planning; and Program Management Sections; and 73 percent on the Program Results and Accountability Section. Overall, the OMB rated the NIS program 87 percent, its highest category of "Effective." The OMB assessment found that the program has clear and unique purpose, and has demonstrated good progress in achieving its long-term and annual performance goals. In addition, OMB required that an independent evaluation be conducted to assess if the program is effectively achieving results. In response to the OMB findings, NNSA arranged for and conducted an independent evaluation.

The results of the OMB review of GIPP are reflected in the FY 2007 Budget Request. OMB gave the GIPP program very high scores of 100 percent on the Program Purpose and Design and Strategic Planning Sections, 98 percent on the Program Management Section, and 87 percent on the Program Results Section. OMB's overall PART rating for GIPP is 94 percent, its highest category of "Effective." OMB attributed these scores to the fact that the GIPP program has a clear and unique purpose; is well managed; has clear, concise, meaningful, and measurable performance metrics; and has demonstrated good progress in achieving its long-term and annual goals. In response to OMB findings, the GIPP is continuing to monitor the target population of misplaced WMD experts to ensure complete and effective coverage of the issue is maintained.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program 2.2.41 (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: 219 T: 219	R: 249 T: 249	R: 285 T: 282	T: 312	T: 342	T: 372	T: 402	T: 432	T: 462	By 2014, confirm that 500 metric tons of weapons-usable HEU has been permanently eliminated from the Russian stockpile.
Cumulative number of the GIPP target population of displaced Russian and FSU WMD experts who are currently employed in GIPP grants or long-term private sector jobs (and cumulative number who are employed in long-term private sector jobs resulting from GIPP grants) (Long-term Outcome)	R: 11,700 (3,500) T: 11,700	R: 11,500 (3,800) T: 12,100	R: 11,800 T: 11,800 (4,100)	T: 12,100 (4,400)	T: 12,400 (4,700)	T: 12,900 (5,200)	T: 13,400 (5,700)	T: 13,900 (6,200)	T: 14,400 (6,700)	By 2015, employ 17,000 in grants or long-term private sector jobs.* By 2019, employ 11,000 in long-term private sector jobs resulting from grants.*
<u>Cumulative percentage of non-USG (private sector and foreign government) project funding contributions obtained relative to cumulative USG GIPP funding contributions (Efficiency)</u>	<u>R: 60%</u> <u>T: 60%</u>	<u>R: 65%</u> <u>T : 65%</u>	<u>R: 70%</u> <u>T: 70%</u>	<u>T: 75%</u>	<u>T: 78%</u>	<u>T: 80%</u>	<u>T: 82%</u>	<u>T: 85%</u>	<u>T: 88%</u>	<u>By 2019, obtain non-USG funding contributions equal to 100% of the cumulative USG GIPP funding contributions.</u>
Annual number of technologies transferred to international regimes and other countries to prevent and counter WMD proliferation and nuclear-related terrorism (Annual Output)	R: 2 T: 2	R: 1 T: 1	R: 23 T: 5	T: 5	T: 4	T: 9	T: 9	T:11	T: 13	Annually transfer targeted technologies to international regimes and other countries to prevent and counter WMD proliferation and nuclear-related terrorism.
Annual number of international and domestic experts (e.g., IAEA inspectors, export control officers, physical protection personnel) trained in nonproliferation to fulfill the President's policy delineated on 11 February 2004 and implement the U.S.-sponsored UN Security Council Resolution 1540 criminalizing proliferation (Annual Output)	R: 1,305 T: 1,305	R: 1,100 T: 1,100	R: 1,930 T: 1,160	T: 1,330	T: 1,300	T: 1,800	T: 1,900	T: 1,9000	T: 2,100	Annually train at least 1,000 experts.

* The NIS target population of 17,000 is derived from the original NAS estimate of 60,000 less attrition and those experts engaged by other United States Government (USG) and international programs. The 11,000 is derived from the target population of 17,000, less those employed by recovering Russian/FSU economies.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Dismantlement and Transparency	**0**	**38,967**	**38,053**

The Office of Dismantlement and Transparency reduces/eliminates proliferation programs by promoting transparent arms reductions: negotiating, implementing and strengthening U.S. nonproliferation and arms control treaties and agreements, and developing the required verification options and associated transparency-monitoring tools. This office is responsible for the following program elements: U.S.-Russian Federation Plutonium Production Reactor Agreement; U.S.-Russian Federation Warhead Safety and Security Exchange (WSSX) Agreement; U.S.-Russian Federation Highly Enriched Uranium Purchase Agreement; the Chemical Weapons Convention; nuclear testing limitations; and policy development for the START Treaty and the Treaty of Moscow.

▪ **Warhead Dismantlement and Fissile Material Transparency**	**0**	**14,814**	**13,790**

The Warhead Dismantlement and Fissile Material Transparency (WDT) program negotiates and develops agreements and transparency options to provide confidence that Russian nuclear weapons are being dismantled and that the resultant excess fissile materials are not used in new nuclear weapons. The program supports policymaking, negotiations, and implementation for the following: the Threshold Test Ban Treaty (TTBT); Limited Test Ban Treaty (LTBT), Strategic Arms Reduction Treaty, Moscow Treaty, and Chemical Weapons Convention (CWC). Under the Bratislava process, the program evaluates technologies to combat nuclear-related terrorism (e.g., nuclear material detectors), and works with the Russian Federation to develop these technologies to meet specific, mission-based end-user needs. The program develops warhead and fissile material transparency methodologies, and evaluates the issues associated with potential monitoring regimes. In FY 2008, the Program will conduct four U.S.-Russian transparency visits under the Plutonium Production Reactor Agreement (PPRA), complete the development and evaluation of 23 new technologies under the Warhead Safety and Security Exchange (WSSX), develop and negotiate new projects with Russian institutes under the WSSX Agreement to combat nuclear terrorism and expand future nonproliferation initiatives, and will conduct meetings of the WSSX Joint Coordinating Group and Joint Steering Committee.

	(dollars in thousands) FY 2006	FY 2007	FY 2008
▪ **Nuclear Noncompliance Verification**	**0**	**6,622**	**9,830**

The Nuclear Noncompliance Verification (NNV) program develops advanced technology applications to verify declared nuclear materials and activities, detect undeclared nuclear programs in countries of proliferation concern, and verify the dismantlement of those programs, where possible. In addition, the NNV program develops advanced safeguards technologies and equipment, including environmental sampling analysis and remote monitoring systems, to improve the effectiveness and efficiency of nuclear safeguards and strengthen capabilities to detect clandestine nuclear activities. Program activities are closely coordinated with the work of the Nonproliferation And Verification R&D Program, and also require significant involvement and coordination with the IAEA, particularly in the area of new and emerging proliferation threats. Other specially designed tools and technologies also will be developed to address unique proliferation threats. NNV will also support GNEP activities by promoting incorporation of safeguards in GNEP facility designs and designing new verification tools and methods for GNEP processes.

▪ **HEU Transparency Implementation**	**0**	**17,531**	**14,433**

The HEU Transparency Program ensures transparent WMD reductions in Russia by annually monitoring the conversion of 30 metric tons of weapons-grade HEU into LEU for purchase by the United States. Through the implementation of negotiated transparency measures, the United States obtains increased confidence that the LEU purchased under the HEU Purchase Agreement is derived from dismantled Russian nuclear weapons and thereby eliminated from Russia's inventory.

Transparency activities include Special Monitoring Visits (SMVs) to each of the four Russian facilities; staffing the Transparency Monitoring Office (TMO) in Novouralsk, to observe operations and obtain facility processing data; nondestructive assay measurements to confirm that the material is weapons-grade prior to downblending; confirmatory measurements of the conversion of HEU to LEU through the Blend Down Monitoring System (BDMS) installed at the three Russian conversion facilities; and reciprocal Russian monitoring visits to the United States (Paducah Gaseous Diffusion Plant and fuel fabrication facilities). The program also provides technical and logistical support for the Transparency Review Committee sessions to review and negotiate transparency measures. In FY08, the program will conduct up to 24 SMVs to Russian facilities, host a Russian visit to the United States and conduct maintenance activities on BDMS systems installed at the three Russian sites.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Global Security Engagement and Cooperation	**0**	**50,232**	**41,256**

The Office of Global Security Engagement and Cooperation (GSEC) enhances the capacity and commitment of international partners to meet their nonproliferation obligations through a variety of cooperative efforts. GSEC subprograms strengthen indigenous nuclear safeguards and WMD export control systems; pursue Sister Laboratory technical engagement on the peaceful uses of nuclear energy; develop technically effective approaches to regional proliferation challenges; and transition WMD scientific communities in high-risk states. These activities assist partner states to implement and enforce nonproliferation obligations under the Treaty on the Non-proliferation of Nuclear Weapons (NPT) and United Nations Security Council Resolution (UNSCR) 1540 "On the Nonproliferation of WMD"; help detect and deter proliferators seeking WMD; create nonproliferation partnerships to strengthen regional and international security; and prevent the migration of WMD materials and expertise to states and sub-state groups of proliferation concern.

▪ **Confidence Building Measures**[a]	**0**	**4,742**	**2,400**

GSEC's Confidence-Building Measures (CBMS) project supports development and implementation of multilateral technical collaborations and training in regions of proliferation concern. This collaboration promotes technical solutions to a variety of regional security concerns, thereby reducing WMD proliferation risk. In FY 2008, the program will focus on concluding projects undertaken by the former Regional Security program, focusing on areas identified as high priority with concrete, measurable results. These include regional seismic and radiation projects in South Asia and the Middle East, implementation of the Letter of Intent activities with Israel, a bio-security project in Indonesia, and nuclear materials and nuclear forensics technical collaborations in Central Asia.

[a] These projects were one element of the former Security Engagement/Regional Security program.

	FY 2006	FY 2007	FY 2008
▪ **International Nuclear Safeguards and Engagement Program**	**0**	**7,623**	**9,144**

The International Nuclear Safeguards and Engagement Program (INSEP) counters the threat of nuclear proliferation through technical partnerships that support the goals of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The program collaborates with international partners on advanced safeguards technologies under the aegis of bilateral agreements to detect and deter WMD proliferation. The program also promotes the peaceful application of nuclear technology through bilateral technical engagement on peaceful nuclear activities focusing on effective nuclear stewardship in developing countries. INSEP activities directly support and promote UNSCRs 1540 and 1673. In FY 2008, the program will expand collaborations with established international partners including China, Libya, and Japan, and will develop new partnerships with countries in Asia in support of GNEP nonproliferation activities.

	FY 2006	FY 2007	FY 2008
▪ **International Nonproliferation Export Control and Border Monitoring**[a]	**0**	**9,727**	**9,510**

The International Nonproliferation Export Control and Border Monitoring Program (INECP) works with over 40 partner governments in the former Soviet Union (FSU), Asia Pacific, the Middle East, South America, North America, and Europe to strengthen national export control systems to prevent WMD proliferation to countries and regions of proliferation concern. The program targets established and emerging suppliers, high-traffic transshipment countries, and transit countries located near suppliers with inadequate controls. An underlying program objective is building indigenous technical communities to support the proper functioning of national export control systems, including cooperation with export license reviewers, outreach to industry and national scientific institutes, and assistance to frontline enforcement agencies in identifying WMD-related commodities. INECP activities are coordinated closely with State Department-led Export Control and Related Border Security (EXBS) activities.

The Cooperative Border Security Program (CBSP) will deploy expertise and technology developed at the NNSA's Cooperative Monitoring Center (CMC) at Sandia to the Middle East, South Asia, East Asia, and Central Asia. CMC Amman (Jordan) also is supported under CBSP and managed under contract by SNL's CMC. Both centers focus on enhancing border security through technical cooperative solutions. In FY 2008, the CMC will support CBSP-sponsored projects in Israel and Jordan, Iraq and Jordan, and Pakistan and Afghanistan, and, assume integration of the INECP export control enforcement mission into CBMP-related projects where appropriate.

[a] Reflects the addition of Border Monitoring to the previous title and a realignment of funds from Security Engagement/Regional Security for Border Monitoring.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
▪ **Global Initiatives for Proliferation Prevention**	**0**	**28,140**	**20,202**

The Global Initiatives for Proliferation Prevention (GIPP) program helps prevent the proliferation of WMD expertise from regions of proliferation concern by redirecting displaced scientists and personnel with WMD 'know-how' into sustained, civilian employment. GIPP achieves this by: (1) providing grants to experts with WMD expertise for applied research aimed at commercializing indigenous technologies in full cost-share partnerships with U.S. private firms; and (2) creating new businesses leading to the diversification of the civilian economies of Russian closed nuclear cities. These efforts were brought together in 2001 to sharpen their focus and place greater emphasis on engaging the private sector and garnering additional non-USG funding. In FY 2008, GIPP's main focus will remain the FSU, but the program also will address other countries of proliferation concern, including Libya and Iraq. The reduction in the GIPP budget reflects the termination of the Nuclear Cities Initiative program element.

International Regimes and Agreements	**0**	**31,787**	**36,288**

The Office of International Regimes and Agreements (IRA) strengthens the nonproliferation regime by raising the barriers to WMD proliferation and strengthening the regime by providing policy and technical support to multilateral, bilateral and international nonproliferation regimes and agreements. IRA strengthens these agreements and institutions by promoting U.S. policies and initiatives to limit the spread of WMD-significant materials, equipment and technologies. Specifically, IRA supports: International Atomic Energy Agency (IAEA) safeguards efforts; multilateral supplier regimes (e.g. Nuclear Suppliers Group (NSG), Missile Technology Control Regime (MTCR), and Zangger Committee); effective physical protection standards; counter-proliferation and interdiction activities; and promotes the universalization of the NPT. IRA also will provide nonproliferation expertise in the international and domestic implementation of the Global Nuclear Energy Partnership (GNEP) and upholds and implement U.S. safeguards, statutory export control licensing, and DOE complex technology security obligations. Finally, IRA provides technical support to the U.S. enforcement and intelligence communities in their investigation of the illegal/clandestine movement of strategic exports and imports.

▪ **Interdiction/Enforcement**	**0**	**2,970**	**3,000**

IRA's interdiction and enforcement program provides critical technical support and policy guidance and policy support to USG Interagency interdiction groups, involving cases that require diplomatic approaches to foreign governments on suspected transfers of nuclear, missile, or chemical/biological related commodities or technologies. This includes participation in USG interdiction working groups and implementation of U.S. sanctions-related efforts. DOE participates in these weekly interdiction meetings and offers critical technical support in identifying items and technologies of nuclear, missile, or chemical/biological concern for possible interdiction. DOE also participates in the National Security Council-led Interdiction Sub-PCC. Additionally, DOE participates in and provides support to the USG's Proliferation Security Initiative (PSI). Given the new challenges associated with the WMD black market, the program will enhance technical support to the USG by developing and identifying proliferators' possible choke points. The program will take advantage of existing technical knowledge and infrastructure at the DOE laboratories for traditional interdiction and apply this knowledge to allow for direct technical feedback to the USG's new and growing interdiction efforts and demands.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

To support U.S. export control enforcement efforts, the program likewise provides training and reference guides on WMD-related technologies to USG enforcement agencies and offices, in cooperation with the Departments of Homeland Security and Commerce., In FY 2008, 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 and international trade flows to determine interdiction opportunities.

▪ **Global Regimes**	**0**	**1,890**	**2,126**

The Global Regimes Program develops policy and provides program oversight on nuclear nonproliferation, international security, and nuclear treaties and agreements. Special emphasis is placed on issues pertaining to the NPT, multilateral affairs centered at the Conference on Disarmament, including negotiations on a Fissile Material Cut-Off Treaty; the IAEA Technical Cooperation (TC) Program; bilateral Agreements for Cooperation in the Peaceful Uses of Nuclear Energy (AEA Section 123); and the Biological Weapons Convention (BWC). 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. The program provides policy and technical expertise on these treaties and agreements and ensures that their negotiation and implementation meet U.S. national security and foreign policy objectives, and can be implemented at DOE/NNSA National Laboratories and other U.S. facilities. In FY 2008, the program will continue efforts to promote nonproliferation considerations in IAEA TC Program implementation, provide statutory technical assistance to negotiations supporting Agreements for Cooperation (i.e., the negotiation and implementation of Administrative Arrangements to new Section 123 Agreements with Russia and India), and represent DOE/NNSA in potential negotiations on a Fissile Material Cut-Off Treaty and the BWC Review Conference. This program will also lead development of assured fuel supply concepts and activities associated with the Global Nuclear Energy Partnership (GNEP).

▪ **Nuclear Safeguards**	**0**	**7,521**	**11,601**

The International Safeguards program includes support on: 1) Safeguards Policy, 2) Voluntary Offer Agreement (VOA) implementation at DOE sites, 3) Preparations to implement the Additional Protocol (AP) at DOE sites, and 4) the Advanced Safeguards Initiative (ASI). Safeguards Policy activities support ongoing efforts to develop safeguards policy positions in the interagency process, and supports policy development at the IAEA through the Director General's Standing Advisory Group on Safeguards Implementation. VOA Safeguards implementation upholds our existing treaty obligations through application of safeguards at selected sites and maintains the DOE portion of the Eligible Facilities List. AP implementation efforts are necessary to prepare the DOE complex to meet new obligations as the U.S. AP enters into force. ASI develops new approaches and safeguards concepts to improve the effectiveness and efficiency of IAEA safeguards verification, as an essential tool to combat proliferation in view of a dynamic and growing international fuel cycle. Beginning in FY 2008, the Nuclear Safeguards program will also provide support to the development of advanced safeguards approaches for GNEP and conduct proliferation risk assessments for GNEP technologies.

	FY 2006	FY 2007	FY 2008
(dollars in thousands)			
▪ **Export Control Licensing Operations**	**0**	**10,204**	**10,728**

The Licensing Operations program reviews , advises, and provides recommendations on U.S. license applications for dual-use items and munitions that could have uses in the development of nuclear, chemical, and biological weapons and delivery systems. The program maintains the Proliferation Information Network System (PINS), an automated, classified system for the review and evaluation of dual-use licenses. As statutorily mandated, the Licensing program participates in interagency license review groups and interacts closely with the Departments of Commerce, State and Defense on dual-use license application reviews; maintains, with the Department of Commerce, the "Nuclear Referral List," which identifies nuclear dual-use items requiring special attention; and cooperates with the Departments of Homeland Security and Commerce export enforcement officials on commodity assessments. Another major area of responsibility is administration of Secretarial authorizations for the transfer of U.S. nuclear technology, as provided under the Atomic Energy Act and the implementing regulations in 10 CFR Part 810. The program also supports a wide range of activities to promote export control compliance across the DOE complex and the USG. The Licensing Operations program will also support GNEP by addressing requisite licensing and export control changes.

▪ **Export Control Multilateral**	**0**	**3,568**	**3,929**

The Multilateral Program provides technical and policy support to U.S. Government diplomacy involving multilateral nuclear, missile and chem/bio export control regimes, including the Nuclear Suppliers Group and the MTCR, amongst others. The Multilateral Program draws on the unparalleled technical expertise in the national laboratories and is a recognized international leader in the area of nuclear export controls. The program developed and operates a state-of-the-art NSG Information Sharing System (the NISS), a secure internet-based system that allows NSG members to share real-time information on nuclear-related license denials to prevent proliferation of dual use items, and provides technical support to regime members. The program also is developing and implementing a similar system for the Australia Group for chem/bio export control. Finally, this program supports the USG interagency through its comprehensive reports on WMD proliferation risk and analyses of foreign proliferators' programs. In FY 2008 the program will continue to provide and support the interagency and the multilateral regime members, and also lead interagency discussions on changes to NSG control lists for GNEP technologies.

▪ **International Nuclear Security**	**0**	**5,634**	**4,904**

The International Nuclear Security program conducts bilateral physical protection assessments, assisting the IAEA in its execution of International Physical Protection Advisory Service (IPPAS) missions, physical protection training, and the design and implementation of new physical protection guidelines in conjunction with the IAEA. The program works with the IAEA and national physical protection officials to help states implement physical protection requirements, such as those required in the amended Convention on the Physical Protection of Nuclear Materials (CPPNM). The program coordinates with the NNSA Office of Global Threat Reduction to provide assessments and training feedback to assist with future physical protection upgrades. This program will be responsible through FY 2008 for negotiating and implementing the new international standards for physical protection, including for new fuel cycle technologies considered under GNEP, which are enshrined in IAEA INFCIRC/225.

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		
Treaties and Agreements	**1,185**	**1,995**	**4,224**

The Treaties and Agreements 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. The program also funds research and engagement activities that support NNSA's mission and policy requirements by non-governmental organizations and institutes of higher learning. These functions formerly were performed by the Security Engagement/Regional Security program in the Office of Global Security, Engagement and Cooperation, and budget growth beginning in FY 2008 reflects the transition of these functions to Treaties and Agreements. Examples of this work include analysis of options for India's plan to separate civil and military nuclear facilities, approaches to strengthen IAEA safeguards, and support for the National Bureau of Asian Research to forecast strategic trends in East Asia. The program continues to provide urgently-required responses for unanticipated U.S. national security needs. Examples of unforeseen activities that have been funded in the past are: dismantlement and removal of nuclear materials from clandestine WMD programs in Libya; a joint US-Russian counter-terrorism conference; a regional seminar to improve export control practices in Central Asia and the Caucasus; resources for WMD training to the Federal Law Enforcement Training Center.

International Emergency Management and Cooperation	**4,754**	**4,430**	**5,049**

The International Emergency Management and Cooperation 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, EU, NATO, G8, 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 International Emergency Management and Cooperation subprogram supports the IAEA in developing and implementing a new code of conduct for emergency management affecting all member states. 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 the Bratislava Initiative between U.S. and Russia protecting the public and the environment from the consequences of nuclear/radiological incidents in Russia; 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 in Russia. The subprogram is developing emergency management training courses for Chinese and South Korean emergency managers in the areas of hazards assessment, monitoring, and medical management of a radiological emergency. The subprogram will also analyze the results of the tracer experiment conducted in China in fall 2007 in an international workshop with results to be incorporated into plume model systems. Differences between worldwide plume modeling and dispersion programs developed by the National Atmospheric Release Advisory Center (NARAC) and systems developed by Japan, EU, and Russia will

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		

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.

Nonproliferation Policy

	FY 2006	FY 2007	FY 2008
▪ **Global Regimes**	**4,562**	**0**	**0**

Reflects realignment of this activity to the Office of International Regimes and Agreements.

▪ **Regional Security**	**8,554**	**0**	**0**

Reflects realignment of this activity to the Office of Global Security Engagement and Cooperation.

▪ **Warhead and Fissile Material Transparency**	**10,719**	**0**	**0**

Reflects realignment of this activity to the Office of Dismantlement and Transparency.

Export Control

▪ **Export Control Operations**	**13,797**	**0**	**0**

Reflects realignment of this activity to the Office of International Regimes and Agreements.

▪ **International Nuclear Safeguards and Engagement Program**	**5,266**	**0**	**0**

Reflects alignment of this activity to the Office of Global Security Engagement and Cooperation.

International Safeguards

▪ **Safeguards Policy and Treaty Implementation**	**7,918**	**0**	**0**

Reflects implementation of the realignment to the Office of International Regimes and Agreements.

▪ **International Cooperation**	**5,045**	**0**	**0**

Reflects implementation of the realignment to the Office of Global Security Engagement and Cooperation.

▪ **Nuclear Noncompliance Verification**	**6,871**	**0**	**0**

Reflects implementation of the realignment to the Office of Dismantlement and Transparency.

▪ **International Nuclear Security**	**5,579**	**0**	**0**

Reflects implementation of the realignment to the Office of International Regimes and Agreements.

Total, Nonproliferation and International Security	**74,250**	**127,411**	**124,870**

Explanation of Funding Change

	FY 2008 vs. FY 2007 ($000)
▪ **Dismantlement and Transparency**	
This decrease is a result of additional programmatic efficiencies found in the implementation of U.S. monitoring rights under the HEU Purchase Agreement and a reduction in funds for the Warhead and Fissile Material Transparency program due to the realignment of policy and implementation functions into one office, and because the program is now in the second decade of its 20-year life span. The required monitoring equipment for three Russian facilities has been developed, purchased and installed; and the costs to sustain the operation of that equipment are less than the costs for first decade of the program.	**-914**
▪ **Global Security Engagement and Cooperation (GSEC)**	
The decrease results from the elimination of funding for the Nuclear Cities Initiative, and the shift of GSEC policy support to treaties and agreements.	**-8,976**
▪ **International Regimes and Agreements**	
The increase is the result of a new program responsibility to carry out advanced safeguards policy, fuel services, and proliferation risk reduction activities in support of GNEP nonproliferation requirements.	**+4,501**
▪ **Treaties and Agreements**	
Increase reflects the completion of the realignment of the GSEC Security Engagement/Regional Security portfolio shifting policy support activities to treaties and agreements. This consolidates analytical support activities under the Policy Director, and also incorporates funding support to non-governmental organizations and academic institutions to carry out open-source analysis and Track II engagement, which were formerly a part of GSEC.	**+2,229**
▪ **International Emergency Management and Cooperation (IEMC)**	
Funding increase will ensure that the IEMC program will continue 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, Armenia and Georgia. IEMC's base program will continue to ensure its mission of reducing the risk of international nuclear and radiological events by strengthening emergency preparedness and response capabilities worldwide.	**+619**
Total Funding Change, Nonproliferation and International Security	**-2,541**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	0	0	0
Capital Equipment	186	192	198
Total, Capital Operating Expenses	**186**	**192**	**198**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	0	0	0	0
Capital Equipment	204	210	216	222
Total, Capital Operating Expenses	**204**	**210**	**216**	**222**

[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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

International Nuclear Materials Protection and Cooperation

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
International Nuclear Materials Protection and Cooperation			
Navy Complex	16,966	17,300	13,390
Strategic Rocket Forces/12th Main Directorate	107,761	129,245	91,449
Rosatom Weapons Complex	89,274	56,505	60,114
Civilian Nuclear Sites	27,341	21,200	22,188
Material Consolidation and Conversion	21,583	16,828	19,667
National Programs and Sustainability	39,851	48,131	45,632
Second Line of Defense	119,954	123,973	119,331
Total, International Nuclear Materials Protection and Cooperation	422,730	413,182	371,771

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
International Nuclear Materials Protection and Cooperation				
Navy Complex	6,500	6,500	6,760	6,895
Strategic Rocket Forces/12th Main Directorate	51,700	42,900	39,340	40,127
Rosatom Weapons Complex	24,667	9,667	10,067	10,268
Civilian Nuclear Sites	33,877	18,307	19,043	19,424
Material Consolidation and Conversion	21,243	14,179	15,068	15,369
National Programs and Sustainability	52,521	73,449	70,952	72,372
Second Line of Defense	217,701	237,456	245,931	249,554
Total, International Nuclear Materials Protection and Cooperation	408,209	402,458	407,161	414,009

Mission

The 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 border crossings and Megaports to prevent and detect the illicit transfer of nuclear material.

Benefits

Within the International Nuclear Materials Protection and Cooperation program (INMP&C), seven subprograms each make unique contributions to GPRA Unit Program Goal 2.2.42.

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. Additional areas/buildings not included in the Bratislava Agreement have been proposed by Rosatom sites for MPC&A cooperation. NNSA is currently reviewing these proposals to determine if they meet the criteria for MPC&A upgrades. If NNSA decides to pursue MPC&A upgrades at these additional areas/buildings, they would be completed after the scheduled 2008 completion date for all MPC&A upgrades to Rosatom sites as outlined in the Bratislava Agreement.

The Navy Complex program element improves security of Russian Federation (RF) Navy warhead and weapons usable material by installing improved security systems at RF Navy nuclear warhead sites, RF Navy HEU fuel storage facilities (fresh and damaged fuel), and shipyards where nuclear materials are present. The program also covers security systems at checkpoints near upgraded sites, Personnel Reliability Program (PRP) for the Russian Federation (RF) Ministry of Defense (MoD), and sustainability activities (i.e.: training, site-level maintenance support) for upgraded MoD sites. These activities comprise a total of 50 sites: 39 Russian Navy nuclear warhead sites and 11 Russian Navy fuel and other nuclear material storage sites.

The Strategic Rocket Forces (SRF)/12th Main Directorate program element improves security of Russian Federation (RF) warheads by installing improved security systems at RF Strategic Rocket Forces and 12th Main Directorate nuclear warhead sites. A total of 25 SRF sites (at 11 bases) and 9 12th Main Directorate sites have been approved by the U.S. Government for MPC&A upgrades

The Rosatom Weapons Complex program element enhances U.S. national security by providing MPC&A upgrades to the Rosatom nuclear weapons, uranium enrichment, and material processing/storage sites. The Rosatom Weapons Complex is located in closed cities and is comprised of nine sites. The Civilian Nuclear Sites program element installs systems at 32 civilian nuclear sites (19 Russian and 13 Non-Russian).

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 highly enriched uranium (HEU) and plutonium into fewer, more secure locations and converting highly enriched uranium into low enriched uranium (LEU) and weapons-usable plutonium into less proliferation-attractive form.

The National Programs and Sustainability element enables the INMP&C program to implement a focused strategy to ensure that programs can be sustained in the Russia Federation (RF) and other partner countries, by establishing and implementing projects to develop regulations and inspection capabilities, site safeguards and security, training and regional support, site sustainability, and secure transportation and proforce upgrades.

The Second Line of Defense (SLD) Core program deploys radiation detection equipment, training and technical support at strategic transit and border crossings and at air and sea transshipment hubs in Russia and in other countries throughout the former Soviet Union and eastern Europe to provide these governments with the technical means to detect, deter and interdict illicit trafficking of nuclear and other radioactive materials. The SLD Megaports Program is pursuing cooperation with international partners to deploy and equip key seaports (“Megaports”) with radiation detection equipment and to provide training to appropriate law enforcement officials, in order to provide them with the technical means to deter and interdict illicit trafficking in nuclear and other radioactive materials in the global maritime system.

Major Outyear Priorities and Assumptions

The outyear projections of the INMP&C program totals $1,631,837,000. The Program supports efforts to secure and eliminate vulnerable nuclear weapons and weapons-usable materials in Russia and other areas of concern and efforts to prevent and detect the illicit transfer of nuclear material. Significant decreases in funding during the outyears reflects the completion of MPC&A upgrades to warhead and material sites in Russia and the transition to sustainability activities. These decreases are partially offset by increases in the Second Line of Defense program as the program is expanded to include additional sites and Megaports in targeted countries of strategic interest.

To meet the goal of Nuclear Nonproliferation the INMP&C program plans to secure in Russia a total of 73 warhead sites by the end of 2008; approximately 210 buildings containing weapons usable nuclear material by the end of FY 2008; blend-down a total of approximately 17 MTs of HEU by the end of 2015; and install radiation detection equipment at approximately 380 border sites, approximately 70 ports of interest in 35 countries under the Megaports program. These results will directly support the goal of Nuclear Nonproliferation by securing warheads and weapons usable nuclear materials at their source from theft and or diversion and as a second layer of defense by preventing and detecting the illicit transfer of nuclear materials.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of PART provides a means through which programs can assess their activities differently than through traditional reviews. The INMP&C program has incorporated feedback from OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2004 Budget Request. OMB gave the INMP&C program very high scores of 100 percent on the Program Purpose and Design, and Strategic Planning Sections; 57 percent on the Program Management Section; and 87 percent on the Program Results Section. OMB’s overall PART rating for INMP&C is 85 percent, its highest category of “Effective.” OMB attributed these scores to the fact that the INMP&C program has a clear and unique purpose; is well managed; has clear, concise, meaningful and measurable performance metrics; and has demonstrated good progress in achieving its long-term and annual goals. In response to the OMB findings, INMP&C is improving the way it tracks expenditures by country so that it can better manage resources.

Annual Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators *	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.42 (International Nuclear Materials Protection and Cooperation)										
Cumulative number of buildings with weapons-usable material secured (Efficiency)	R: 120	R: 150 T: 150	R: 175 T: 175	T: 190	T: 210	N/A	N/A	N/A	N/A	By 2008, secure (rapid or comprehensive upgrades complete) approximately 210 buildings containing weapons-usable nuclear material.
Cumulative number of warhead sites with completed MPC&A upgrades (Long-term Output)	R: 36 T: 35	R: 47 T: 47	R : 50* T: 53	T: 58	T: 64	T: 73	N/A	N/A	N/A	By December 2008, complete MPC&A upgrades at approximately 73 warhead sites.
Cumulative metric tons of HEU converted to LEU (Long-term Outcome)	R: 5.4	R: 7.1	R: 8.4 T: 8.6	T: 9.5	T: 10.7	T: 12.1	T: 13.0	T: 13.9	T: 14.8	By December 2015, convert 17 MTs of HEU to LEU.
Cumulative number of Second Line of Defense (SLD) sites with nuclear detection equipment installed (Cumulative number of Megaports completed) (Long-term Output)	R: 66 (2) T: 74 (3)	R: 87 (4) T: 98 (5)	R :104 (6) T: 114 (10)	T: 173 (12)	T: 227 (15)	T: 284 (18)	T: 323 (23)	T: 365 (28)	T: 392 (33)	By December 2013, install radiation detection equipment at approximately 380 border crossing sites and 35 Mega-Ports (415 total SLD sites) (assuming no expansion of program sites).

* The number previously presented in the PAR was inaccurately reported as 53.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Navy Complex	**16,966**	**17,300**	**13,390**

The Navy Complex program element improves security of Russian Federation (RF) Navy warhead and weapons usable material by installing improved security systems at RF Navy nuclear warhead sites, RF Navy Highly Enriched Uranium (HEU) fuel storage facilities (fresh and damaged fuel), and shipyards where nuclear materials are present. These activities comprise a total of 50 sites, 39 Russian Navy nuclear warhead sites and 11 Russian Navy fuel and other nuclear material storage sites.

NNSA 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 2008, NNSA will provide sustainability support such as training and site level maintenance of installed MPC&A upgrades to 16 of these 39 sites which meet interagency requirements for such support.

Comprehensive upgrades were completed on 100 percent of the 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 equipment provided is effective in protecting the material.

Strategic Rocket Forces/12th Main Directorate[a]	**107,761**	**129,245**	**91,449**

The Strategic Rocket Forces (SRF)/ 12th Main Directorate program element improves security of RF warheads by installing improved MPC&A systems at RF Strategic Rocket Forces and 12th Main Directorate nuclear warhead sites. Twenty-five SRF sites (at 11 bases) and 9 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 will be based upon the refined process currently in place with the Russian Navy, which includes upgrades design 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.

Due to unforeseen weather, technical and contractor access problems, three SRF sites originally planned for completion in FY 2006 have slipped to FY 2007.

In FY 2008, NNSA plans to complete MPC&A upgrades to 6 SRF sites (increasing the total SRF sites secured with either completed rapid and/or comprehensive upgrades to 25 sites). Continue comprehensive MPC&A upgrades to 9 12th Main Directorate sites. Provide sustainability support for 19 SRF sites.

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[a] Beginning in FY 2006, we will be doing both Strategic Rocket Forces and 12th Main Directorate work.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Rosatom Weapons Complex	**89,274**	**56,505**	**60,114**

The Rosatom Weapons Complex program element enhances U.S. national security by providing MPC&A upgrades to the RF Rosatom nuclear weapons, uranium enrichment, and material processing/storage sites. The Rosatom Weapons Complex, located in closed cities, comprises a total of 9 sites. The goal of this joint cooperative program is to identify areas that handle highly attractive material and provide protection against both internal and external threat scenarios.

In FY 2008, the program will: At Mayak, complete trench reconstruction and move all remaining SNM under delay blocks at Building 142 within the RT-1 Plant; and complete all upgrades at Buildings 101, 104, 142, 199, 101A and 855 within the RT-1 Plant; complete all upgrades at Buildings 1A, 190, and the Site 1 and 2 perimeters at Plant 20. These activities will complete the work at Mayak mandated by the Bratislava initiative. However, it is possible that additional work beyond the Bratislava agreement will be undertaken at Mayak.

At Tomsk-7, undertake sustainability activities for all completed physical protection and MC&A systems at the Radiochemical Plant, the Conversion Plant, the Uranium Enrichment Plant and the Reactor Plant; complete Zone 2 upgrades at the Chemical Metallurgical Plant; complete the Building 2A barracks, and renovate the classroom used by the MVD guard force. These activities will complete the work at Tomsk-7 mandated by the Bratislava agreement.

At Krasnoyarsk-26, complete physical protection and MC&A upgrades to the Plutonium Storage Facility Expansion Area; complete upgrades to the Radiochemical Plant Processing Area; and complete additional access control upgrades at the facility entrances. The entire facility is expected to be completed in early FY 2008. The project will transition to the full sustainability phase during this year.

At Arzamas-16, complete comprehensive upgrades in Guarded Areas 1 and 2; complete integration of Guarded Area MC&A systems into the site-wide system; complete integration of Guarded area PP systems into site-wide system. These activities will complete the work at Arzamas-16 as mandated by the Bratislava agreement.

At Chelyabinsk-70, complete comprehensive physical protection and MC&A upgrades at Buildings 717 and 718; complete comprehensive MC&A upgrades at Site 8 buildings 1-15; complete rapid and comprehensive PP and MC&A upgrades at a production plant; and complete comprehensive PP upgrades at Site 8 entry control point and central alarm station. These activities will complete the work at Chelyabinsk-70 mandated by the Bratislava agreement.

Continue sustainability activities at Sverdlovsk-44 and Kransnoyarsk-45.

The serial production enterprises (SPEs) of Rosatom contain a significant portion of the nuclear material residing in the Russian weapons complex. NNSA has offered assistance to improve security at these facilities by offering training and other support which does not require access. To date, Rosatom has not proposed these facilities for cooperation.

Funding also supports continued sustainability activities in Kazakhstan, Ukraine, Belarus and Uzbekistan.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Civilian Nuclear Sites	**27,341**	**21,200**	**22,188**

The Civilian Nuclear Sites program element installs systems at 31 civilian nuclear sites (19 Russian and 13 Non-Russian). The basic MPC&A upgrade objective is to employ a cost-effective, graded approach with an initial focus on installing upgrades on 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, as needed 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 2008, NNSA plans to complete upgrades at the Bohvar and Afrikantov Experimental Machine Building Design Bureau (OKBM) sites, increasing the percentage of total number of civilian nuclear sites with completed MPC&A upgrades to 100%; and provide support for training, procedures, maintenance, equipment repair, critical spare parts, and performance testing and other activities to the sites with completed MPC&A upgrades in order to ensure the sustainability of those upgrades.

In addition, in FY 2008, NNSA 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 rapid 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	**21,583**	**16,828**	**19,667**

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 decreases 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 MTs of HEU to LEU.

In FY 2008, NNSA 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 1.2 MTs of the total 17 MTs of HEU to LEU, (for a cumulative total converted of 10.7 MTs).

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		
National Programs and Sustainability	**39,851**	**48,131**	**45,632**

The National Programs and Sustainability element helps to build the necessary MPC&A infrastructure that enables that MPC&A programs to operate effectively and can be sustained in the Russian Federation (RF) and other partner countries, by establishing and implementing projects to develop regulations and inspection capabilities, site safeguards and security programs, material control and accounting, training and regional support, and site sustainability capabilities along with a robust nuclear security culture. 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 2008, the program will accelerate projects to assist the RF in establishing the necessary MPC&A support infrastructure to sustain effective MPC&A operations in the long term. At this time the program is working to develop or revise 130 MPC&A regulations for the Russian Federation to support sustainable MPC&A operations. In FY 2008, 28 MPC&A regulations will be developed or revised; a regulatory analysis for the RF Ministry of Defense will be completed and work to develop and revise regulations will be underway; 20 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 continue to procure railcars and trucks to provide additional physical security protection for nuclear material shipments. In FY 2008, 6 new cargo railcars with security enhancements and 3 offsite truck convoys to transport nuclear material shipments will be purchased. There will be a total of 6 long-range offsite truck convoys purchased---3 during FY07 and 3 during FY 2008. Each offsite truck convoy consists of 4 vehicles. A total of 24 vehicles will have been purchased when all 6 offsite convoys are delivered to Russian sites. A number of onsite transportation trucks will also be purchased through joint procurement with MPC&A site project teams. By the end of FY08 it is estimated that a total of 283 security overpacks of all types, both truck and rail will have been provided; 191 trucks will have been purchased; and 78 cargo and 25 guard railcars will have been purchased.

The program 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 2008; ten MC&A measurement methodologies will be developed; five sets of reference materials will be developed for MC&A equipment calibration and operation; and an MC&A effectiveness tool will be developed to assess the MC&A vulnerabilities.

The program will operate and maintain 3 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 2008, 20 physical protection classes with 300 participants, and 35 material control and accounting classes with 500 participants will be conducted. In FY 2008, eight students will graduate from the Masters Graduate Program at the Moscow Engineering Physics Institute, and another fifteen students will graduate from the Institute’s Engineering Degree Program.

The program 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, the program will continue implementation of an MPC&A operations 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 2006	FY 2007	FY 2008
Second Line of Defense	**119,954**	**123,973**	**119,331**
▪ **Core Program**	**44,225**	**83,855**	**72,534**

The Second Line of Defense (SLD) Core Program deploys radiation detection equipment, training and technical support at strategic transit and border crossings and at air and sea transshipment hubs in Russia and other countries throughout the former Soviet Union and eastern Europe to provide these governments with the technical means to deter and interdict illicit trafficking in nuclear and other radioactive materials. 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 2008, radiation detection equipment will be installed at an additional 51 foreign sites in Russia, Ukraine, Romania, Turkey, Kazakhstan and Pakistan, increasing the total non-Megaport sites with completed installations to 212. Training will be provided in monitor maintenance and alarm response to law enforcement personnel in these countries. Provide maintenance and/or repair for radiation detection systems at up to 161 sites in countries where the SLD Core Program has installed such equipment, including Russia, Azerbaijan, Armenia, Turkey, Kazakhstan, Romania, Greece, Georgia and Ukraine. Additionally, the program will continue to maintain equipment previously deployed by the Department of State and will maintain equipment installed by the U.S. Department of Defense in Uzbekistan. In addition to our 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 United Nations Security Council Resolution 1718 to prevent the illicit trafficking in nuclear weapons or materials from or to the Democratic People's Republic of Korea will continue in FY2008.

▪ **Megaports**	**75,729**	**40,118**	**46,797**

The SLD Megaports Program is pursuing cooperation with international partners to deploy and equip key ports with radiation detection equipment and to provide training to selected law enforcement officials, in order to provide them the technical means to detect, deter and interdict illicit trafficking in nuclear and other radioactive materials. 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 recently announced Secure Freight Initiative (SFI). 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 RDD (dirty bomb) against the US, the host country and our allies. Under SFI, NNSA will work with DHS to demonstrate 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.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

The ports of interest to DOE have been identified based upon several factors, such as container volume to the U.S., routing criteria, regional threat, and traffic flow characteristics. Under this initiative, NNSA plans to implement the program in up to 70 international seaports. Implementation of the Mega-Ports program at any given port is contingent upon the agreement/invitation of the government in the country in which the port lies.

To expand on this partnership with CSI, the Megaports program has committed to the placement of a single radiation portal monitor (RPM) in close proximity to the non-intrusive imaging (NII) system at CSI ports that include integration of RPM alarm data with the NII images.

NNSA is engaged with multiple countries in Europe, Asia the Middle East and South America to negotiate the implementation of Megaports Initiative in these countries. NNSA continues to aggressively engage with governments and commercial terminal operators in those countries where it is important to implement the Megaports Initiative.

In FY 2008, NNSA plans to complete installations at 3 additional Megaports (increasing the number of completed ports to 15). 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 will be provided for 12 sites which have completed installations. NNSA will continue to pursue cooperation with international partners interested in participating in the Megaports initiative. In addition to our ongoing activities to implement the SLD Megaports Initiative in countries of strategic importance, efforts to deploy radiation detection technologies in support of United Nations Security Council Resolution 1718 to prevent the illicit trafficking in nuclear weapons or materials from or to the Democratic People’s Republic of Korea will continue in FY 2008.

Total, International Nuclear Materials Protection and Cooperation	**422,730**	**413,182**	**371,771**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
▪ **Navy Complex**	
Decrease due to the phased transition of site sustainability support to the Russian Federation.	**-3,910**
▪ **Strategic Rocket Forces/12th Main Directorate**	
Decrease due to the completion of comprehensive MPC&A upgrades to 5 SRF sites in FY 2007.	**-37,796**
▪ **Rosatom Weapons Complex**	
Increase due to additional sustainability requirements for sites transitioning to the full sustainability phase (Mayak, Tomsk-7, Arzamas-16 and Chelyabinsk-70). This increase will also fund selected nuclear material transportation upgrades for sites under this office.	**+3,609**
▪ **Civilian Nuclear Sites**	
Increase due to additional sustainability requirements to sites with completed MPC&A upgrades.	**+988**
▪ **Material Consolidation and Conversion**	
Increase due to a higher projected availability of excess HEU to be downblended to LEU.	**+2,839**
▪ **National Programs and Sustainability**	
Decrease due to the phased transition of the responsibility for personnel training and technical support for sustaining upgraded MPC&A systems at Russian Navy and Rosatom facilities to the Russian Federation.	**-2,499**
▪ **Second Line of Defense**	
Decrease in the Core program is due to the acceleration of installations of radiation detection equipment at sites in Caucuses region during FY 2007, offset by an increase in the Megaports program due to the initiation of installation at the Port of Hong Kong.	**-4,642**
Total Funding Change, International Nuclear Materials Protection and Cooperation	**-41,411**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
General Plant Projects	0	0	0
Capital Equipment	5,500	5,665	5,835
Total, Capital Operating Expenses	**5,500**	**5,665**	**5,835**

Outyear Capital Operating Expenses

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	0	0	0	0
Capital Equipment	6,010	6,190	6,376	6,567
Total, Capital Operating Expenses	**6,010**	**6,190**	**6,376**	**6,567**

[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 2007 and FY 2008 funding shown reflects estimates based on actual FY 2006 obligations.

Fissile Materials Disposition

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Fissile Materials Disposition			
U.S. Surplus Fissile Materials Disposition			
Operations and Maintenance (O&M)			
U.S. Plutonium Disposition	83,110	132,900	128,600
U.S. Uranium Disposition	91,500	86,898	66,843
Supporting Activities	18,440	15,253	20,242
Subtotal, O&M	**193,050**	**235,051**	**215,685**
Construction	241,560	368,210	393,849
Total, U.S. Surplus FMD	**434,610**	**603,261**	**609,534**
Russian Surplus Fissile Materials Disposition (FMD)			
Russian Materials Disposition	34,163	34,695	0
Subtotal, Fissile Materials Disposition	**468,773**	**637,956**	**609,534**
Less Use of Prior Year Appropriation, P.L. 105-277	0	-34,695	0
Total, Fissile Materials Disposition	**468,773**	**603,261**	**609,534**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Fissile Materials Disposition				
U.S. Surplus Fissile Materials Disposition	183,488	226,016	240,964	294,100
Construction	476,308	544,174	560,822	518,278
Russian Surplus Fissile Materials Disposition	1,000	1,000	1,000	1,000
Total, Fissile Materials Disposition	**660,796**	**771,190**	**802,786**	**813,378**

Mission

The program goal is to eliminate surplus Russian plutonium and surplus United States (U.S.) plutonium and highly enriched uranium.

Beginning in FY 2005, the cost of conducting External Independent Reviews (EIRs) for Capital Asset Projects greater than $5,000,000 within the Fissile Materials Disposition program, are funded within this program. Examples of EIRs include conducting Performance Baseline EIRs prior to Critical Decision-2 (CD-2) to verify the accuracy of costs and schedule baseline estimates and conducting Construction/Execution Readiness EIRs, which are done for all Major System projects prior to CD-3. These funds, which are managed by the Office of Engineering and Construction Management, are exclusively used for EIRs directly related to these projects funded within these programs. Beginning in FY 2007, the EIR business line will be financed via the Working Capital Fund to achieve parity on how EIRs are funded and to standardize the administration of these critical activities.

Benefits

Within the Fissile Materials Disposition Program, two subprograms each make unique contributions to GPRA Unit Program Goal 2.2.43.

In September 2000, the U.S. and Russia signed the Plutonium Management and Disposition Agreement, which commits each country to dispose of 34 metric tons of surplus weapon-grade plutonium. In 2006, both the U.S. and Russian governments reaffirmed their commitment to implement the 2000 Agreement by disposing of their plutonium in nuclear reactors. The National Nuclear Security Administration (NNSA) is responsible for U.S. efforts to dispose of its weapon-grade plutonium, and for supporting Russia's efforts to dispose of its surplus weapon-grade plutonium. This is a key element of the U.S. Government's nonproliferation strategy to address the potential threat of diversion of materials that can be used in nuclear weapons.

To dispose of surplus weapon-grade plutonium, both the U.S. and Russia will fabricate it into fuel for use in nuclear reactors. Once irradiated, the plutonium is no longer readily useable for nuclear weapons. To implement this strategy in the United States, NNSA will oversee the design, construction and operation of a MOX Fuel Fabrication Facility, a Pit Disassembly and Conversion Facility (PDCF), and a Waste Solidification Building (WSB). These facilities will be built at the Department's Savannah River Site (SRS) near Aiken, South Carolina. In 2006, NNSA completed site preparation activities for the U.S. MOX Facility including the excavation of the foundation. The Department is awaiting a decision by Congress on the FY 2007 President's Budget before validating a baseline for the MOX Facility and establishing a date for the start of construction.

The funding request for Russia reflects a two-track approach. Russia has committed to work with the United States on early disposition in Russia's BN-600 reactor, allowing disposition of Russian plutonium to begin as much as five years prior to the U.S. beginning its disposition. A critical part of early disposition is replacing the plutonium producing "blanket" in the reactor, sharply reducing the amount of weapons-plutonium produced by the reactor - - a key U.S. non-proliferation goal. The first track also involves a long-term cooperative program for the development of the gas reactor, which is equally funded by the United States and Russia.

The second track focuses on Russia's technical approach for its plan to dispose of 34 metric tons of weapons-plutonium. Russia recently reaffirmed its political commitment to plutonium disposition in a Joint Statement signed by the Secretary of Energy and the Director of Russia's Federal Agency for Atomic Energy. U.S. and Russian experts are working together to identify the specific technologies that Russia would use to dispose of all 34 MT and are aiming to develop a detailed plan for Russia's plutonium disposition program by the end of calendar year 2006. When Russia has identified a technical plan that the U.S. can support, then NNSA may amend its request for out year funding.

Major Outyear Priorities and Assumptions

The outyear projections for the Office of Fissile Material Disposition total $3,048,150,000. The trend for the five-year period is increasing at a constant level. The increase in funding is due to completion of design and being in the middle of construction of the MOX Fuel Fabrication Facility and the Pit Disassembly and Conversion Facility.

NNSA is also responsible for making U.S. highly enriched uranium (HEU) that has been declared surplus non-weapons usable, primarily by down-blending it to low enriched uranium (LEU). To the extent practical, the program seeks to recover the economic value of the material (approximately 25 metric tons) by using the resulting LEU as nuclear reactor fuel. Three separate disposition activities (Off-Specification HEU Blend-Down, Reliable Fuel Supply, Research Reactor Fuel) are currently being implemented and additional projects are being planned.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. The PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The FMD program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take all necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2008 Budget Request. The OMB gave the FMD program scores of 100 percent on the Program Purpose and Design, and Strategic Planning Sections; 88 percent on the Program Management Section; and 50 percent on the Program Results and Accountability Section. Overall, the OMB rated the FMD program 73 percent, the second highest rating of "Moderately Effective." The OMB assessment found that the program demonstrates proper planning and management, but performance results are limited and program cost and schedule performance is mixed. The OMB also found that the FMD program follows agency project management requirements. In response to the OMB findings, the FMD program is validating cost and schedule baseline to measure performance and maintain change control during construction, and completing certification of project control systems by the responsible federal agency to ensure accurate performance measurement.

Annual Performance Results and Targets

(R = Results; T= Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007[a]	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.43 (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)	R: 9% T: 10%	R: 13% T: 13%	R: 17% T: 17%	T: 26%	T: 35%	T: 45%	T: 56%	T: 67%	T: 83%	By 2016, complete the 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 Pit Disassembly and Conversion Facility (PDCF) (Long-term Output)	R: 18%	R: 24% T: 24%	R: 24% T: 24%	T: 19%[b]	T: 22%	T: 26%	T: 31%	T: 38%	T: 48%	By 2018, complete the design, construction, and cold start-up activities for the PDCF.
Cumulative amount of surplus U.S. highly enriched uranium (HEU) down-blended or shipped for down-blending (Efficiency)	R: 65 MT T: 65 MT	R: 82 MT T: 82 MT	R: 93 MT T: 93 MT	T: 103 MT	T: 112 MT	T: 119 MT	T: 122 MT	T: 125 MT	T: 128 MT	By 2030, complete disposition of the 174MT of HEU declared surplus in 1994.

[a] Prior to FY2007, annual MOX and PDCF performance was derived by multiplying the percent complete for a project phase (R&D, design, construction) by an associated weighting factor. Starting in FY2007, percent completion is measured by the earned value (budgeted cost of work performed) expressed as a percent of the Total Project Cost.

[b] For PDCF, FY2007 and the outyear targets are based on an "estimated" Total Project Cost baseline that is not expected to be finalized until the middle of calendar year 2007.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
U.S. Surplus Fissile Materials Disposition (O&M)	**193,050**	**235,051**	**215,685**
▪ **U.S. Plutonium Disposition**	**83,110**	**132,900**	**128,600**
• **MOX Fuel Utilization Technology and MOX Other Project Costs**	**41,000**	**103,400**	**97,500**

MOX Fuel Utilization Technology funding supports activities that are not part of the MOX line item project such as lead assemblies, licensing, and fuel transportation. FY 2008 activities include continuing fuel transportation and packaging activities; developing information to support approval of the Nuclear Regulatory Commission (NRC) operating license for the MOX Fuel Fabrication Facility; continuing to plan for modifications to commercial nuclear reactors that will use MOX fuel; and continuing irradiation of MOX fuel lead assemblies.

MOX Other Project Costs funding supports project activities such as management oversight, design reviews, facility start-up testing and production of plutonium oxide at Los Alamos National Laboratory (LANL) to support the first two years of MOX operations. FY 2008 project support activities include continuing management oversight for construction activities, planning for start-up and operation of the MOX Facility, and continuing the production of plutonium oxide at LANL.

• **Pit Disassembly and Conversion**	**42,110**	**29,500**	**31,100**

In FY 2008, NNSA will continue to operate a demonstration system, the Advanced Recovery and Integrated Extraction System (ARIES), at LANL to demonstrate the technology and the capability to disassemble various nuclear weapon pit types in the U.S. surplus inventory; and at the same time provide plutonium oxide feed stock for the MOX Fuel Fabrication Facility in advance of completion of the PDCF. This funding will also support the completion of the testing and demonstration of the cementation process, design authority reviews, and other activities for the Waste Solidification Building (WSB).

▪ **U.S. Uranium Disposition**	**91,500**	**86,898**	**66,843**

This funding supports the disposition of U.S. HEU that has been declared surplus, primarily by down-blending it to low enriched uranium (LEU). Three separate disposition activities are on-going, and additional projects are being planned as materials become available from anticipated weapons dismantlements. FY 2008 activities include:

- Off-Specification HEU Blend-Down Project: Continue HEU alloy shipments from SRS to Nuclear Fuel Services (NFS) and continue HEU metal shipments from the Y-12 Plant to NFS for use in Tennessee Valley Authority (TVA) nuclear reactors.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008

- Reliable Fuel Supply Project: Continue down-blending 17.4 MT of HEU. The goal is to have 9.3 MT of the 17.4 MT down blended by March 2009 to enable HEU at Y-12 to be withdrawn from safeguards and removed from the Y-12 facility in time for its scheduled decommissioning. The LEU derived from the HEU down-blending will be used for the reliable fuel supply initiative.

- Research Reactor Fuel Project: Continue down-blending HEU to LEU as fuel for foreign reactors as part of the Reduced Enrichment for Research and Test Reactors program.

- Planning for Additional Projects: Plan, process, characterize and package additional surplus HEU material for down-blending and ultimate disposition. The material is located at various sites in the DOE complex, including Y-12, LANL, Idaho National Laboratory, and Lawrence Livermore National Laboratory.

▪ **Supporting Activities**	**18,440**	**15,253**	**20,242**
• **Surplus Plutonium Storage**	**13,940**	**8,753**	**14,286**

This funding provides a safe storage configuration for surplus plutonium stored at the Pantex Plant and LANL until the plutonium is transferred to SRS for disposition. FY 2008 activities include continuing to store surplus plutonium at the Pantex Plant and LANL; continuing to upgrade plutonium storage facilities at the Pantex Plant; continuing to package surplus pits for shipment from the Pantex Plant to LANL for ARIES (the pits are needed as feed material to validate equipment for the PDCF).

In addition, we are completing certification and beginning fabrication of the new surplus pit shipping container for future shipments of surplus pits to PDCF for the start of disposition.

• **NEPA**	**1,500**	**1,500**	**1,500**

National Environmental Policy Act (NEPA) activities include preparing and reviewing Environmental Assessments and Environmental Impact Statements for fissile materials disposition activities, as required. NEPA efforts include preparing Supplement Analyses and amended Records of Decision as well as reviewing existing and new environmental documents for activities affecting the fissile material disposition program.

• **Common Technologies and Integration**	**3,000**	**5,000**	**4,456**

The September 2000 U.S. - Russian Plutonium Management and Disposition Agreement (PMDA) requires that, prior to beginning construction of disposition facilities in Russia, the parties agree in writing to monitoring and inspection (M&I) procedures that would provide confidence that each party is disposing of 34 MT of surplus weapon-grade plutonium. This funding provides for technical analyses and support for negotiations among the U.S., Russia, and the International Atomic Energy Agency (IAEA) on M&I issues. This funding also supports efforts common to both the MOX Facility and the

	FY 2006	FY 2007	FY 2008
(dollars in thousands)			

PDCF, including transfer and receipt of nuclear materials between facilities and the development of MOX Facility feedstock specifications.

Construction	**241,560**	**368,210**	**393,849**
▪ **99-D-141, Pit Disassembly and Conversion Facility (PDCF)**	**23,760**	**78,700**	**60,000**

PDCF will provide the U.S. with the needed capability to disassemble surplus nuclear weapons pits and convert the resulting plutonium metal to plutonium oxide. Once in powder form, the plutonium can then be fabricated into MOX fuel. The PDCF will be a complex consisting of a hardened building that will contain the plutonium processes and conventional buildings and structures that will be used for support personnel, systems, and equipment. The plutonium processing building will contain the following key areas: pit shipping and receiving; assay and storage; plutonium metal extraction and conversion to oxide; and plutonium oxide packaging, assay, storage, and shipment. The DOE awarded a contract to Washington Group International in 1999 to design this facility, which will be built at SRS.

FY 2008 activities include completion of 90% of the design for PDCF, awarding a system integration contract that will integrate all control and information systems for software and hardware that will be used in the PDCF, and completion of the design of the Waste Solidification Building (WSB) and procurement of long-lead equipment.

▪ **99-D-143, MOX Fuel Fabrication Facility**	**217,800**	**289,510**	**333,849**

The MOX Fuel Fabrication Facility will provide the U.S. with the capability to fabricate MOX fuel elements suitable for use in commercial nuclear reactors from plutonium oxide derived from surplus weapons-grade plutonium. The facility will contain the following key areas: shipping and receiving, storage, chemical processing, pellet manufacturing, fuel rod manufacturing, fuel bundle assembly, fuelbundle storage and a laboratory. In addition, a number of supporting facilities will be built including an administration building, material receipt warehouse, technical support building, emergency and diesel standby generator buildings, and a reagent building. DOE awarded a contract to a private consortium, Duke Engineering Services, COGEMA, Inc. and Stone & Webster (DCS) in 1999. The contract required DCS to design and obtain an NRC license for the MOX facility, which is being built at SRS.

FY 2008 activities include completion of 31% of the total design, construction, and cold start-up. Specifically, construction activities include adding additional floors, continuing installation of procured equipment, continuing installation of mechanical and electrical utilities, and continuing procurement of processing equipment.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Russian Surplus Fissile Materials Disposition	**34,163**	**34,695**	**0**
▪ **Russian Plutonium Disposition (funds spent in Russia)**	**19,050**	**19,050**	**0**

Major activities for the Russian plutonium disposition program to support early disposition include licensing, modifying, and upgrading the existing Russian fuel fabrication facility at the Research Institute for Atomic Reactors (RIAR), removing the plutonium breeding blanket from the BN-600 fast reactor, and modifying the BN-600 nuclear reactor so it can be used to irradiate MOX fuel. In addition, funding is to continue development of the Gas Turbine-Modular Helium Reactor (GT-MHR) technology. FY 2008 activities will be funded using prior year balances.

FY 2008 activities include starting fabrication of the stainless and boron shield assemblies that will replace the BN-600 radial plutonium breeding blanket assemblies; irradiating MOX fuel lead assemblies in the BN-600 reactor; continuing bench-scale fabrication and irradiation of GT-MHR plutonium test fuel and continuing development and design of key power conversion unit components; providing technical support to Russian efforts to meet regulatory licensing requirements in support of plutonium disposition activities.

▪ **U.S. Design, Engineering, and Support (funds spent in the U.S.)**	**15,113**	**15,645**	**0**

This activity is for U.S. technical support to assist Russia with the replacement of the BN-600 blanket; early disposition of Russian weapon-grade plutonium; conversion of the BN-600 core to a MOX hybrid core; and development of the GT-MHR in Russia. FY 2008 activities will be funded using prior year balances.

Subtotal, Fissile Materials Disposition	**468,773**	**637,956**	**609,534**
Less Use of Prior Year Balance	**0**	**-34,695**	**0**
Total, Fissile Materials Disposition	**468,773**	**603,261**	**609,534**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
U.S. Surplus Fissile Materials Disposition	
▪ **U.S. Plutonium Disposition**	**-4,300**
MOX Technology and Project Support: The decrease reflects funding realignment during the baselining process for the MOX Facility project.	-5,900
Pit Disassembly and Conversion: The increase reflects additional support for the Waste Solidification Building (WSB) design effort.	+1,600
▪ **U.S. Uranium Disposition:** *Highly Enriched Uranium:* The decrease reflects the completion of packaging, sampling and handling activities associated with the 17 MT under the Reliable Fuel Supply project.	**-20,055**
▪ **Supporting Activities:** *Surplus Plutonium Storage:* The increase supports the fabrication of surplus pit shipping containers.	**+4,989**
Total, U.S. Fissile Materials Disposition (O&M)	**-19,366**
Construction	
▪ **99-D-141, Pit Disassembly and Conversion Facility:** The decrease reflects the elimination of the PDCF training module because it was not a cost-effective risk mitigation approach.	**-18,700**
▪ **99-D-143, MOX Fuel Fabrication Facility:** The increase supports additional procurement of equipment for the construction of the MOX Facility and preparing to award construction contracts for support buildings late in FY 2008.	**+44,339**
Total, Construction	**+25,639**

	FY 2008 vs. FY 2007 ($000)
Russian Surplus Fissile Materials Disposition	
▪ **Russian Fissile Materials Disposition (funds spent in Russia)**	-19,050
The decrease reflects continued use of prior year balances.	
▪ **U.S. Design, Engineering, and Support (funds spent in the U.S.)**	-15,645
The decrease reflects the continued use of prior year balances.	
Total, Russian Fissile Materials Disposition	**-34,695**
Subtotal Funding Change, Fissile Materials Disposition	**-28,422**
Use of prior year balances	**+34,695**
The increase reflects a decrease in the need for prior year balances for FY 2008.	
Total Funding Change, Fissile Materials Disposition	**+6,273**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	2,060	2,122	2,186
Capital Equipment	945	973	1,002
Total, Capital Operating Expenses	**3,005**	**3,095**	**3,188**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	2,252	2,320	2,390	2,462
Capital Equipment	1,032	1,063	1,095	1,128
Total, Capital Operating Expenses	**3,284**	**3,383**	**3,485**	**3,590**

Construction Projects[a]

(dollars in thousands)

	Total Estimated Cost (TEC) [b]	Prior Year Appropriations	FY 2006	FY 2007	FY 2008	Unappropriated Balance
99-D-141, Pit Disassembly Conversion Facility	1,845,813	178,928	23,760	78,700	60,000	1,504,425
99-D-143, MOX Fabrication Facility	3,868,628	949,759	217,800	289,510	333,849	2,077,710
Total, Construction	**5,714,441**	**1,128,687**	**241,560**	**368,210**	**393,849**	**3,582,135**

[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 2007 and FY 2008 funding shown reflects estimates based on projected FY 2006 obligations.

[b] All outyear numbers are preliminary estimates and will be finalized once a Project Performance Baseline is established in FY 2006.

99-D-143, Mixed Oxide Fuel Fabrication Facility
Savannah River Site, Aiken, South Carolina[a]

1. Significant Changes

- Significant progress has been made on the U.S. Mixed Oxide (MOX) Fuel Fabrication Facility. Site preparation activities began in November 2005 and full construction is currently awaiting approval of the baseline and start of construction, pending resolution of the FY 2007 funding level for this project. Additionally, the Department's contractor submitted the MOX Facility operating license application to the U.S. Nuclear Regulatory Commission (NRC) in FY 2006.

- NNSA and its contractor have performed a detailed bottom-up revision to the schedule and cost estimate. The revised total project cost of $4.7 billion has been subjected to an external independent review and is in the final stages of validation as part of the Department's Critical Decision process. The revised total project cost estimate is for the design, construction, and completion of cold start-up activities for the facility, inclusive of sunk costs.

- This revision is a change from the prior unvalidated $3.6 billion total project cost estimate given in the FY 2007 Budget Request. Over 50 percent of the $1.1 billion cost increase can be attributed to an increase in contingency funds for the project during construction and cold start-up. Approximately 25 percent of the cost increase is attributable to the inclusion of government furnished services at the Savannah River Site that were determined to be part of the baseline. These services, provided under a separate contract, include emergency response, fire safety, maintenance, industrial waste disposal, and fire, sanitary, water and electrical services. The remaining component of the cost increase is attributable to prior underestimates of design costs and inflationary increases in the cost of materials during the time interval between project estimates.

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2000	2Q FY 1999	4Q FY 2001	1Q FY 2002	4Q FY 2005	N/A	N/A
FY 2001	2Q FY 1999	3Q FY 2002	4Q FY 2002	1Q FY 2006	N/A	N/A
FY 2002	2Q FY 1999	4Q FY 2002	2Q FY 2003	1Q FY 2007	N/A	N/A
FY 2003	2Q FY 1999	4Q FY 2003	2Q FY 2004	4Q FY 2007	N/A	N/A
FY 2004	2Q FY 1999	1Q FY 2004	2Q FY 2004	4Q FY 2007	N/A	N/A
FY 2005	2Q FY 1999	3Q FY 2004	3Q FY 2005	2Q FY 2009	N/A	N/A
FY 2006	2Q FY 1999	1Q FY 2005	3Q FY 2005	TBD	N/A	N/A
FY 2007	2Q FY 1999	4Q FY 2009	2Q FY 2007	4Q FY 2014	N/A	N/A
FY 2008	2Q FY 1999	2Q FY 2011 [a]	2Q FY 2007	4Q FY 2013	N/A	N/A

3. Baseline and Validation Status[b]

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2000	383,186	0	N/A	N/A	N/A	N/A
FY 2001	398,186	0	N/A	N/A	N/A	N/A
FY 2002	TBD	TBD	N/A	N/A	N/A	N/A
FY 2003	TBD	TBD	N/A	N/A	N/A	N/A
FY 2004	TBD	TBD	N/A	N/A	N/A	N/A
FY 2005	TBD	TBD	N/A	N/A	N/A	N/A
FY 2006	TBD	TBD	N/A	N/A	N/A	N/A
FY 2007	3,277,984	354,108	N/A	3,632,092	3Q FY 2006	3,632,092
FY 2008	3,868,628	830,701	N/A	4,699,329	4Q FY 2006	4,699,329

4. Project Description, Justification, and Scope

Description and Scope

The U.S. MOX 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 20 years however, the facility is only expected to operate for approximately 13 years to complete the 34 MT mission. After completing its mission, the facility will be deactivated, decontaminated, and decommissioned over three to four years.

The MOX facility will be designed with the capacity needed to receive and process 3.5 metric tons (MT) of plutonium oxide per year. The plutonium oxide will come from the Pit Disassembly and Conversion

[a] Facility and process design will be completed in FY 2008, the equipment design will be completed in FY 2010 and the software design will be completed in FY 2011.

[b] All outyear numbers must be considered ‘draft final’ until the Project Performance Baseline is formally established.

Facility (PDCF) 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 will occupy approximately 441,000 square feet and perform all the material processing and fabrication operations needed to produce MOX fuel. MOX facility operations include: aqueous polishing (AP) to purify the plutonium oxide; blending and milling; pelletizing; sintering; grinding; fabricating fuel rods; bundling fuel assemblies; and storing feed material, pellets, and fuel assemblies. The facility also includes a laboratory and space for use by a monitoring and inspection team. Adjacent to the MOX process areas, 140,000 square feet of structures will be used for secure shipping and receiving, material receipt, utilities, and technical support.

The design of the MOX Fuel Fabrication Facility is based on processes and facilities that have been successfully operating in France for decades, specifically Cogema's MELOX and La Hague facilities. The facility will meet U.S. conventions, codes, standards, and regulatory requirements, and will be licensed by the NRC.

FY 2007 and FY 2008 Description of Activities

In FY 2007, construction activities will commence with the pouring of the concrete foundation; continued fabrication of the first floor 'trapped' tanks as well as continued design of equipment and software. In FY 2008, the first floor slab and walls of the AP building will be constructed; the first floor 'trapped' tanks will be installed; fabrication of second floor 'trapped' tanks will continue as will the design of equipment and software.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

<u>Compliance with Project Management Order</u>

- Critical Decision – 0: Approve Mission Need – 1Q FY 1997
- Critical Decision – 1: Approve Preliminary Baseline Range – 1Q FY1997
- External Independent Review Final Report – 4Q FY 2006
- Critical Decision – 2: Approve Performance Baseline – 2Q FY 2007
- Critical Decision – 3: Approve Start of Construction – 2Q FY 2007
- Critical Decision – 4: Approve Start of Operations – 2Q FY 2016

5. Financial Schedule[a]

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
1999	28,000	9,600	2,545
2000	12,375	30,775	33,512
2001	25,943	25,943	29,938
2002	65,993	65,993	52,513
2003	92,088	92,088	82,022
2004	81,081	81,081	93,457
2005	251,195	251,195	216,801
2006	163,600	163,600	116,435
2007	68,734	68,734	139,684
2008	48,087	48,087	70,189
2009	18,578	18,578	18,578
2010	3,826	3,826	3,826
2011	691	691	691
Total, Design includes equipment design (99-D-143)	860,191	860,191	860,191
Construction			
2004	279,193	0	0
2005	113,892	44,100	0
2006	54,200	180,965	64,393
2007	220,776	442,996	97,572
2008	285,762	285,762	250,396
2009	399,230	399,230	393,955
2010	391,848	391,848	449,909
2011	348,031	348,031	521,986
2012	301,936	301,936	552,315
2013	294,612	294,612	325,011
2014	136,517	136,517	151,316
2015	98,650	98,650	104,357
2016	83,790	83,790	97,227
Total, Construction	3,008,437	3,008,437	3,008,437
Total TEC	3,868,628	3,868,628	3,868,628

[a] All outyear numbers must be considered ‘draft final’ until the Project Performance Baseline is formally established.

6. Details of Project Cost Estimate[a]

Total Estimated Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design (includes Equipment Design)	860,191	765,310
Construction Phase		
Site Preparation	47,126	47,126
Equipment	349,513	331,674
All other construction	1,966,650	1,878,874
Contingency	645,148	255,000
Total, Construction	3,008,437	2,512,674
Total, TEC	3,868,628	3,277,984

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	37,723	35,000
Start-up	657,563	274,108
Offsetting D&D		
D&D for removal of the offsetting facility	0	0
Other D&D to comply with "one-for-one" requirements	0	0
D&D contingency	0	0
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	135,415	45,000
Total, OPC	830,701	354,108

7. Schedule of Project Costs [a]

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design including equipment)	766,907	70,189	18,578	3,826	691	0	0	860,191
TEC (Construction)	161,965	250,396	393,955	449,909	521,986	552,315	677,911	3,008,437
OPC Other than D&D	81,920	29,921	33,727	46,525	76,966	123,940	437,702	830,701
Offsetting D&D Costs	0	0	0	0	0	0	0	0
Total, Project Costs	1,010,792	350,506	446,260	500,260	599,643	676,255	1,115,613	4,699,329

[a] All outyear numbers must be considered 'draft final' until the Project Performance Baseline is formally established.

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	2Q FY 2016
Expected Useful Life (number of years)	13
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	137,000	100,500	1,809,200	N/A
Maintenance	46,800	N/A	608,900	N/A
Total Related funding	183,800	100,500	2,418,100	N/A

9. Required D&D Information

N/A

10. Acquisition Approach

The procurement strategy for the MOX facility involved awarding a base contract in March 1999 for design, licensing and irradiation services associated with fuel qualification activities and reactor licensing.

Actual physical construction will be conducted through fixed-price subcontracts to the extent practical, with an incentive and award fee contract for construction management services. In addition, the sale of MOX fuel, at today's uranium prices, is expected to generate approximately $1 billion in revenue to the U.S. Treasury for the 34 MT Program.

99-D-141, Pit Disassembly and Conversion Facility
Savannah River Site, Aiken, South Carolina[a]

1. Significant Changes

- The cost and schedule to design, construct, and complete the cold start-up activities (including sunk costs) for the Pit Disassembly and Conversion Facility (PDCF) subproject has been revised. The revised total project cost estimate of $2.4 billion represents an increase from the Department's FY 2007 Budget Request cost estimate of $1.5 billion. Approximately 60 percent of the increase can be attributed to an increase in the cost of equipment and construction materials as well as escalation and facility start-up activities. The remaining 40 percent is attributable to increases in design costs and contingency funds necessary to address project risks.

- The revised cost estimate must still undergo an external independent review in accordance with the Department's Critical Decision process.

- Previous project planning included construction of a PDCF training module to mitigate facility start-up risks. However, an alternate approach consisting of equipment and glove box module assembly and functional testing and demonstration prior to facility startup is being pursued to mitigate these risks. This new approach has been determined to be technically sufficient and more cost-effective.

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2000	2Q FY 1999	4Q FY 2001	2Q FY 2001	4Q FY 2004	N/A	N/A
FY 2001	3Q FY 1999	1Q FY 2002	1Q FY 2002	3Q FY 2005	N/A	N/A
FY 2002	3Q FY 1999	TBD	TBD	TBD	N/A	N/A
FY 2003	3Q FY 1999	1Q FY 2004	TBD	TBD	N/A	N/A
FY 2004	3Q FY 1999	2Q FY 2004	TBD	TBD	N/A	N/A
FY 2005	3Q FY 1999	4Q FY 2005	2Q FY 2005	TBD	N/A	N/A
FY 2006	3Q FY 1999	4Q FY 2005	3Q FY 2010	TBD	N/A	N/A
FY 2007	3Q FY 1999	4Q FY 2007	1Q FY 2011[b]	4Q FY 2015[b]	N/A	N/A
FY 2008	3Q FY 1999	4Q FY 2009	1Q FY 2011[b]	4Q FY 2016[b]	N/A	N/A

[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, this ongoing construction project may be impacted. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] These are preliminary schedules for PDCF that will be finalized once the Project Performance Baseline is established in FY 2007. The planned construction start and completion dates for the Waste Solidification Building (WSB) are 1Q FY 2009 and 1Q FY 2012 respectively.

3. Baseline and Validation Status [a]

(dollars in thousands)

	TEC	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2000	346,192	0	N/A	N/A	N/A	N/A
FY 2001	346,192	0	N/A	N/A	N/A	N/A
FY 2002	TBD	TBD	N/A	N/A	N/A	N/A
FY 2003	TBD	TBD	N/A	N/A	N/A	N/A
FY 2004	TBD	TBD	N/A	N/A	N/A	N/A
FY 2005	TBD	TBD	N/A	N/A	N/A	N/A
FY 2006	TBD	TBD	N/A	N/A	N/A	N/A
FY 2007	1,243,428	481,628	N/A	1,725,056	4Q FY 2007[b]	1,725,056
FY 2008	1,845,813	848,343	N/A	2,694,156	4Q FY 2007[b]	2,694,156

4. Project Description, Justification, and Scope

This project is comprised of two subprojects: 99-D-141-01, Pit Disassembly and Conversion Facility and 99-D-141-02, Waste Solidification Building (WSB).

Subproject 01-Pit Disassembly and Conversion Facility (PDCF)

The PDCF is a first-of-a-kind facility. The United States has never before constructed and operated a large-scale production facility for disassembling various categories of 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 to an oxide form that 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. The facility's operating life is expected to be approximately 7.5 years but could easily be extended to disassemble and convert additional quantities of surplus nuclear weapon pits. After completing its mission, the PDCF will be deactivated, decontaminated, and decommissioned over a three to four year period.

The PDCF is a complex of facilities, consisting of a main hardened building that will contain the pit disassembly plutonium processes and a number of conventional buildings and structures that will contain 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; plutonium metal extraction and conversion to oxide; and plutonium oxide packaging, assay, storage, and shipment. This building will be equipped with storage for incoming pit materials and for plutonium oxide and also includes areas for recovery, decontamination, and declassification of other components resulting from the disassembly of the nuclear weapon pits. The conventional buildings and structures, which do not contain any radioactive materials, will occupy approximately 50,000 square feet and will contain offices; change rooms; a central control station; non-radioactive waste treatment; and packaging, storage, and shipment systems.

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[a] All outyear numbers are preliminary estimates and will be finalized once a Project Performance Baseline is established in FY 2007.

[b] No construction funds will be used until the Performance Baseline has been validated.

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 from nuclear weapon pits to oxide form, as well as associated supporting equipment, components, and systems. The PDCF is being designed and constructed to meet U.S. Nuclear Regulatory Commission (NRC) licensing standards, but will not be licensed by the NRC.

FY 2008 activities include completing 90% of the final design and awarding a systems integration contract to integrate software and hardware control and information systems.

Subproject 02-Waste Solidification Building (WSB):
The WSB will be built adjacent to the PDCF and is designed to process radioactive liquid waste streams coming from the MOX facility and PDCF, into a solid form for ultimate disposal. The radioactive liquid waste streams consist of one high-activity and two low-activity streams. The high-activity stream contains significant amounts of americium removed from plutonium oxide during MOX polishing operations. The WSB operating life is expected to be approximately 15 years but could easily be extended to accommodate fabrication 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 subproject consists of the following activities: design, construction, procurement, installation, and startup testing of structures and equipment. The facility, which would not exceed 48,000 square feet, would be a single story structure of hardened concrete. A concrete-cell configuration would be provided to process the high-activity waste stream in the building. An additional separate structure consisting of a covered concrete pad will be constructed to provide temporary storage of containerized waste following treatment and prior to packaging for shipment. The major pieces of process equipment would include tanks, evaporators, and solidification equipment.

FY 2008 activities include completion of the detailed design of the WSB and procurement of long-lead equipment, as necessary.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

Compliance with Project Management Order

- PDCF Critical Decisions – 0/1: Approve Mission Need – 1Q FY 1998
- PDCF External Independent Review Final Report – 4Q FY 2007
- PDCF Critical Decision – 2: Approve Performance Baseline – 4Q FY 2007
- PDCF Critical Decision – 3: Approve Start of Construction – 2Q FY 2009
- PDCF Critical Decision – 4: Approve Start of Operations – 2Q FY 2019

- WSB Critical Decision – 0: Approve Mission Need – 1Q FY 1998
- WSB Critical Decision – 1: Approve Preliminary Baseline Range – 3Q FY 2007
- WSB External Independent Review Final Report – 4Q FY 2008
- WSB Critical Decisions – 2/3: Approve Performance Baseline and Start of Construction – 4Q FY 2008
- WSB Critical Decision – 4: Approve Start of Operations – 1Q FY 2013

5. Financial Schedule[a]

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design			
1999	20,000	20,000	211
2000	18,751	17,396	13,449
2001	19,956	17,804	17,834
2002	11,000	14,507	23,377
2003	34,657	34,657	42,662
2004	42,520	41,920	35,140
2005	32,044	32,644	33,368
2006	23,760	23,760	19,387
2007	42,000	42,000	40,750
2008	25,586	25,586	27,640
2009	16,300	16,300	32,756
Total, Design (99-D-141)	286,574	286,574	286,574
Construction			
2006	0	0	0
2007	36,700	36,700	1,600[b]
2008	34,414	34,414	22,200
2009	42,200	42,200	76,200
2010	148,500	148,500	140,000
2011	212,100	212,100	213,914
2012	216,342	216,342	215,000
2013	223,658	220,000	245,000
2014	300,000	300,000	295,607
2015	201,000	200,000	205,000
2016	90,000	90,000	70,550
2017	54,325	58,983	70,238
2018	0	0	3,930
Total, Construction	1,559,239	1,559,239	1,559,239
Total TEC	1,845,813	1,845,813	1,845,813

[a] All outyear numbers are preliminary estimates and will be finalized once a Project Performance Baseline is established in FY 2007.

[b] A Critical Decision 3A to approve start of Title III engineering for subproject 01, PDCF, will be requested in FY 2007.

6. Details of Project Cost Estimate[a]

Total Estimated Costs

Sub-Project 01 – Pit Disassembly and Conversion Facility (dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design	255,391	213,000
Construction Phase		
Site Preparation	10,000	6,100
Equipment	256,900	138,000
All other construction	866,552	615,528
Contingency	254,774	81,500
Total, Construction	1,388,226	841,128
Total, TEC	1,643,617	1,054,128

Sub-Project 02 – Waste Solidification Building (dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Preliminary and Final Design	31,183	29,300
Construction Phase		
Site Preparation	1,300	1,300
Equipment	38,393	35,600
All other construction	81,784	93,100
Contingency	49,536	30,000
Total, Construction	171,013	160,000
Total, TEC	202,196	189,300

[a] All outyear numbers are preliminary estimates and will be finalized once a Project Performance Baseline is established in FY 2007.

Other Project Costs

Sub-Project 01 – Pit Disassembly and Conversion Facility

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	328,394	251,970
Start-up	370,804	153,380
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	106,237	39,570
Total, OPC	805,435	444,920

Sub-Project 02 – Waste Solidification Building

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	11,435	19,208
Start-up	20,076	16,000
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	11,397	1,500
Total, OPC	42,908	36,708

7. Schedule of Project Costs [a]

Sub-Project 01 – Pit Disassembly and Conversion Facility

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design)	203,321	19,314	32,756	0	0	0	0	255,391
TEC (Construction)	300	11,600	36,200	92,000	151,001	206,800	890,325	1,388,226
OPC Other than D&D	261,435	38,105	50,747	69,425	65,842	71,408	248,473	805,435
Offsetting D&D Costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total, Project Costs	465,056	69,019	119,703	161,425	216,843	278,208	1,138,798	2,449,052

Sub-Project 02 – Waste Solidification Building

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Outyears	Total
TEC (Design)	22,857	8,326	0	0	0		0	31,183
TEC (Construction)	1,300	10,600	40,000	48,000	62,913	8,200	0	171,013
OPC Other than D&D	8,124	3,900	4,200	8,284	12,200	6,200	0	42,908
Offsetting D&D Costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total, Project Costs	32,281	22,826	44,200	56,284	75,113	14,400	0	245,104

[a] All outyear numbers are preliminary estimates and will be finalized once a Project Performance Baseline is established in FY 2007.

8. Related Operations and Maintenance Funding requirements

Sub-Project 01 – Pit Disassembly and Conversion Facility

Start of Operation or Beneficial Occupancy (fiscal quarter)	2Q FY 2019
Expected Useful Life (number of years)..	7-1/2
Expected Future start of D&D for new construction (fiscal quarter)......	N/A

Sub-Project 02 – Waste Facility

Start of Operation or Beneficial Occupancy (fiscal quarter).................	1Q FY 2013
Expected Useful Life (number of years)...	15
Expected Future start of D&D for new construction (fiscal quarter).....	N/A

(Related Funding Requirements)

Sub-Project 01 – Pit Disassembly and Conversion Facility

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	TBD	N/A	TBD	N/A
Maintenance	TBD	N/A	TBD	N/A
Total Related funding	TBD	N/A	TBD	N/A

Sub-Project 02 – Waste Facility

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	TBD	N/A	TBD	N/A
Maintenance	TBD	N/A	TBD	N/A
Total Related funding...........................	TBD	N/A	TBD	N/A

9. Required D&D Information

Sub-Project 01 – Pit Disassembly and Conversion Facility

N/A

Sub-Project 02 – Waste Facility

N/A

10. Acquisition Approach

Sub-Project 01 – Pit Disassembly and Conversion Facility

A cost plus fixed-fee contract for preliminary design and a cost plus award-fee contract for detailed design have been awarded for the PDCF. The procurement strategy includes an option for construction inspection services (Title III), which DOE will decide whether to exercise during the Title II design phase. A purchase order for procurement of long-lead equipment fabrication will be issued approximately one to two years prior to the start of construction.

It is anticipated that fixed-price construction sub-contracts for the PDCF will be awarded on the basis of competitive bidding, with an incentive and award fee contract for construction management services. In addition, the value of the highly enriched uranium resulting from the disassembly of surplus pits contained in the 34 MT mission is approximately $475 million at today's uranium prices.

Sub-Project 02 – Waste Solidification Building

The WSB design service was procured through the Savannah River Site M&O contract. A purchase order for procurement of long-lead equipment for the WSB would be issued approximately one year prior to start of construction. It is anticipated that fixed-price construction sub-contracts for the WSB will be awarded on the basis of competitive bidding.

Global Threat Reduction Initiative (GTRI)

Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Global Threat Reduction Initiative			
HEU Reactor Conversion:			
Reduced Enrichment for Research and Test Reactors (RERTR)	24,732	32,096	31,190
Nuclear and Radiological Material Removal:			
Russian Research Reactor Fuel Return (RRRFR)	14,703	30,025	31,046
U.S. Foreign Research Reactor Spent Nuclear Fuel (FRRSNF)	8,100	6,340	4,211
Emerging Threats and Gap Materials	5,000	5,683	1,721
U.S. Radiological Threat Reduction (USRTR) (Homeland Security)	12,566	9,441	13,228
Nuclear and Radiological Protection:			
Kazakhstan Spent Fuel	8,000	3,934	31,722
Global Research Reactor Security [a]	0	1,000	500
International Radiological Threat Reduction (IRTR)	23,894	18,299	6,008
Total, Global Threat Reduction Initiative	**96,995**	**106,818**	**119,626**

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

[a] This program transferred to GTRI from the International Nuclear Security Program within Nonproliferation and International Security (NIS) effective for FY 2007.

Outyear Funding Schedule

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Global Threat Reduction Initiative				
HEU Reactor Conversion:				
Reduced Enrichment for Research and Test Reactors (RERTR)	34,296	38,134	44,944	47,543
Nuclear and Radiological Material Removal:				
Russian Research Rector Fuel Return (RRRFR)	35,235	35,929	32,470	32,000
U.S. Foreign Research Reactor Spent Nuclear Fuel (FRRSNF)	4,334	4,800	5,014	5,115
Emerging Threats and Gap Materials	7,709	8,003	12,286	17,432
U.S. Radiological Threat Reduction (USRTR) (Homeland Security)	16,491	19,749	19,371	19,718
Nuclear and Radiological Material Protection:				
Kazakhstan Spent Fuel	19,584	4,778	1,000	1,000
Global Research Reactor Security	500	500	1,500	2,520
International Radiological Threat Reduction (IRTR)	33,771	40,695	46,942	50,481
Total, Global Threat Reduction Initiative	**151,920**	**152,588**	**163,527**	**175,809**

Mission

The Global Threat Reduction Initiative (GTRI) mission is to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide. GTRI helps the Department achieve its Nuclear Security Goal to prevent the acquisition of nuclear and radiological materials for use in weapons of mass destruction (WMD) and other acts of terrorism by: 1) converting research reactors from the use of WMD-usable highly enriched uranium (HEU) fuel to low enriched uranium (LEU) fuel; 2) removing or disposing of excess WMD-usable nuclear and radiological materials; and 3) protecting at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented.

Benefits

The eight Global Threat Reduction Initiatives (GTRI) subprograms that make important and unique contributions to GPRA Unit Program Goal 2.2.44 are discussed below.

GTRI is a vital part of the President’s March 2006 *National Security Strategy of the United States of America* to protect the American people. In addition, GTRI also is an important element of the President’s July 2006 *Global Initiative to Combat Nuclear Terrorism* since it reduces the risk of terrorists acquiring vulnerable nuclear and radiological materials.

The Office of Global Threat Reduction has completed a comprehensive strategic review of the program in order to most effectively realign resources to achieve its vital national security mission to reduce the risk of terrorists acquiring nuclear and radiological materials for use as a weapon of mass destruction (WMD) in a crude nuclear weapon or radiological dirty bomb. This realignment of GTRI subprograms will result in more effective management and a higher degree of transparency in how the program achieves its goals of converting, removing, and protecting high-risk nuclear and radiological materials.

The eight GTRI subprograms: are realigned into three functional areas: HEU Reactor Conversion, Nuclear and Radiological Material Removal, and Nuclear and Radiological Material Protection.

The *HEU Reactor Conversion* effort supports the conversion of research reactors and isotope production facilities from the use of WMD-usable HEU material to LEU material. These efforts result in permanent threat reduction because the use of WMD-usable HEU in the civilian fuel cycle is minimized or eliminated. This program includes:

- The Reduced Enrichment for Research and Test Reactors subprogram develops technologies needed to substitute LEU for HEU in research and test reactors and medical isotope production processes, and provides assistance for reactor conversion.

The *Nuclear and Radiological Material Removal* efforts support the removal or disposal of excess WMD-usable nuclear and radiological materials worldwide. These efforts result in permanent threat reduction because WMD-usable material theft targets are eliminated. This subprogram includes:

- The Russian Research Reactor Fuel Return (RRRFR) subprogram repatriates to Russia Russian-origin HEU fresh and spent fuel from Russian-designed research reactors worldwide.

- The U.S. Foreign Research Reactor Spent Nuclear Fuel (FRRSNF) subprogram supports the U.S. HEU minimization policy by accepting U.S.-origin HEU and LEU spent nuclear fuel and HEU target material that contain uranium enriched in the United States or validating the alternate disposition of such materials.

- The Emerging Threats and Gap Materials subprogram addresses those nuclear materials that are not covered by the RRRFR and FRRSNF programs and could include: U.S.-origin HEU nuclear fuel from reactors converted to LEU; separated plutonium and plutonium-bearing materials; and HEU materials of non-U.S. and non-Russian origin.

- The U.S. Radiological Threat Reduction subprogram reduces the risk posed by vulnerable radiological materials in the United States that could be used in a radiological dirty bomb by recovering and managing excess sealed radioactive sources that are in the possession of domestic U.S. licensees, where such sources are of concern. In addition, this subprogram repatriates specified excess U.S.-origin sources from other countries.

The *Nuclear and Radiological Material Protection* efforts support the protection of at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented. These efforts result in threat containment because WMD-usable materials are protected from theft and sabotage. This subprogram includes:

- The Kazakhstan Spent Fuel subprogram provides safe and secure long-term storage of the nearly three tons of weapons-grade plutonium and ten tons of HEU in spent fuel from the BN-350 fast breeder reactor, enough material for 775 crude nuclear weapons.

- The Global Research Reactor Security subprogram provides security upgrades at research reactors and related facilities outside of the United States and the former Soviet Union where security is below internationally recognized guidelines in order to protect vulnerable nuclear material from theft, diversion, and sabotage.

- The International Radiological Threat Reduction subprogram reduces the risk posed by vulnerable radioactive materials that could be used in a radiological dirty bomb by working in cooperation with foreign counterparts and international agencies to locate, identify, recover, consolidate, and enhance the security of such materials.

Major Outyear Priorities and Assumptions

The outyear projections (FY2009 through FY 2012) for the Office of Global Threat Reduction Initiatives total $643,844,000. The trend for the five-year period is level funding. For HEU Reactor Conversion activities, the program will, by 2010, complete development of new higher density LEU fuel and through FY 2012, complete the conversion from HEU to LEU fuel of a cumulative 95 of the 129 civilian research reactors (the remaining 34 reactor conversion are planned for 2013 to 2018). For Nuclear and Radiological Material Removal activities, through the outyear period, program efforts continue in accordance with the Bratislava commitment that by the end of CY 2010, all Russian-origin HEU fresh and irradiated material that is currently stored at eligible reactors (about 1,700 kilograms of HEU) will be removed or dispositioned. A cumulative total of 4,300 kilograms of Russian-origin, U.S.-origin, and other HEU and plutonium material will be removed and disposed of by 2012. In addition, up to 2,250 U.S. radiological sources that are registered as unused or excess would be recovered each year. For Nuclear and Radiological Material Protection activities, the program will secure and protect 1,197 of 3,311 civilian sites worldwide by 2012 (the remaining 2,114 sites are planned for 2012 to 2028). The 1,197 sites contain enough vulnerable and high-risk radiological material for over 22,000 radiological dirty bombs. The program also will work to complete the protection of the Kazakhstan Spent Fuel through safe and secure long-term storage at Baikal by 2010, with efforts transitioning to permanent disposition.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected program. PART was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The GTRI program has incorporated feedback from OMB into the FY 2008 Budget Request and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2008 Budget Request. The OMB gave GTRI scores of 100 percent on the Program Purpose and Design Section Strategic Planning and Program Management Sections; and 74 percent on the Program Results and Accountability Section. Overall, the OMB rated the GTRI program 87 percent, its highest category of “Effective.” The OMB found that GTRI has a strong record of reducing and protecting vulnerable nuclear and radiological material located at civilian sites worldwide, and has dramatically accelerated progress towards achieving its long-term threat reducing goals. In response to the OMB findings, the GTRI program is undergoing a strategic review to better integrate and unify program/project management, contracting arrangements, and performance measures to best meet evolving threat reduction requirements.

Performance Results and Targets

(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Program Goal 2.2 (Weapons of Mass Destruction) GPRA Unit Program Goal 2.2.44 (Global Threat Reduction Initiatives)										
Cumulative HEU reactors converted	R: 39 T: 41	R: 41 T: 44	R: 46 T : 45	T: 53	T: 63	T: 73	T: 79	T: 85	T: 95	By 2018, convert to LEU 129 of 207 HEU reactors. *(The IAEA identified 207 reactors designed to operate on HEU fuels. These reactors average 5 kgs of HEU per reactor to operate. LEU fuel exists or is being developed which will allow 129 of these 207 reactors to be converted thus minimizing the use of HEU in civilian applications)*
Cumulative kilograms of nuclear material (HEU and plutonium) removed or disposed	R: 1,021 T: N/A	R: 1,105 T: N/A	R: 1,366 T : N/A	T: 1,671	T: 2,473	T: 3,541	T: 4,149	T: 4,236	T: 4,300	By 2013, remove or dispose of 4,384 kgs of nuclear material (HEU and plutonium) from civilian sites (enough for 180 nuclear weapons). *(There are additional nuclear materials located at civilian sites that are NOT targeted for removal because they have an acceptable disposition path (Belgium, Canada, France, and UK) and/or they are in secure locations. Four countries with U.S. or Russian-origin HEU (Iran, Israel, Pakistan, and DPRK) are not yet participating. GRTI will continue to remove U.S.-origin LEU from foreign research reactors until 2019 as an incentive for converting research reactors from HEU to LEU fuels)*
Cumulative radiological sources removed or disposed	R: 10,155 T: 8,500	R: 11,788 T: 11,500	R: 13,901* T: 13,650	T: 15,455	T: 17,705	T: 19,955	T: 22,205	T: 24,216	T: 25,716	By 2020, remove 31,700 excess U.S. radiological sources totaling ~450,000 curies (enough for 2,255 radiological dirty bombs). *(Each year about 2,000 radioactive sources containing approximately 30,000 total curies are registered unused or excess in the U.S. GTRI expects there to be a Greater Than Class C waste disposal facility by 2015 and that from 2015 to 2020 GTRI would dispose of all materials that GTRI put in interim storage)*

* The program has changed the methodology for accounting for sources recovered starting in FY 2007. The metric now includes only U.S. domestic sources; previously, the number included a small number of international sources recovered. The comparable number for FY 2006 using the new methodology would be 13,878.

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Endpoint Target
Cumulative high priority radiological sites protected	R: 69 T :35	R: 234 T: 174	R: 500 T : 498	T: 677	T:736	T:800	T: 915	T: 1,054	T: 1,197	By 2028, protect 3,300 high priority radiological sites totaling ~50,000,000 curies (enough for 50,000 radiological dirty bombs). *(The IAEA estimates that there are millions of radiological sources located at tens of thousands of civilian sites worldwide. These radioactive sources are used for medical, industrial, and other commercial purposes and range from a fraction of a curie up to 10,000,000 curies each. The GTRI program has focused on protecting ~3,300 vulnerable sites located in Other Than High Income countries that store sources of 1,000 curies or greater and that are near U.S. strategic interests overseas)*
Cumulative funds to support threat reduction work contracted directly with the private sector	<u>R: N/A</u> <u>T: N/A</u>	<u>R: N/A</u> <u>T: N/A</u>	<u>T: N/A</u>	<u>T: $3M</u>	<u>T: $16M</u>	<u>T: $35M</u>	<u>T: $55M</u>	<u>T: $80M</u>	<u>T: $100M</u>	By 2012, directly contract with the private sector for $100M worth of threat reduction services that will save ~$4M in overhead costs if the work was sub-contracted through the labs.

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
HEU Reactor Conversion			
Reduced Enrichment for Research and Test Reactors (RERTR)	**24,732**	**32,096**	**31,190**

This subprogram provides for technical support for reactor conversion analysis, regulatory approval, and the purchase of replacement LEU fuel to provide incentives for reactor conversion. In addition, this subprogram will continue to accelerate the development of LEU fuel.

In FY 2008, this subprogram will convert 10 domestic and foreign reactors bringing the cumulative total converted to 63. The new conversions identified for FY 2008 are for facilities in Bulgaria, Netherlands, United Kingdom, Vietnam, South Africa, Japan (3 facilities), and the United States (Oregon State University and Washington State University). The program will continue conversion analysis and regulatory approval efforts at 30 facilities and complete conversion analysis at 8 facilities. The high-density LEU fuel development effort will complete 5 post-irradiation examinations of tests conducted in previous years, complete the second-to-last irradiation test of the high-density LEU fuel, and fabricate the final LEU fuel test plate planned for insertion in FY 2009.

Congressionally Directed Activity [non add]	**[7,000]**	**0**	**0**

From within available FY 2006 funds, up to $7,000,000 to support the conversion of university research reactors from HEU core to LEU core, for as many as four research reactors in the United States. This effort is now included in the baseline program.

Nuclear and Radiological Material Removal

Russian Research Reactor Fuel Return (RRRFR)	**14,703**	**30,025**	**31,046**

This subprogram provides for material packaging and secure transport or disposition through downblending in place of Russian-origin HEU research reactor materials.

In FY 2008, this subprogram will repatriate or dispose of more than 400 kilograms of HEU fresh fuel and/or spent fuel from Bulgaria, Czech Republic, Hungary, Kazakhstan, Latvia, Libya, Poland, and Ukraine, enough for about 16 crude nuclear weapons, resulting in a cumulative total of over 900 kilograms of HEU removed, enough for about 36 crude nuclear weapons.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
U.S. Foreign Research Reactor Spent Nuclear Fuel (FRRSNF)	**8,100**	**6,340**	**4,211**

This subprogram provides for material packaging, secure transport, and storage at the Savannah River Site and Idaho Site of eligible US-origin HEU spent nuclear fuel.

In FY 2008, this subprogram will return to the United States approximately 675 spent fuel assemblies containing 70 kilograms of HEU from Argentina, Brazil, Germany, Japan, Portugal, Romania, South Africa, and Turkey, resulting in a cumulative total of nearly 1,220 kilograms of HEU nuclear material removed, equivalent to nearly 49 crude nuclear weapons.

Emerging Threats and Gap Materials (ET)	**5,000**	**5,683**	**1,721**

This subprogram provides for material packaging, secure transport, storage and/or disposition of civilian HEU and plutonium not covered under other GTRI programs.

In FY 2008, this subprogram will remove nearly 90 kilograms of HEU and plutonium material from Chile, Denmark, Greece, Italy, and Switzerland equivalent to more than 5 nuclear weapons, resulting in a cumulative total of more than 325 kilograms of HEU and plutonium material removed, equivalent to more than 15 crude nuclear weapons.

U.S. Radiological Threat Reduction (USRTR) Homeland Security	**12,566**	**9,441**	**13,228**

This subprogram provides for material packaging, transport, storage and/or disposition of excess sealed radioactive sources and similar radioactive materials that are in the possession of domestic U.S. licensees, where such sources are of concern for use in a Radiological Dispersion Device (RDD), as well as sources and materials that exceed the limits for commercial disposal and are Greater than Class C. The subprogram also provides for the recovery, return, management and/or disposition of specified sources outside of the United States. In cooperation with other agencies, the program also provides training and technical advice for security evaluation and upgrades for in-use, high-risk sources in the United States.

In FY 2008, this subprogram will remove 2,250 excess U.S. sealed sources containing an estimated 36,000 curies, enough for 107 radiological dirty bombs. This results in a cumulative total of more than 17,700 excess sealed sources removed, containing an estimated cumulative 230,000 curies, equivalent to nearly 1,600 radiological dirty bombs since the program inception.

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Kazakhstan Spent Fuel	**8,000**	**3,934**	**31,722**

This subprogram provides for long-term dry storage and physical protection of spent fuel by stabilizing, packaging the material in dual-use, theft resistant casks, and placing the material under IAEA safeguards.

In 2008, this subprogram will complete more than 50 percent of the serial production of dual-use casks, and fund physical protection, safeguards and operations activities.

Global Research Reactor Security (GRRS)	**0**	**1,000**	**500**

This subprogram provides vulnerability analyses and security upgrades at facilities and research reactors outside the United States and the Former Soviet Union with WMD-usable nuclear materials.

In FY 2008, this subprogram will provide security upgrades to the Safari Research Reactor in South Africa.

International Radiological Threat Reduction (IRTR)	**23,894**	**18,299**	**6,008**

This subprogram provides search equipment to locate orphan international radiological sources and provides for packaging, secure transport through the IAEA, and storage of these sources. The subprogram also provides vulnerability analyses and security upgrades at facilities outside the United States with WMD-usable radiological materials.

In FY 2008, ten-percent of funding will support the sustainability of previously upgraded sites in 40 countries. This subprogram will also complete security upgrades at an additional 59 sites, containing 2,600,000 curies of radioactive material, enough for 2,600 radiological dirty bombs, resulting in a cumulative total of 736 sites containing 15,065 radiological dirty bombs-worth of material protected, since the program inception.

Total, Global Threat Reduction Initiative	**96,995**	**106,818**	**119,626**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
HEU Reactor Conversion:	
▪ **Reduced Enrichment for Research and Test Reactors (RERTR)**	
Decrease reflects completion of short term testing of new high density LEU fuel in FY 2007 and the start of longer time scale post-irradiation examinations.	**-906**
Nuclear and Radiological Material Removal:	
▪ **Russian Research Reactor Fuel Return (RRRFR)**	
Increase reflects requirement to complete shipments for 400 kilograms from 8 countries versus over 200 kilograms from 4 countries in FY 2007.	**+1,021**
▪ **U.S. Foreign Research Reactor Spent Nuclear Fuel (FRRSNF)**	
Decrease reflects a cost savings initiative to combine shipments of materials from other-than-high-income economy countries and high-income economy countries.	**-2,129**
▪ **Emerging Threats and Gap Materials (ET)**	
Decrease reflects completion of major emerging threat technologies in FY 2007 that included development of a mobile plutonium facility and a mobile uranium processing facility for rapidly dispositioning nuclear materials in countries of concern.	**-3,962**
▪ **U.S. Radiological Threat Reduction (USRTR)**	
Increase reflects the removal of 2,250 excess sources versus 1,578 excess sources in FY 2007 (an increase of 672). The funding increase also reflects the return of greater numbers of US-origin sources from overseas, which have a higher transportation unit cost than domestic returns.	**+3,787**
Nuclear and Radiological Material Protection:	
▪ **Kazakhstan Spent Fuel**	
Increase reflects serial production and delivery of twenty-seven (27) 100-ton metal-concrete dual-use casks (versus ten in FY 2007) for transportation and long-term storage of 10,000 kg of HEU and 3,000 kg of plutonium in Kazakhstan. These additional funds are needed in order to meet the USG commitment date to transport the BN-350 fuel to Baikal-1 by 2010.	**+27,788**
▪ **Global Research Reactor Security (GRRS)**	
Decrease reflects that one site will be upgraded (versus two in the previous year).	**-500**

	FY 2008 vs. FY 2007 ($000)
▪ **International Radiological Threat Reductions (IRTR)**	
Decrease reflects fewer sites being secured, from 177 in FY 2007 to 59 sites in FY 2008 due to shifting funds to higher priority risk reduction efforts. Funding also supports the sustainability of previously upgraded sites in 40 countries.	**-12,291**
Total Funding Change, Global Threat Reduction Initiatives	**+12,808**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses[a]

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	0	0	0
Capital Equipment	5,041	5,192	5,348
Total, Capital Operating Expenses	**5,041**	**5,192**	**5,348**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	0	0	0	0
Capital Equipment	5,508	5,673	5,843	6,018
Total, Capital Operating Expenses	**5,508**	**5,673**	**5,843**	**6,018**

[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 2007 and FY 2008 funding shown reflects estimates based on projected FY 2006 obligations.

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, and $808,219,000, to remain available until expended.

Naval Reactors

Funding Profile by Subprogram

(dollars in thousands)

	FY 2006 Current Appropriation	FY 2007 Request	FY 2007 CR	FY 2008 Request
Naval Reactors Development				
Operations and Maintenance (O&M)	734,877	761,176		765,519
Program Direction	29,997	31,185		32,700
Construction	16,731	2,772		10,000
Total, Naval Reactors Development	781,605	795,133	780,343	808,219

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)

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Naval Reactors Development				
Operations and Maintenance	771,700	795,700	822,500	836,800
Program Direction	33,900	35,100	36,400	37,700
Construction	22,400	18,200	11,100	17,500
Total, Naval Reactors Development	828,000	849,000	870,000	892,000

Major Outyear Priorities and Assumptions

The outyear projections for Naval Reactors total $3,439,000,000 (FY 2009-FY 2012). The trend through the five-year period remains relatively level (before inflation) and reflects a continuing achievement of the Program's mission and performance measure milestones. Adjustments to Program priorities as highlighted below may result in a realignment of resources.

Transformational Technology Core (TTC)

The Navy's goal is to reduce the cost of VIRGINIA-class submarines to $2 billion per unit in order to support a higher build rate of two submarines per year consistent with the Navy's plan to meet national security needs through a 313 ship fleet. This cost reduction goal motivated Naval Reactors to pursue the development of an alternative core in parallel with TTC. While this lower cost core, which uses weapons return material, will support reductions in shipbuilding costs for VIRGINIA-class submarines, Naval Reactors must also continue the design and development of TTC in case the build rate remains at one submarine per year. In absence of a higher build rate, the increased energy from the TTC will provide the nation's nuclear fleet with the capability of maintaining higher operating tempos and higher average transit speeds to effectively meet increasing national security requirements.

Dry Storage of Naval Spent Nuclear Fuel

Startup of dry storage operations began in late FY 2006 at the Naval Reactors Facility (NRF) in Idaho. This involves the packaging of spent nuclear fuel from wet to dry storage for ultimate shipment to a geological repository. As production tempos will steadily increase over the next several years in line with external agreements, demands for resources and facility improvements will follow. As a result, a commensurate shift in resources from Program laboratories to NRF is expected.

Program Infrastructure

Naval Reactors is currently addressing the aging infrastructure at all four Program sites by establishing facility inspection plans, refocusing facility maintenance resources, and developing healthy recapitalization and construction plans. The Facilities Condition Index (FCI) performance measure was established last year to ensure Program facilities are maintained at an appropriate level (e.g., at least 95% of required maintenance is performed annually). To carefully manage the Program's infrastructure footprint, and to reduce environmental liabilities and future caretaking costs, Naval Reactors has established an aggressive decontamination and demolition (D&D) plan for the next 30 years. While approximately $60 million of D&D work is funded annually based on program priorities, the plan identifies $900 million of unfunded D&D work over the 30-year period.

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.

Beginning in FY 2005, the cost of conducting External Independent Reviews (EIRs) for Capital Asset Projects greater than $5 million within the Naval Reactors program have been funded by this program. Examples of EIRs include conducting performance baseline EIRs prior to Critical Decision-2 (CD-2) to support independent validation of the performance baseline, conducting construction/execution readiness EIRs prior to Critical Decision-3 (CD-3) for major system projects, and tailored EIRs.

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 $900,000 for FY 2007 and $900,000 for FY 2008, to be paid from program funding.

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 Themes and GPRA Unit Program Goals

The Department's Strategic Plan identifies five Strategic Themes (one each for nuclear, energy, science, management, and environmental aspects of the mission) plus sixteen Strategic Goals that tie to the Strategic Themes. The Naval Reactors program supports the following goals:

Strategic Theme 2, Nuclear Security: Ensuring America's nuclear security.

Strategic Goal 2.3, Nuclear Propulsion Plants: Provide safe, militarily effective nuclear propulsion plants to the U.S. Navy and ensure their continued safe and reliable operation.

The Naval Reactors program has one program goal which contributes to the Defense Strategic Goal and Strategic Goal 2.3, Nuclear Propulsion Plants, in the "goal cascade":

GPRA Unit Program Goal 2.3.45: Provide the Navy with safe, militarily effective nuclear propulsion plants.

Contribution to Strategic Goal 2.3

Nuclear power enhances warship capability and creates the flexibility needed to sprint anywhere in the world and arrive ready for around-the-clock power projection and combat operations. Sustained high-speed capability (without dependence on a slow logistics train) enables rapid response to changing world circumstances, allowing operational commanders to surge these ships from the United States to trouble spots or to rapidly redeploy them from one crisis area to another. Nuclear propulsion enables the Navy to stretch available assets to meet today's worldwide national security commitments.

The Program's number-one priority is ensuring the safety and reliability of the 104 operating naval reactor plants. Most of the work within the Naval Reactors Program is directed toward ensuring the safe, reliable operation of these plants. Safe and effective nuclear propulsion requires a careful, measured approach to developing and verifying nuclear technology, designing needed components, systems, and processes, and implementing them into existing and future plant designs. Intricate engineering challenges and long lead times to fabricate the massive, complex components require many years of effort before technological advances can be introduced into the Fleet.

Naval Reactors is continuing development of a high-energy reactor for CVN 21 and design of the new Transformational Technology Core (TTC), which would provide an energy increase to VIRGINIA-class submarines, and an alternative lower cost core.

The nuclear propulsion plant design of CVN 21 is well underway. The new high-energy reactor design for CVN 21 represents a critical leap in capability. Not only will the CVN 21 reactor enable the Navy to meet current forecasted operational requirements, but also just as importantly, it will provide flexibility to deal with projected war fighting needs in the future. The CVN 21 reactor will have increased core energy, nearly three times the electric plant generating capability, and will require only half of the reactor department sailors when compared to today's operational aircraft carriers. The extra energy will support higher operational tempos or longer reactor life for the CVN 21-class. The CVN 21-class lead ship is expected to be authorized in 2008 and to go to sea in 2015.

TTC will use advanced reactor core materials to achieve a significant increase to the core energy density—more energy without increasing size, weight or space and while maintaining a reasonable cost. With significantly more energy, the objective for TTC is to extend ship life by as much as 30 percent and/or increase operating hours per operating year. An alternative core will use weapons return material and result in lower overall core procurement cost, which will support in a higher submarine build rate. The end result for both technologies is significantly greater operational ability and flexibility. The timing of these two cores corresponds with the need to transition from 97 to 93 percent enriched uranium fuel. This transition is necessitated by the shutdown of the high enrichment plant and the decision to use Uranium recovered from retired nuclear weapons as starter material for naval nuclear reactors. Both cores would be intended for forward fitting into VIRGINIA-class submarines, which will be the mainstay of the submarine fleet in future decades.

Funding by Strategic and Program Goal

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Strategic Goal 2.3, Naval Nuclear Propulsion Plants			
GPRA Unit Program Goal 2.3.45			
Naval Reactors	781,605	795,133	808,219
Total, Strategic Goal 2.3, Naval Nuclear Propulsion Plants Naval Reactors	781,605	795,133	808,219
Total, Naval Reactors	781,605	795,133	808,219

Outyear Funding by Strategic and Program Goal

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Strategic Goal 2.3, Naval Nuclear Propulsion Plants				
GPRA Unit Program Goal 2.3.45				
Naval Reactors	828,000	849,002	870,000	892,000
Total, Naval Reactors	828,000	849,000	870,000	892,000

Annual Performance Results and Targets*
(R = Results; T = Targets)

Performance Indicators	FY 2004 Results	FY 2005 Results	FY 2006 Results	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	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: 130 T : 130	R: 133 T: 132	R : 136 T: 134	T: 138	T: 140	T: 142	T: 144	T: 146	T: 148	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 design and core delivery (Long-term Outcome)***	R: 10%	R: 23% T: 23%	R : 34% T: 34%	T: 43%	T: 52%	T: 63%	T: 70%	T: 77%	T: 83%	By 2015, deliver the first TTC core.
Cumulative percentage of completion on the next-generation aircraft carrier reactor plant design (Long-term Outcome)	R: 60% T : 60%	R: 70% T: 70%	R : 75% T: 75%	T: 80%	T: 85%	T: 88%	T: 91%	T: 94%	T: 96%	By 2015, provide the reactor plant for the next-generation aircraft carrier.
Cumulative percentage of completion on the next-generation submarine reactor plant design for the VIRGINIA-class submarine (Long-term Outcome)	R: 100% T : 100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	In 2004, the next-generation submarine went to sea.
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%	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.
<u>Annual utilization factor for operation of test reactor plants (Efficiency)</u>	<u>R: 96.7%</u> <u>T: 90%</u>	<u>R: 94%</u> <u>T: 90%</u>	<u>R : 91%</u> <u>T: 90%</u>	<u>T: 90%</u>	<u>T: 90%</u>	<u>T: 90%</u>	<u>T: 90%</u>	<u>T: 90%</u>	<u>T: 90%</u>	<u>Annually, achieve a utilization factor of at least 90% for operation of test reactor plants.</u>
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	N/A	R : 5% T: 5%	T: 5%	T: 5%	T: 5%	T: 5%	T: 5%	T : 5%	Annually, achieve an FCI of 5% or below.

* Annual Effectiveness and efficiency performance targets will not be reported in the Department’s annual Performance and Accountability Report (PAR).

** The Cumulative Miles Steamed performance measure was rebaselined with an endpoint target of 154 million miles by 2015.

** *The TTC performance measure may be revised to reflect changes in Program priorities as discussed under “Major Outyear Priorities and Assumptions”.

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 Department 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. Owing 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.

Program Assessment Rating Tool (PART)

The Department implemented a tool to evaluate selected programs. PART was developed by OMB to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. The Naval Reactors program has incorporated feedback from the OMB into the FY 2008 Budget Request, and has taken or will take the necessary steps to continue to improve performance.

The results of the OMB review are reflected in the FY 2008 Budget Request. The OMB gave the Naval Reactors program very high scores of 100 percent on the Purpose and Design, Strategic Planning, and Program Management Sections and 92 percent on the Program Results Section. Overall, the OMB rated Naval Reactors 96 percent, its highest rating of "Effective." The OMB found the program has a clear and unique purpose; is well managed; has clear, concise, meaningful, and measurable performance metrics; and has demonstrated good progress in achieving its annual and long-term goals. In addition, the OMB noted that the program strengthened its oversight by recently adding a new metric to assess facility conditions to ensure they do not fall into disrepair. In response to the OMB findings, the NNSA has established annual and long-term targets for the new facility condition metric.

Historically Black Colleges and Universities (HBCU) Support

A research and education partnership program with the HBCU's and the Massie Chairs of Excellence was initiated by the Congress through earmarks in the Office of the Administrator appropriation in FY 2005 and FY 2006. NNSA has established an effective program to target national security research opportunities for these institutions to increase their participation in national security-related research and to train and recruit HBCU graduates for employment within NNSA. The NNSA's goal is a stable work program funded at $10 million annually. The majority of the efforts directly support program activities, and it is expected that Naval Reactors programs will fund research with the HBCU's totaling approximately $1 million in FY 2008 in the area of nuclear propulsion systems and engineering.

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 2006	FY 2007	FY 2008
Bettis Atomic Power Laboratory	5,771	5,388	5,469
Naval Reactors Facility	531	558	450
Knolls Atomic Power Laboratory	8,683	8,609	8,616
Kesselring Site Operations	1,804	2,324	1,777
Total, Indirect-Funded Maintenance and Repair	16,789	16,879	16,312

Outyear Indirect-Funded Maintenance and Repair

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Bettis Atomic Power Laboratory	5,524	5,539	5,625	5,682
Naval Reactors Facility	334	342	372	305
Knolls Atomic Power Laboratory	8,614	8,231	8,613	8,299
Kesselring Site Operations	2,597	2,722	2,977	3,049
Total, Indirect-Funded Maintenance and Repair	17,069	16,834	17,587	17,335

Direct-Funded Maintenance and Repair

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
Bettis Atomic Power Laboratory	0	0	0
Naval Reactors Facility	3,003	3,162	2,547
Knolls Atomic Power Laboratory	468	542	535
Kesselring Site Operations	3,602	4,134	3,820
Total, Direct-Funded Maintenance and Repair	7,073	7,838	6,902

Outyear Direct-Funded Maintenance and Repair

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
Bettis Atomic Power Laboratory	0	0	0	0
Naval Reactors Facility	1,890	1,936	2,107	1,730
Knolls Atomic Power Laboratory	537	538	538	537
Kesselring Site Operations	4,937	5,126	5,248	5,220
Total, Direct-Funded Maintenance and Repair	7,364	7,600	7,893	7,487

Naval Reactors
Operations and Maintenance (O&M)
Funding Schedule by Activity

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Operations and Maintenance (O&M)			
Plant Technology	142,362	130,470	115,008
Reactor Technology and Analysis	201,861	212,137	217,955
Materials Development and Verification	106,049	117,708	109,877
Evaluation and Servicing	162,766	179,277	203,757
ATR Operations and Test Support	70,765	64,600	58,800
Facility Operations	51,074	56,984	60,122
Total, Operations and Maintenance	734,877	761,176	765,519

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Total, Operations and Maintenance	771,700	795,700	822,500	836,800

Detailed Justification

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Plant Technology	**142,362**	**130,470**	**115,008**

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 Primary 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. Fiscal year 2008 work objectives include the following:

- Install steam generator in-plant monitor in S8G Prototype.
- Continue assessments of emergent energy conversion technologies.
- Continue detailed design, analysis, and testing for the reduced size steam generator.
- Complete and issue the design validation for the improved steam generator heat exchanger supporting TTC.

Instrumentation and Control Technology: This work focuses on developing instrumentation and control equipment to replace obsolete equipment, improve reliability and performance and reduce costs. Fiscal year 2008 work objectives include the following:

- Continue detailed design and development of the A1B reactor plant I&C System.
- Finalize A1B cabinet designs and commence final qualification testing of cabinets.
- Continue design and development of the S6W Generic I&C (Type 2) equipment.
- Complete development of a higher power motor drive for high energy testing of A1B 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. Fiscal year 2008 work objectives include the following:

- Continue design of the A1B reactor plant. Continue preparation of A1B propulsion plant manual.

(dollars in thousands)

- Continue to develop new main coolant pump and primary plant valve features/designs for future insertion.
- Continue design activities necessary to support VIRGINIA-class cost reduction initiatives.
- Complete engineering qualification testing of the A1B pressurizer.
- Continue to assist plant designers in implementation of novel design methods to identify vulnerabilities in more simplified, more affordable designs.

Plant Performance and Primary Chemistry: This work focuses on performing reactor plant analyses to ensure safe operation, and improving reactor plant chemistry controls to reduce corrosion and plant radiation levels. Fiscal year 2008 work objectives include the following:

- Continue the development of the A1B real-time reactor plant model.
- Perform emergent radiochemical, chemical, and microchemical analyses on primary system samples and components to resolve operating plant problems.
- Perform chemistry analysis supporting development of long-term strategies for fleet steam generators.
- Support fleet implementation of automated primary chemistry equipment.

	FY 2006	FY 2007	FY 2008
Reactor Technology and Analysis	**201,861**	**212,137**	**217,955**

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.

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. Fiscal year 2008 work objectives include the following:

- Initiate and complete final hydraulic design for NGR-93 core.
- Continue work on cost savings initiatives and core design concepts related to future submarine initiatives.
- Verify the physics parameters of all operating fleet cores and monitor operating data with respect to Reactor Systems Performance Analysis (RSPA) limits.
- Complete final fuel and poison design of NGR-93 core.
- Continue to develop new design and analysis tools to enable improved core performance and cost savings.

Advanced Thermal-Hydraulic Technology: This work focuses on developing and qualifying improved core and reactor component thermal and hydraulic designs. Fiscal year 2008 work objectives include the following:

- Develop thermal-hydraulic technologies and methods to support future advanced 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.
- Complete qualification of procedure and code for thermal hydraulic (CHF) design of alternate geometry cores.

Advanced Fuel and Manufacturing Technology: This work focuses on evaluating and testing improved core manufacturing processes and inspection techniques to support reactors. Fiscal year 2008 work objectives include the following:

- Continue fabrication of 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.

Control Drive Mechanism: This work focuses on designing and testing improved reactor equipment including advanced control drive mechanisms (CDMs) which meet all design requirements, are more reliable than past designs, and are more affordable. Fiscal year 2008 work objectives include the following:

- Commence design of A1B CDM Power Unit Assembly tooling and start procedure development.
- Conduct shock testing of different core geometries.
- Continue analysis of the NGR control drive mechanism (CDM).
- Continue evaluating future CDM design enhancements for longer term, more affordable application.

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. Fiscal year 2008 work objectives include the following:

- Begin Reactor System Protection Analysis (RSPA) support for the Next Generation Reactor Core using low-enriched (93%) fuel (NGR-93).
- Continue development of the A1B RSPA.
- Develop physics test predictions and related analysis for NGR new construction testing.
- Develop and qualify nuclear design procedures and computer programs for analyzing both advanced PWR and high temperature reactor cores

	(dollars in thousands)	
FY 2006	FY 2007	FY 2008

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. Fiscal year 2008 work objectives include the following:

- Develop the radiation protection sections of the A1B reactor plant manual.
- Support updates and revisions to the A1B drawings for items which impact the shield design.
- Qualify containment analysis safety code. Perform severe accident analysis for A1B.
- Complete nominal gamma benchmark calculations for new reactor shield design methods.
- Provide shielding review of issues associated with advanced reactor plant designs.

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. Fiscal year 2008 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 maintain strict accountability and handling methods for nuclear fuel.
- Continue to ensure compliance with all safety and environmental regulations; train personnel to comply with latest standards and practices.

	FY 2006	FY 2007	FY 2008
Materials Development and Verification	**106,049**	**117,708**	**109,877**

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, 4) Materials Evaluation, Testing and Verification.

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. Fiscal year 2008 work objectives include the following:

- Establish the methods and hardware to irradiate and qualify new materials and manufacturing methods for PWR designs.
- Deliver approximately 20-30 test assemblies for irradiation testing at the Advanced Test Reactor.
- Continue examinations of PWR fuel and cladding performance incorporating results into predictive tools.
- 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.
- Complete D1G expended core exams and continue S8G expended core exams to determine performance of operating naval cores and improve component designs.

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. Fiscal year 2008 work objectives include the following:

- Initiate expended core exam on USS NORFOLK.
- Complete destructive examinations of components from USS OHIO and USS MICHIGAN.
- Continue core fastener exams for USS SALT LAKE CITY.
- Continue to establish the processes needed to qualify new materials and manufacturing methods for safer, more capable, and more cost effective PWR designs.
- Continue development, irradiation testing, and examinations of high temperature PWR fuel element constituent materials.
- Follow irradiation testing of advanced fuel and advanced poison systems in the Advanced Test Reactor.

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. Fiscal year 2008 work objectives include the following:

- Continue SCC initiation testing.
- Develop the initiation phase of the Advanced SCC model.
- Continue testing to qualify Alloy 690 for general reactor plant use.
- Test the EN52 weld chemistry.
- Provide welding support for S9G/NCSG (New Concept Steam Generator) and A1B reactor heavy equipment fabrication.

	(dollars in thousands)	
FY 2006	FY 2007	FY 2008

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. Fiscal year 2008 work objectives include the following:

- Provide Analytical Chemistry, Radiochemistry, Physical Chemistry, Metallography, Microanalytical and Mechanical Testing services in support of materials development programs.
- Evaluate and support initiatives, which reduce long term operating costs, maximize operational effectiveness and provide greatest program impact.
- Conduct high temperature and high-pressure autoclave testing in support of new materials development for use in the fleet.
- Implement Focused Ion Beam (FIB) capabilities for site-specific sample preparation for suite of micro-characterization tools and in-situ 3-D materials characterization.

	FY 2006	FY 2007	FY 2008
Evaluation and Servicing	**162,766**	**179,277**	**203,757**

Evaluation & 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, layup, 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 & Examination, 5) NY Inactivation.

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. Fiscal year 2008 work objectives include the following:

- Perform depletion and testing of the cores in MARF and S8G prototypes.
- Conduct the ninth S8G prototype high power physics test.
- Conduct MARF maximum power tests, and materials stress tests.
- Conduct demonstration testing of SERPOS at S8G prototype, prior to shipboard installation.
- Operate the prototypes for testing and maintenance at a utilization factor of greater than 90%.

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. Fiscal year 2008 work objectives include the following:

- 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.
- Remove highly contaminated inactive equipment and systems from the L-Building in accordance with the project management plan.
- Complete KSO Silo Area radiological release surveys and sampling.

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. Fiscal year 2008 work objectives include the following:

- Continue design work on A1B refueling equipment.
- Complete a major non-refueling overhaul of the S8G prototype, including the installation of SERPOS.
- Prepare for major non-refueling overhaul of the S8G prototype, including a steam generator inspection, main coolant check valve hinge block studs replacement, and primary shield tank penetration flange repairs.

Expended Core Processing & Examination: This work involves operating the Expended Core Facility (ECF) in Idaho including the Advanced Test Reactor in a safe and reliable manner to support examination and disposal of spent naval fuel. Fiscal year 2008 work objectives include the following:

- Initiate design of storage overpack for A1G spent fuel.
- Initiate South End processing of fuel returns from INTEC.
- Begin A1G and INTEC fuel return dry storage, transportation, and repository evaluations.
- Complete design of canister basket for shipment and storage of A1W spent fuel in the Spent Fuel Canister Transportation Cask.
- Complete M-290 shipping container design to allow meeting the current carrier refueling schedules and eliminate fuel processing at the shipyard.
- Complete preparation of ECF Water Pit Dry process operating procedures.

Prototype Inactivation: This work involves the disassembly and disposition of the Program's testing prototypes and support facilities.

	FY 2006	FY 2007	FY 2008
	(dollars in thousands)		
Advanced Test Reactor (ATR) Operations and Test Support	**70,765**	**64,600**	**58,800**

Naval Reactors performs irradiation testing at the ATR in support of advanced reactor design development. While ATR is owned by DOE-NE and operated by their contractor, this funding supports base operations of the ATR as well as NR specific testing.

	FY 2006	FY 2007	FY 2008
Facility Operations	**51,074**	**56,984**	**60,122**

Facility Operations funding supports general plant projects (GPP) and capital equipment procurements.

	FY 2006	FY 2007	FY 2008
Subtotal, Operations and Maintenance	**734,877**	**761,176**	**765,519**
Total, Operations and Maintenance	**734,877**	**761,176**	**765,519**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Plant Technology	**-15,462**
• Complete construction of the S6W Composite Tests facility for Type 2 Generic I&C equipment.	
• Complete S6G and A1B Generic I&C display effort.	
Reactor Technology and Analysis	**+5,818**
• Begin Reactor System Protection Analysis (RSPA) support for the Next Generation Reactor Core using lower-enriched fuel (NGR-93).	
• Commence design and procure tooling for A1B CDM Power Unit Assembly procedure development.	
Materials Development and Verification	**-7,831**
• Complete D1G core exams.	
• Complete destructive examinations on components from OHIO and MICHIGAN.	
Evaluation and Servicing	**+24,480**
• Initiate South End processing of fuel returns from INTEC.	
• Finalize M-290 shipping container design efforts	
• Commence preparations for the S8G prototype SRA and combined S8G/MARF prototype ESFS shutdown.	
ATR Operations and Test Support	**-5,800**
• Returns ATR funding to established baseline.	
Facility Operations	**+3,138**
• Increase in general plant project (GPP) requirements.	
Total Funding Change, Operations and Maintenance	**+4,343**

Naval Reactors
Program Direction
Funding Profile by Category

	(dollars in thousands) (Whole FTEs)		
	FY 2006	FY 2007	FY 2008
Headquarters			
Salary and Benefits	10,026	10,326	10,467
Travel	564	580	700
Support Services	0	0	0
Other Related Expenses	3,147	3,526	2,955
Total, Headquarters	13,737	14,432	14,122
Full-Time Equivalents	70	67	71
Pittsburgh Naval Reactors			
Salary and Benefits	8,022	8,220	8,956
Travel	145	153	255
Support Services	0	0	0
Other Related Expenses	1,147	1,253	1,385
Total, Pittsburgh Naval Reactors	9,314	9,626	10,596
Full-Time Equivalents	70	73	72
Schenectady Naval Reactors			
Salary and Benefits	6,282	6,449	7,010
Travel	119	124	204
Support Services	0	0	0
Other Related Expenses	545	554	768
Total, Schenectady Naval Reactors	6,946	7,127	7,982
Full-Time Equivalents	59	64	64

	FY 2006	FY 2007	FY 2008
	(dollars in thousands) (Whole FTEs)		
Total Naval Reactors Program			
Salary and Benefits	24,330	24,995	26,433
Travel	828	857	1,159
Support Services	0	0	0
Other Related Expenses	4,839	5,333	5,108
Total, Program Direction	29,997	31,185	32,700
Full-Time Equivalents	199	204	207

Outyear Funding Schedule

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Headquarters				
Salary and Benefits	10,816	11,014	11,132	11,258
Travel	725	750	775	800
Support Services	0	0	0	0
Other Related Expenses	2,760	2,597	2,568	2,520
Total, Headquarters	14,301	14,361	14,475	14,578
Full-Time Equivalents	73	73	73	72
Pittsburgh Naval Reactors				
Salary and Benefits	9,545	10,119	10,728	11,377
Travel	261	266	272	277
Support Services	0	0	0	0
Other Related Expenses	1,338	1,383	1,482	1,513
Total, Pittsburgh Naval Reactors	11,144	11,768	12,482	13,167
Full-Time Equivalents	72	72	72	72

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Headquarters				
Schenectady Naval Reactors				
Salary and Benefits	7,476	7,919	8,387	8,885
Travel	208	213	217	222
Support Services	0	0	0	0
Other Related Expenses	771	839	839	848
Total, Schenectady Naval Reactors	8,455	8,971	9,443	9,955
Full-Time Equivalents	64	64	64	64
Total Naval Reactors Program				
Salary and Benefits	27,837	29,052	30,247	31,520
Travel	1,194	1,229	1,264	1,299
Support Services	0	0	0	0
Other Related Expenses	4,869	4,819	4,889	4,881
Total, Program Direction	33,900	35,100	36,400	37,700
Total, Full-Time Equivalents	209	209	209	208

Mission

Due to the crucial nature of nuclear reactor work, Naval Reactors is a centrally managed organization. This places a heavy burden on the Federal employees who oversee and set policies/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 2006	FY 2007	FY 2008
Salaries and Benefits	**24,330**	**24,995**	**26,433**

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 projected salary adjustments in accordance with allowable inflation.

Travel	**828**	**857**	**1,159**

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 2008 funding supports travel required for the management and oversight of the Naval Reactors Program, in addition to inflationary growth between FY 2007 and FY 2008.

Other Related Expenses	**4,839**	**5,333**	**5,108**

Includes provision of funds for the Working Capital Fund, based on guideline estimates provided by the Working Capital Fund Manager. 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 NR Headquarters' internal classified local area network.

Subtotal, Program Direction	**29,997**	**31,185**	**32,700**
Total, Program Direction	**29,997**	**31,185**	**32,700**

Explanation of Funding Changes

	FY 2008 vs. FY 2007 ($000)
Salaries and Benefits	
The change is due to salary adjustments in accordance with allowable inflation in achieving the FY 2007 FTE target.	+1,438
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.	+302
Other Related Expenses	
The change is due to a decrease in ADP requirements and a decrease in other related expenses.	-225
Total Funding Change, Program Direction	**+1,515**

Other Related Expenses by Category

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Other Related Expenses			
Training	195	219	223
Working Capital Fund and Rent	595	610	615
Software Procurement/Maintenance Activities/Capital Acquisitions	1,801	1,985	1,875
Other	2,248	2,519	2,395
Total, Other Realted Expenses	**4,839**	**5,333**	**5,108**

Capital Operating Expenses and Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
General Plant Projects	16,300	15,012	28,522
Capital Equipment	45,151	41,972	31,600
Total, Capital Operating Expenses	**61,451**	**56,984**	**60,122**

Outyear Capital Operating Expenses

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
General Plant Projects	13,481	20,152	17,600	13,600
Capital Equipment	38,300	38,650	37,300	34,200
Total, Capital Operating Expenses	**51,781**	**58,802**	**54,900**	**47,800**

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior-Year Appro-priations	FY 2006	FY 2007	FY 2008	Unappro-priated Balance
05-D-900, Materials Development Facility	17,679	6,591	9,801	1,287	0	-
06-D-901, Central Office Building #2	6,930	0	6,930	0	0	-
07-D-190, PED, Materials Research Technology Complex	3,014	1,079	0	1,485	450	-
08-D-901, Shipping and Receiving and Warehouse Complex	9,000	0	0	0	9,000	-
08-D-190, Project Engineering and Design	550	0	0	0	550	-
Total, Construction			16,731	2,772	10,000	-

Outyear Construction Projects

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
12-D-XXX, Plant Services Building	0	0	0	11,000
12-D-XXX, NRF Infrastructure	0	0	0	3,200
11-D-XXX, ECF Water Pit #1	0	0	4,200	2,800
11-D-XXX, Project Engineering and Design (PED)	0	0	2,700	0
10-D-XXX, ECF M-290 Receiving Station	0	4,500	1,500	500
09-D-XXX, Materials Research and Technology Complex	12,400	11,700	2,700	0
09-D-190, Project Engineering and Design	1,100	2,000	0	0
09-D-XXX, NRF Office Building	8,900	0	0	0
Total, Construction	22,400	18,200	11,100	17,500

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

(dollars in thousands)

	Total Project Cost (TPC)	Total Estimated Cost (TEC)	Prior-Year Appro-priations	FY 2006	FY 2007	FY 2008	Completion Date
Network Upgrade	0	2,800	2,000	800	0	0	FY 2006
Low Level Exam Equipment	5,340	5,000	4,290	710	0	0	FY 2006
Scalable Parallel Supercomputer	8,401	8,000	0	8,000	0	0	FY 2006
Network Convergence	0	3,000	800	700	1,500	0	FY 2007
Emergency Safety Fill System	9,678	8,700	1,500	2,600	1,900	1,500	FY 2009
High Performance Computing System	8,889	8,000	0	0	0	8,000	FY 2008
Total, Major Items of Equipment				12,810	3,400	9,500	

Outyear Major Items of Equipment

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Emergency Safety Fill System	1,200	0	0	0
S8G Generic I&C Installation	200	700	800	1,500
Advanced Metal Processing Equipment	1,300	1,000	2,100	0
Network Upgrade	0	1,000	1,000	1,000
Scalable Parallel Supercomputer	8,000	0	0	0
Scalable Parallel Supercomputer	0	8,000	0	0
High Performance Technical Computing System	0	0	8,000	0
High Performance Technical Computing System	0	0	0	9,000
Total, Major Items of Equipment	10,700	10,700	11,900	11,500

08-D-901, Shipping & Receiving and Warehouse Complex (SRWC), Bettis Atomic Power Laboratory

1. Significant Changes

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Existing Facilities Start	D&D Existing Facilities Complete
FY 2008	1Q FY 2008	3Q FY 2008	4Q FY 2008	4Q FY 2009	4Q FY 2009	3Q FY 2022

3. Baseline and Validation Status (dollars in thousands)

(dollars in thousands)

	TEC	OPC, except D&D Costs	D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2008	9,000	463	8,000	17,463	9,463	8,000

4. Project Description, Justification, and Scope

Project Description:

This design-build project provides funding for the construction of the Shipping & Receiving and Warehouse Complex (SRWC) at the Bettis Atomic Power Laboratory. An adjacent security gatehouse will also be designed and constructed as part of the project. This new complex will improve the security posture of the site as well as increase efficiency of movement and inspection of materials on site.

Specifically, this project will consolidate the shipping and receiving, warehouse and stores, and quality engineering and inspection functions into one facility located at the edge of the site's security boundary. The location and operation of the SRWC will minimize the number of direct deliveries from vendors to locations within the site security boundary consistent with heightened security protocols following the September 11, 2001, terrorist attacks.

Project Justification:

Construction of the SRWC will enhance the security posture of the Laboratory by minimizing the number of vehicles that enter the site perimeter fence. The adjacent security gatehouse will permit the monitoring of transport vehicles docked at the SRWC and allow pedestrians and vehicles to enter the site. Further, the construction of the SRWC will increase the efficiency of material movement and inspections onsite by combining the shipping and receiving, warehouse, stores, and quality engineering and inspection services into one location.

Project Scope:

The SRWC, located on the northwest corner of the ball field, will provide approximately 40,500 square feet of floor space, with approximately 34,000 square feet for loading/unloading material shipments, receipt inspections, and material storage. The building will have loading/unloading bays and a mail receipt room located outside the site perimeter fence for off-site deliveries. Two other loading dock areas will be provided within the secured area of the facility for easy transport between the SRWC and locations within the site perimeter. The building will also include bulk storage areas, a classified storage room, Quality Engineering & Inspection Service rooms, offices, a conference room, lunch and locker rooms for SRWC personnel, and an automatic storage and retrieval system. The 625 square foot, single-story Security Gate House will provide employees access to the site as well as track vehicular traffic and deliveries in the vicinity of the SRWC.

The project will be conducted in accordance with the essential project management requirements as identified in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

Compliance with Project Management Order (for Design-build projects):

- Critical Decision – 0: Approve Mission Need – FY 2005
- Critical Decision – 1: Approve Preliminary Baseline Range – FY 2006
- Critical Decision – 2: Approve Performance Baseline – 4Q FY 2006
- External Independent Review Final Report – 3Q FY 2006
- Critical Decision – 3: Approve Start of Construction – 3Q FY 2008
- Critical Decision – 4: Approve Start of Operations – 4Q FY 2009

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Design/Construction by Fiscal Year			
Design[a]			
2008	525	525	525
Total, Design	525	525	525
Construction			
2008	8,475	8,475	2,675
2009	0	0	5,800
Total, Construction	8,475	8,475	8,475
Total, TEC (08-D-901)	9,000	9,000	9,000

[a] Construction design will be performed by the design-build contractor.

6. Details of Project Cost Estimate

Total Estimated Costs

(dollars in thousands)

	Current Estimate	Previous Estimate
Preliminary and Final Design	525	N/A
Construction Phase		
Site Preparation	112	N/A
Equipment	720	N/A
Design-build Construction	6,293	N/A
Contingency	1,350	N/A
Total, Construction	8,475	N/A
Total, TEC	9,000	N/A

Other Project Costs

(dollars in thousands)

	Current Estimate	Previous Estimate
Pre-conceptual Design	133	N/A
Conceptual Design	106	N/A
Independent Cost Estimate	19	
Relocation Costs	85	N/A
Temporary Utilities	20	
Commissioning	75	
D&D of Construction Site		N/A
D&D Phase		
D&D for removal of existing facility	5,861	N/A
Other D&D to comply with “one for one” requirements	506	N/A
D&D contingency	1,633	N/A
Total D&D	8,000	N/A
Contingency for OPC other than D&D	25	N/A
Total OPC	8,463	N/A

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Outyears	Total
TEC (Design)	0	0	525	0	0	0	0	525
TEC (Construction)	0	0	2,675	5,800	0	0	0	8,475
OPC (other than D&D)	258	0	40	165	0	0	0	463
D&D Costs	0	0	0	546	0	0	7,454	8,000
Total Project Costs	258	0	3,240	6,511	0	0	7,454	17,463

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter).........................	4Q FY 2009
Expected Useful Life (number of years)...	50
Expected Future start of D&D for new construction (fiscal quarter)............	1Q FY 2060

(Related Funding requirements)

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current estimate	Prior Estimate	Current estimate	Prior Estimate
Operations	139	N/A	6,950	N/A
Maintenance	30	N/A	1,500	N/A
Total Related funding	169	N/A	8,450	N/A

9. Required D&D Information

The areas to be vacated as part of the SRWC construction project are the Shipping and Receiving Building, Stores Building, Warehouse, and various locations currently occupied by Quality Engineering & Inspection Services. The Stores Building, existing Warehouse, and locations currently occupied by Quality Engineering and Inspection Services in the N-Building will be demolished consistent the 30-year D&D plan. For the near term, portions of the existing Shipping and Receiving Building will be modified to support other program needs.

D&D Information Being Requested	Square Feet
Area of new construction	40,500
Area of existing facility being replaced	32,100
Area of any additional space that will require D&D to meet the “one for one” requirement	8,400

10. Acquisition Approach

The Program’s prime contractor prepared the performance specification as the basis for the design-build contract. The design-build contractor will perform the design and construction of the new facility. A fixed price contract for the procurement and construction will be awarded on the basis of competitive bidding.

08-D-190, Project Engineering and Design (PED) – Various Locations

1. Significant Changes

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2008	1Q FY 2008	Various	Various	Various	N/A[a]	N/A[b]

3. Baseline and Validation Status

(dollars in thousands)

	TEC[b]	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2008	550	N/A	N/A	550	Various	8,000 – 12,000

4. Project Description, Justification, and Scope

This project provides for Architect-Engineering (A-E) services for the Expended Core Facility (ECF) M-290 Receiving Station construction project, allowing the project 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 design will be extensive enough to establish a performance baseline and to support construction or long-lead procurements in the fiscal year in which line item construction funding is requested and appropriated.

The conceptual design study will be prepared using Operations and Maintenance funds prior to receiving construction design funding. The conceptual design study defines the scope of the project and produces a rough cost estimate and schedule.

The FY 2008 PED design project is 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 the subproject. The final TEC and the Total Project Cost (TPC) for the project described below will be validated and the Performance Baseline will be established at Critical Decision-2 (CD-2), following completion of preliminary design.

[a] No new square footage will be added.

[b] The TEC is for design only.

FY 2008 Proposed Design Project

08-01: Expended Core Facility (ECF) M-290 Receiving/Discharge Station, Naval Reactors Facility, Idaho

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
1Q FY 2008	4Q FY 2009	2Q FY 2010	3Q FY 2013	550	$8,000 -$12,000

Fiscal Year	Appropriations	Obligations	Costs
2008	550	550	392
2009	0	0	158
Total	550	550	550

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 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. This project will modify (e.g., installation of larger capacity crane) ECF to allow the receipt and handling of M-290 shipping containers.

The project will be conducted in accordance with the essential project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

5. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
FY 2008	550	550	392
FY 2009	0	0	158
Total, Design	550	550	550

6. Details of Cost Estimate

Total Estimated Cost[a]

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	538	N/A
Design Management costs (1.6% of Design TEC)	9	N/A
Project Management costs (0.6% of Design TEC)	3	N/A
Total, Design Costs	550	N/A
Total, Line Item Costs (TEC, Design Only)	550	N/A

Other Project Costs

(dollars in thousands)

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
Conceptual Planning	N/A	N/A
Start-up	N/A	N/A
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with "one-for-one" requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	N/A	N/A

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2008	FY 2009	Total
TEC (Design)	N/A	392	158	550
TEC (Construction)	N/A	N/A	N/A	N/A
OPC Other than D&D	N/A	N/A	N/A	N/A
Offsetting D&D Costs	N/A	N/A	N/A	N/A
Total, Project Costs	N/A	392	158	550

[a] The cost estimate includes design phase activities only. Construction activities will be requested as an individual line item.

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	N/A
Expected Useful Life (number of years)	N/A
Expected Future start of D&D for new construction (fiscal quarter)	N/A

(Related Funding requirements) [a]

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

9. Required D&D Information

N/A

10. Acquisition Approach

The NR Program will outsource design work to an engineering services firm, via approved contracting practices, and will oversee that work.

[a] This data sheet is for design activities only. Cost related to items in this table will be determined when construction funds are requested under a separate line item.

07-D-190, Project Engineering and Design (PED) – Materials Research and Technology Complex (MRTC), Bettis Atomic Power Laboratory[a]

1. Significant Changes

2. Design, Construction, and D&D Schedule

(fiscal quarter)

	Preliminary Design start	Final Design Complete	Physical Construction Start	Physical Construction Complete	D&D Offsetting Facilities Start	D&D Offsetting Facilities Complete
FY 2007	2Q FY 2005	3Q FY 2008	2Q FY 2009	1Q FY 2011	1Q FY 2012	4Q FY 2042
FY 2008	2Q FY 2005	3Q FY 2008	2Q FY 2009	1Q FY 2011	1Q FY 2012	4Q FY 2042

3. Baseline and Validation Status

(dollars in thousands)

	TEC[b]	OPC, except D&D Costs	Offsetting D&D Costs	Total Project Costs	Validated Performance Baseline	Preliminary Estimate
FY 2007	3,014	N/A	N/A	3,014	1Q FY 2007[b]	3,014
FY 2008	3,014	N/A	N/A	3,014	3Q FY 2007	3,014

4. Project Description, Justification, and Scope

This project provides for Architect-Engineering (A-E) services for the Materials Research and Technology Complex (MRTC) construction project, allowing the project 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 design will be extensive enough to establish a performance baseline and to support construction or long-lead procurements in the fiscal year in which line item construction funding is requested and appropriated.

The conceptual design study was prepared using Operations and Maintenance funds prior to receiving construction design funding. The conceptual design study defines the scope of the project and produces a rough cost estimate and schedule.

Design efforts as described herein reflect a shift in Program priorities. NR has concluded that continuing development of Thermophotovoltaic Direct Energy Conversion (TPV DEC) will not lead to a better overall reactor plant for the Navy. Termination of the TPV DEC program, in light of formidable engineering challenges, obviates the requirement for the Cleanroom Technology Facility (CTF), Project 03-D-201, as originally envisioned (scheduled for completion in FY 2006). To optimize this situation, the design for the MRTC will be modified to accommodate use and integration of the existing CTF

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[a] The Total Estimated Cost (TEC) and Total Project Cost (TPC) for this project are predicated on the specific schedule shown in this project data sheet. Under a year-long FY 2007 Continuing Resolution, new starts may be deferred. Cost and schedule impacts to this project will be determined after passage of an appropriation.

[b] The TEC is for design only.

building. The conceptual design will be revised and a new performance baseline will be established and independently validated.

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 adjacent 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.

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.

Costs of preliminary and final design and engineering efforts for the MRTC are provided. While preliminary design is complete and the MRTC has an approved performance baseline, the Program will establish and independently validate a new performance baseline to reflect changes to the project as mentioned above. All costs and schedules are preliminary until CD-2 is reapproved.

The project will be conducted in accordance with the essential project management requirements in DOE Order 413.3 and DOE Manual 413.3-1, Program and Project Management for the Acquisition of Capital Assets.

5. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
FY 2005	1,079	1,079	1,056
FY 2006	0	0	23
FY 2007	1,485	1,485	1,485
FY 2008	450	450	450
Total, Design	3,014	3,014	3,014

6. Details of Cost Estimate

Total Estimated Cost[a]

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	2,864	2,864
Design Management costs (3% of Design TEC)	90	90
Project Management costs (2% of Design TEC)	60	60
Total, Design Costs	3,014	3,014
Total, Line Item Costs (TEC, Design Only)	3,014	3,014

Other Project Costs

Cost Element	Current Estimate ($000)	Previous Estimate ($000)
	(dollars in thousands)	
Conceptual Planning	N/A	N/A
Start-up	N/A	N/A
Offsetting D&D		
D&D for removal of the offsetting facility	N/A	N/A
Other D&D to comply with “one-for-one” requirements	N/A	N/A
D&D contingency	N/A	N/A
Total, D&D	N/A	N/A
Contingency for OPC other than D&D	N/A	N/A
Total, OPC	N/A	N/A

7. Schedule of Project Costs

(dollars in thousands)

	Prior Years	FY 2007	FY 2008	Total
TEC (Design)	1,079	1,485	450	3,014
TEC (Construction)	N/A	N/A	N/A	N/A
OPC Other than D&D	N/A	N/A	N/A	N/A
Offsetting D&D Costs	N/A	N/A	N/A	N/A
Total, Project Costs	1,079	1,485	450	3,014

[a] The TEC is for design only.

8. Related Operations and Maintenance Funding requirements

Start of Operation or Beneficial Occupancy (fiscal quarter)	2Q FY 2011
Expected Useful Life (number of years)	50
Expected Future start of D&D for new construction (fiscal quarter)	3Q FY 2061

(Related Funding requirements) [a]

(dollars in thousands)

	Annual Costs		Life cycle costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	N/A	N/A	N/A	N/A
Maintenance	N/A	N/A	N/A	N/A
Total Related funding	N/A	N/A	N/A	N/A

9. Required D&D Information

N/A

10. Acquisition Approach

The NR Program will outsource design work to an engineering services firm, via approved contracting practices, and will oversee that work.

Site Funding Summary

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Chicago Operations Office			
Ames Laboratory	357	357	357
Argonne National Laboratory	24,131	26,791	25,402
Brookhaven National Laboratory	42,738	36,783	39,593
Chicago Operations Office	281,372	55,873	26,777
Lawrence Berkeley National Laboratory	7,348	5,155	5,155
New Brunswick Laboratory	603	935	935
Idaho Operations Office			
Idaho National Laboratory	80,787	86,233	75,823
Idaho Operations Office	2,444	2,474	2,536
Kansas City Site Office			
Kansas City Plant	403,159	389,391	409,804
Kansas City Site Office	6,111	6,174	6,697
Livermore Site Office			
Lawrence Livermore National Laboratory	1,146,191	1,166,468	1,070,856
Livermore Site Office	18,205	17,902	18,932
Los Alamos Site Office			
Los Alamos National Laboratory	1,594,268	1,652,374	1,550,424
Los Alamos Site Office	19,075	17,078	18,750
NETL			
NETL	5,189	4,536	1,611
NNSA Service Center			
Atomic Energy of Canada, Ltd.	0	100	0
General Atomics	21,472	16,563	16,740
National Renewable Energy Laboratory	300	1,797	1,797
Naval Research Laboratory	29,498	0	0
NNSA Service Center (all other sites)	582,326	595,450	605,446
University of Rochester/LLE	67,982	44,150	53,044
Nevada Site Office			
Nevada Site Office	131,150	117,100	105,531
Nevada Test Site	311,841	286,648	268,508

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
Oak Ridge Operations Office			
Oak Ridge Institute for Science and Engineering	14,449	6,250	6,520
Oak Ridge National Laboratory	169,221	149,076	119,038
Oak Ridge Operations Office	3,667	5,884	5,953
Office of Science and Technical Information	150	135	136
Pacific Northwest National Laboratory	154,839	132,064	116,341
Y-12 National Security Complex	847,740	797,750	886,022
Y-12 Site Office	43,185	53,571	44,069
Other			
Other	3,100	3,066	3,436
Pantex Site Office			
Pantex Plant	486,176	488,887	538,418
Pantex Site Office	13,263	12,713	13,039
Pittsburgh Naval Reactors Office			
Bettis Atomic Power Laboratory	371,030	386,436	395,157
Pittsburgh Naval Reactors Office	9,314	9,626	10,596
Richland Operations Office			
Richland Operations Office	1,710	2,511	2,536
Sandia Site Office			
Sandia National Laboratories	1,341,200	1,246,569	1,143,985
Sandia Site Office	15,128	13,133	14,123
Savannah River Operations Office			
Savannah River Operations Office	2,591	1,159	1,563
Savannah River Site	269,550	688,020	715,046
Savannah River Site Office	4,916	4,704	5,147
Schenectady Naval Reactors Office			
Knolls Atomic Power Laboratory	306,713	309,846	318,126
Schenectady Naval Reactors Office	6,946	7,127	7,982
Washington DC Headquarters			
Headquarters	347,714	534,647	768,882
Adjustments	-78,845	-67,695	-34,000
Total, NNSA	**9,110,304**	**9,315,811**	**9,386,833**

Outyear Funding

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Chicago Operations Office				
Ames Laboratory	357	397	405	413
Argonne National Laboratory	20,460	17,406	17,812	17,955
Brookhaven National Laboratory	42,951	35,115	36,154	36,768
Chicago Operations Office	46,305	28,704	32,179	68,893
Lawrence Berkeley National Laboratory	5,493	10,625	10,710	10,793
New Brunswick Laboratory	935	935	935	935
Idaho Operations Office				
Idaho National Laboratory	75,999	77,398	78,219	78,942
Idaho Operations Office	2,714	2,821	2,924	3,040
Kansas City Site Office				
Kansas City Plant	406,800	409,475	398,720	398,170
Kansas City Site Office	6,987	7,289	7,604	7,935
Livermore Site Office				
Lawrence Livermore National Laboratory	1,102,620	1,116,531	1,114,753	1,135,814
Livermore Site Office	19,586	20,248	20,927	21,654
Los Alamos Site Office				
Los Alamos National Laboratory	1,614,769	1,610,081	1,564,625	1,546,058
Los Alamos Site Office	19,530	20,338	21,177	22,062
NETL				
NETL	1,649	1,689	1,729	1,771
NNSA Service Center				
Atomic Energy of Canada, Ltd.	0	0	0	0
General Atomics	17,658	18,059	18,059	17,868
National Renewable Energy Laboratory	1,798	1,797	1,798	1,798
Naval Research Laboratory	0	0	0	0
NNSA Service Center (all other sites)	640,843	540,910	532,489	536,758
University of Rochester/LLE	59,885	54,063	53,979	53,406
Nevada Site Office				
Nevada Site Office	130,856	122,285	133,743	145,160
Nevada Test Site	264,093	252,772	256,146	260,812

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Oak Ridge Operations Office				
Oak Ridge Institute for Science and Engineering	6,705	6,794	6,881	7,095
Oak Ridge National Laboratory	97,166	87,298	89,196	90,436
Oak Ridge Operations Office	6,341	6,510	6,696	6,829
Office of Science and Technical Information	141	138	133	136
Pacific Northwest National Laboratory	143,440	155,930	155,048	155,782
Y-12 National Security Complex	881,333	882,231	976,840	1,068,007
Y-12 Site Office	36,110	33,665	30,032	31,058
Other				
Other	3,200	3,200	3,300	3,300
Pantex Site Office				
Pantex Plant	533,273	568,053	571,056	557,529
Pantex Site Office	13,566	14,109	14,672	15,268
Pittsburgh Naval Reactors Office				
Bettis Atomic Power Laboratory	409,589	402,674	412,882	425,742
Pittsburgh Naval Reactors Office	11,144	11,768	12,482	13,167
Richland Operations Office				
Richland Operations Office	2,636	2,686	3,076	3,200
Sandia Site Office				
Sandia National Laboratories	1,186,101	1,242,828	1,281,407	1,281,292
Sandia Site Office	14,702	15,300	15,921	16,576
Savannah River Operations Office				
Savannah River Operations Office	2,364	2,183	2,214	2,629
Savannah River Site	772,455	864,135	922,836	942,380
Savannah River Site Office	5,359	5,579	5,807	6,048
Schenectady Naval Reactors Office				
Knolls Atomic Power Laboratory	321,311	346,726	354,818	361,358
Schenectady Naval Reactors Office	8,455	8,971	9,443	9,955
Washington DC Headquarters				
Headquarters	833,321	1,039,284	1,156,173	1,267,208
Adjustments	-35,000	-36,000	-37,000	-38,000
Total, NNSA	**9,736,000**	**10,013,000**	**10,299,000**	**10,594,000**

BETTIS ATOMIC POWER LABORATORY

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Naval Reactors	371,030	386,436	395,157
Total, NNSA	**371,030**	**386,436**	**395,157**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Naval Reactors	409,589	402,674	412,882	425,742
Total, NNSA	**409,589**	**402,674**	**412,882**	**425,742**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
Bettis Atomic Power Laboratory	3,190	3,156	3,178
Total Facility	**3,190**	**3,156**	**3,178**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

Bettis Laboratory is a research and development laboratory operated by Bechtel Bettis, Inc., for the Naval Nuclear Propulsion Program, a joint Department of the Navy-Department of Energy (DOE) organization. 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. The initial efforts of Bettis Laboratory led to the development of the power plant for USS NAUTILUS (SSN 571), the world's first nuclear-powered submarine. 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.

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. Bettis also has lead responsibility for the overall program for training 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 (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	180,256	186,145	217,192
Engineering Campaign	7,444	6,737	6,302
Inertial Confinement Fusion Ignition and High Yield Campaign	21	0	0
Pit Manufacturing and Certification Campaign	493	99	300
Readiness Campaign	33,630	36,071	27,162
Readiness in Technical Base and Facilities	107,981	105,395	101,539
Secure Transportation Asset	44,595	35,393	32,002
Nuclear Weapons Incident Response	2,142	420	7,441
Facilities and Infrastructure Recapitalization Program	8,510	2,000	0
Environmental Projects and Operations Program/LTS	0	1,697	2,000
Safeguards and Security	16,123	13,994	14,426
Nonproliferation and International Security	1,175	1,440	1,440
Global Initiative for Proliferation Prevention	789	0	0
Total, NNSA	**403,159**	**389,391**	**409,804**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	204,420	207,987	191,316	191,795
Engineering Campaign	6,615	6,483	6,341	6,474
Inertial Confinement Fusion Ignition and High Yield Campaign	0	0	0	0
Pit Manufacturing and Certification Campaign	301	299	295	97
Readiness Campaign	23,915	20,960	22,144	15,374
Readiness in Technical Base and Facilities	110,086	112,642	115,715	118,017
Secure Transportation Asset	33,043	30,946	31,633	32,261
Nuclear Weapons Incident Response	8,536	9,179	9,811	10,555
Facilities and Infrastructure Recapitalization Program	0	0	0	0
Environmental Projects and Operations Program/LTRA	2,800	1,821	1,847	1,889

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Safeguards and Security	15,644	17,718	18,178	20,268
Nonproliferation and International Security	1,440	1,440	1,440	1,440
Global Initiative for Proliferation Prevention	0	0	0	0
Total, NNSA	**406,800**	**409,475**	**398,720**	**398,170**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	2,439	2,305	2,230
Other	305	410	435
Total Facility	**2,744**	**2,715**	**2,665**

Congressional Items of Interest: Responsive Infrastructure transformation plans, near-term resource impacts generated from cancellation of the W80 Life Extension Program (LEP) and transition to the Reliable Replacement Warhead (RRW).

Major Changes or Shifts: Cancellation of the W80 LEP, and initiation of Responsive Infrastructure (RI) initiatives and associated transformation plans.

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 responsible for the development and maintenance of a broad technology base that delivers advanced, integrated, and secure solutions as the Department of Energy/National Nuclear Security Administration (DOE/NNSA) primary nonnuclear production plant.

The site is aligned with Complex 2030 planning for the future of the nuclear weapons complex. For KCP, this includes (1) reducing the floor space required for non-nuclear production activities by nearly two-thirds, (2) establishing a supply management center for reduced procurement costs across the entire nuclear weapons complex, (3) down-sizing the inventory of stored parts for legacy weapons, and (4) testing a new oversight model for NNSA sites that increases the use of best industrial practices.

ACTIVITIES:

Directed Stockpile Work (DSW)
KCP activities include production engineering, tooling, material procurement, and production labor associated with the LEP. First production units (FPU's) for the W76-1 LEP components occur, including Arming, Fuzing and Firing (AF&F), warhead, Gas Transfer System (GTS) and Joint Test Assembly (JTA) products. Production continues with the B61 Alteration (Alt) 357 LEP, as well as, commencement of production on the Alt 356/8/9. Enduring Stockpile System production activities

include Firing Set, Environmental Sensing Devices, and Lightning Arrestor Connector surveillance rebuilds in addition to lab and flight test sampling across multiple programs. Major reservoir production continues for the W76, B61, and W80 Enduring Stockpile Systems. Reservoir production activities will also commence on the W78 and W88 Systems. The site is participating in the Reliable Replacement Warhead (RRW) 18-month study. The site is aligned with Office of Transformation plans for Complex 2030 and supporting Responsive Infrastructure activities.

Engineering Campaign
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. KCP also supports future system deployment including on-board/embedded components, materials, system sensors, as well as on-board telemetry and communication linkage.

Pit Manufacturing and Certification Campaign
As part of a complex-wide team, KCP will provide technical and programmatic support, including manufacturing technology evaluations and is a member of the Technology Working Group supporting pit-manufacturing capability.

Readiness Campaign
Nonnuclear Readiness: activities include production tester readiness supporting production of neutron generators and other nonnuclear components and assemblies, secure engineering and manufacturing information integration capabilities, electronic component and assembly miniaturization and agile machining and inspection and plant product infrastructure for Process-Prove-In and failure analysis supporting the development, manufacturing, and inspection for production of W76 and W80 components.

Advanced Design and Production Technologies (ADAPT): activities include development of manufacturing and electrical processes, advancements in plastics process technology, development of telemetry and flight test process and warhead refurbishment. Model-based tools and processes will be developed for engineering, manufacturing, and acceptance of weapon components.

Readiness in Technical Base and Facilities
The RTBF is the sole NNSA infrastructure-funding source to enable DSW and Campaigns supporting responsive infrastructure, sustaining Environmental Safety and Health, providing rearrangements for production efficiency, and delivering reliable facility, utility, and equipment uptime in support of Stockpile Stewardship production missions. 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; Environmental, Safety, and Health; and Program Readiness.

Nuclear Weapons Incident Response
Support for the DOE and the NNSA's Office of Emergency Response at KCP involves assistance in operations and capabilities to provide assistance to Federal, state and local government agencies for responding to radiological accidents and incidents. This effort includes the new Stabilization Implementation program in FY 2008.

Secure Transportation Asset

The Kansas City Plant (KCP) is the engineering assembly agency and technical systems integrator for the NNSA Office of Secure Transportation (OST) Transportation Safeguards System. 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 OST 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.

Environmental Projects and Operations - Long-Term Stewardship

All legacy environmental cleanup activities at the Kansas City Plant (KCP) were completed at the end of FY 2006 by the Office of Environmental Management. Restoration activities for the 43 release sites at KCP were accomplished under an accelerated cleanup approach, with the 95th Terrace completed as the final release site in FY 2006. In FY 2007, Long-Term Stewardship (LTS) of the completed remedial actions were implemented at the Kansas City Plant. LTS activities include program management, and continued administration of environmental restoration project activities at the site, as well as the operation and maintenance of treatment and monitoring systems required under KCP’s RCRA Post Closure Permit issued by the Missouri Department of Natural Resources.

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. In FY 2006 KCP recommended that NNSA discontinue expenditure of FIRP resources on refurbishing their aged production facility. This recommendation is based on KCP’s development of a transformation proposal supporting construction of a new, modern production facility. This has allowed redirection of FIRP resources to other critical priorities. 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 weapons complex, contracts for an integration manager to oversee an economical roof repair program at six of the eight nuclear weapons sites.

Safeguards and Security

The KCP Safeguards and Security program provides plant security consistent with DOE Order requirements documented in its approved facility Master Security Plan.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

KNOLLS ATOMIC POWER LABORATORY

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Naval Reactors	306,713	309,846	318,126
Total, NNSA	**306,713**	**309,846**	**318,126**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Naval Reactors	321,311	346,726	354,818	361,358
Total, NNSA	**321,311**	**346,726**	**354,818**	**361,358**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
Knolls Atomic Power Laboratory	2,580	2,518	2,550
Total Facility	2,580	2,518	2,550

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Knolls Atomic Power Laboratory (KAPL) is a research and development laboratory operated by KAPL, Inc. (a Lockheed Martin Company) for the Naval Nuclear Propulsion Program, a joint Department of the Navy-Department of Energy organization. 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 of 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. The Knolls Site in Niskayuna is situated on approximately 180 acres of land, while the Kesselring Site in West Milton 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.

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. Some additional areas KAPL focuses on are direct energy conversion and advanced composite materials. In addition, KAPL operates two prototype plants located at the Kesselring Site in West Milton, N.Y. The MARF and S8G prototypes began operating in 1976 and 1978, respectively, and 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. S3G and D1G, which started operation in 1958 and 1962, respectively, were used for training and testing until their missions were completed in the 1990s. At that time, the 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 (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	136,551	128,339	105,418
Science Campaign	94,226	85,651	93,574
Engineering Campaign	29,709	25,245	24,090
Inertial Confinement Fusion Ignition and High Yield Campaign	342,777	352,472	301,018
Advanced Simulation and Computing Campaign	228,941	198,530	175,838
Pit Manufacturing and Certification Campaign	14,020	17,484	28,845
Readiness Campaign	7,431	4,890	3,286
Readiness in Technical Base and Facilities	83,653	104,915	81,434
Nuclear Weapons Incident Response	16,891	21,050	26,594
Facilities and Infrastructure Recapitalization Program	17,755	35,839	35,354
Environmental Projects and Operations Program/LTS	0	12,556	12,521
Safeguards and Security	94,952	100,044	113,385
Nonproliferation and Verification R&D	40,112	38,362	35,082
Nonproliferation and International Security	10,349	20,412	17,108
International Nuclear Materials Protection and Cooperation	14,650	18,479	16,109
Global Initiatives for Proliferation Prevention	3,297	0	0
HEU Transparency Implementation	5,753	0	0
Fissile Materials Disposition	1,660	1,500	500
Global Threat Reduction Initiative	3,464	700	700
Total, NNSA	**1,146,191**	**1,166,468**	**1,070,856**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	114,623	114,690	112,056	113,017
Science Campaign	99,404	96,554	95,215	96,704
Engineering Campaign	25,420	24,957	24,639	25,162
Inertial Confinement Fusion Ignition and High Yield Campaign	286,578	295,540	295,486	292,429
Advanced Simulation and Computing Campaign	181,606	179,606	177,611	181,230
Pit Manufacturing and Certification Campaign	29,965	31,841	25,896	22,033

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Readiness Campaign	4,908	5,050	0	0
Readiness in Technical Base and Facilities	84,208	79,063	76,583	78,244
Nuclear Weapons Incident Response	27,404	27,832	28,186	31,809
Facilities and Infrastructure Recapitalization Program	34,459	35,772	36,676	37,633
Environmental Projects and Operations Program/LTRA	22,274	20,338	21,448	21,942
Safeguards and Security	115,256	122,815	134,483	146,863
Nonproliferation and Verification R&D	42,910	46,944	50,161	51,841
Nonproliferation and International Security	18,678	19,232	20,134	20,434
International Nuclear Materials Protection and Cooperation	13,527	15,097	14,779	15,073
Global Initiatives for Proliferation Prevention	0	0	0	0
HEU Transparency Implementation	0	0	0	0
Fissile Materials Disposition	500	500	500	500
Global Threat Reduction Initiative	900	700	900	900
Total, NNSA	**1,102,620**	**1,116,531**	**1,114,753**	**1,135,814**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	4,893	4,930	4,820
Other	2,328	2,270	2,230
Total Facility	**7,221**	**7,200**	**7,050**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Lawrence Livermore National Laboratory (LLNL) is located on an 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, the laboratory 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 “Complex 2030” planning to enhance responsiveness of nuclear weapons complex infrastructure. For LLNL, this includes eliminating Category 1/11 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 LLNL DSW effort supports four major areas: Reliable Replacement Warhead (RRW), Life Extension Programs (LEPs), enduring weapon system assessment, and certification and stockpile support. LEPs and enduring systems directly support weapons systems, while the Stockpile Services budget category contains activities that support multiple weapons systems, including hydrotesting, plutonium, and High Energy Density/Above Ground Experiment (HED/AGEX) experiments. The W80 LEP effort at LLNL will be closed down in FY 2007, requiring transition of personnel, and engineering and development efforts to other DSW activities in FY 2008 and beyond. In FY 2008, LLNL is responsible for five enduring weapons systems: theW62, W80, B83, W84, and W87, and the RRW and Responsive Infrastructure (RI). In addition, LLNL will be supporting numerous nuclear weapons complex and stockpile transformation activities.

Science Campaign
The LLNL has responsibility for developing the tools and methodology to assess and certify (via the Quantification of Margins and Uncertainty, or QMU process) the safety, reliability, and performance of the stockpile systems for which LLNL is responsible. These tools and methodology also support ongoing activities in RRW, LEPs, Significant Finding Investigations (SFI), and Laboratory-to-Laboratory Peer Reviews. The five science program activities are:

- *Primary Certification Assessment subprogram:* As the QMU tools and methodology developed as part of the subprogram are validated, they will be used in assessment work required to support DSW activities at LLNL. LLNL also has responsibility to execute an experimental program of hydrotesting and plutonium experiments that support assessment and certification, and the validation of Advanced Simulation and Computing (ASC) codes and physics-based models for QMU development and application. Using QMU methodology, LLNL will continue to identify and quantify technical areas with the largest uncertainties and impact to stockpile performance and focus future effort to reduce uncertainties and quantify margins. Two major products of these efforts are program plans for the LLNL Hydrotest Program and Plutonium Experiments programs. These plans are to be coordinated with Los Alamos National Laboratory (LANL) in the National Hydrotest Plan and the National Primary Physics and Certification Plan. Another major activity is the development of the project for application to equation of state characterization at very high pressures. The project will conduct a series of isentropic compression experiments (ICE's) that are driven by a High Explosive Pulsed Power (HEPP) system. LLNL will also continue efforts for experiments on the National Ignition Facility.

- *Dynamic Materials Properties subprogram:* The LLNL work in this subprogram extends key experimental capabilities, data analysis, and materials models used by both the Primary Assessment Technology and Secondary Assessment Technology subprograms. The focus is on 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 enable investigations of the dynamic response of materials under ultra-high-pressure conditions of shock loading.

- *Advanced Radiography subprogram:* The scope of this subprogram activity is to improve the capability to experimentally infer the integral performance of the primary stage of a nuclear weapon. This supports evaluation of the margins and uncertainties for the continuing certification of reliability and safety of the stockpile (Science Campaign and Directed Stockpile Work). Radiographic hydrotest data are critical to major weapon programs, including RRW, the current LEPs, and the development of modern baselines for all weapon systems. In addition to LLNL radiographic facilities, LLNL will also support the Dual-Axis Radiographic Hydrotest (DARHT) Facility, as defined by the DARHT refurbishment and commissioning project execution plan.

- *Secondary Assessment Technologies subprogram:* The LLNL subprogram activity has responsibility for developing 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 LLNL stockpile weapons, including ongoing activities in LEPs, RRW, and SFIs. Along with advanced simulation and computing capabilities, as these tools and methodology are validated, they will be delivered to the DSW Program for assessments required to support directed stockpile activities at LLNL. In FY 2008, LLNL will continue to develop high energy density physics platforms of ICF facilities to focus on increased understanding of secondary energy balance and hydrodynamics to develop 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 effort to reduce uncertainties and quantify margins.

- *Transformational Assessment Technologies Subprogram:* In FY 2008, the LLNL subprogram will continue to provide a unique combination of capabilities for the National Hydrotest Plan. In addition, LLNL will invest in the development of new advanced technology for diagnosing hydrotest experiments, including technology for high-resolution multi-MeV pulsed sources that are not currently available, but may be required, for future experiments. In FY 2009 and beyond, efforts will be refocused on the development of new tools to address the key issues in ignition and boost identified by the Primary Certification subcampaign and emphasize development of new innovative pulsed power technology, which enables smaller, more efficient x-ray sources, and unique diagnostics for radiography.

Engineering Campaign
The Engineering Campaign activity provides the Nuclear Weapons Complex 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, and a sustained basis for stockpile certification. The LLNL portion of the Engineering Campaign supports of 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 (ADAPT) 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 weapons complex 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 ADAPT. LLNL centers of excellence in design, modeling, simulation, materials processing, high explosives development, non-destructive evaluation, and information technologies enable ADAPT efforts that, in turn, are of direct benefit to LEPs, RRW, DSW, and Enhanced Surveillance.

Additionally, LLNL provides support to High Explosives and Weapons Operations for high explosives diagnostics, development and qualification.

Pit Manufacturing and Certification Campaign
The LLNL plays three important roles in meeting the nation's effort to re-establish the capability to manufacture pits and to certify systems using the newly manufactured pits: (1) providing independent technical assessments of the physics performance and engineering response, using the latest legacy and ASC codes, (2) providing key enabling technologies required to improve pit manufacturing capability and capacity, including metal processing, casting, and shaping technologies, and (3) providing requirements and process definitions of technologies required to improve pit manufacturing capability and capacity. Those activities conducted on site at LLNL in the "superblock" will be relocated over several years time and all CAT I and II materials will be removed from LLNL thereby improving the security posture and hazard category of LLNL.

Advanced Simulation and Computing (ASC) Campaign
The LLNL ASC activities will focus in three major areas: Maintaining the world-class, national supercomputing user facility that enables reliable and responsive computer simulations throughout the laboratory complex; Development and application of simulation tools for the Reliable Replacement Warhead, annual certification, the LEPs, SFIs and the mission priorities of the 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. LLNL will contribute to the final deployment of Tri-lab Productivity On-Demand (TriPOD) capabilities for capacity computing that will enable a seamless ASC user environment. In 2008, LLNL will continue their work in Plutonium aging simulations on the Blue Gene platforms and support the ASC program push on thermonuclear burn – a critical five year stretched goal. LLNL will also be responsible for the forward looking investments in computing to meet the long-term programmatic goals as outlined in the ASC Roadmap and ASC Platform Strategy.

The national ASC campaign has begun its Complex 2030 transformation process based on Secretary of Energy Advisory Board recommendations and Complex 2030 guidance that requires a reduced computing infrastructure footprint. The transformation includes operating capability platforms similar to that of a large-scale experimental facility and the reduction in number of its weapons program computing sites from three to two. This transformation will have an impact on computing demand at LLNL. Although the program seeks to minimize disruption to weapons programmatic work, this transformation will have a cost to ASC in term of both dollars and compute cycles.

Inertial Confinement Fusion Ignition and High Yield (ICF) Campaign
The ICF Program at LLNL is focused on the construction of the National Ignition Facility (NIF) and its use for ignition and other high energy density physics experiments in support of the Stockpile Stewardship Program (SSP). The LLNL is responsible for construction of the NIF and to also oversee the National Ignition Campaign, an integrated national effort to demonstrate ignition at NIF. LLNL also coordinates complex-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 NIF is a 192-beam laser due for completion in FY 2009. First NIF ignition experiments are scheduled for 2010. 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 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, special materials-handling facilities, and related support facilities and infrastructure to accomplish the objectives and milestones described in the FY 2008 Campaigns 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 is 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 newly generated waste activities at the Radioactive and Hazardous Waste Management (RHWM) facilities, and management and operating (M&O) activities at the Nevada Test Site. Of the total RTBF program at LLNL, the largest program element is Operations of Facilities.

Environmental Projects and Operations – Long-Term Stewardship
All legacy environmental cleanup activities at LLNL-Main Site were completed at the end of FY 2006 by the Office of Environmental Management. Long-Term Stewardship (LTS) began at LLNL-Main Site in FY 2007. 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; modeling; and access controls. LTS activities are scheduled to begin in FY 2009 at LLNL-Site 300 after the completion of legacy environmental cleanup activities in FY 2008. The LLNL LTS activities are post-remediation activities to assure regulatory compliance and continued protection of public health and the environment.

Nuclear Weapons Incident Response
For 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. Support for the National Technical Nuclear Forensics (NTNF) and Stabilization Implementation programs will begin in FY 2008.

Facilities and Infrastructure Recapitalization Program (FIRP)
FY 2008 allocated funding for FIRP provides for the recapitalization of aging facilities and infrastructure at the Lawrence Livermore National Laboratory 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.

For FY 2008, the recapitalization component of FIRP is funding high-priority projects that restore mission facilities and infrastructure through reduction of deferred maintenance that support transformation of the complex. Targeted for FY 2008 are the remaining facility boilers and elevators as part of legacy deferred maintenance. The focus of deferred maintenance reduction activities elsewhere remains on improving utilities through electrical transformer replacement and air compressor replacements, minimizing the risk of unscheduled facility outages, and making significant safety improvements throughout the work areas. Specific examples include replacement and upgrades of high-efficiency particulate air filter housings, ductwork, Heating, Ventilation and Air Conditioning (HVAC) systems, low voltage electrical components and associated equipment to ensure reliability and improve worker safety. Facility footprint reduction is especially important at LLNL because any modernization is confined to existing boundaries. LLNL will continue demolition of its excess facilities in FY 2008 to support footprint reduction and transformation of the complex objectives. The Laboratory aggressively participates in the complex-wide Roof Asset Management Program (RAMP). LLNL's disposition program is a cost-effective program that has demonstrated safety and environmental stewardship.

Safeguards and Security
The LLNL Safeguards and Security program provides protection measures consistent with the requirements documented in its Site Safeguards and Security Plan (SSSP). During FY 2008, the site will implement its revised protection strategy for the 2005 Design Basis Threat. In addition, new vehicle denial barriers will be in place to significantly enhance sites protection capability for Category I Special Nuclear Material (SNM). Focus will also be on consolidation of SNM and life cycle replacement of critical detection and assessment systems and other security related equipment.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

Nonproliferation and Verification Research and Development
LLNL improves geographic models to locate and identify regional seismic events to support nuclear explosion monitoring assessments. LLNL will deliver field-calibrated models of the seismic response for additional, specified regions of interest, and will demonstrate prototype tools for the automation of incorporating newly acquired data into these models. LLNL develops and tests gamma and neutron detection materials for future commercial systems to search for and locate special nuclear material; and is a member of an inter-laboratory team to investigate methodologies to establish a scientific basis for attribution to determine the origin of fissile materials. LLNL serves as the inter-laboratory coordinator on testing optical remote sensing techniques for weapons of mass destruction 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.

International Nuclear Materials Protection and Cooperation (MPC&A)
LLNL provides operational experience in civilian and defense nuclear material protection, control, and accounting 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. LLNL supports MPC&A sustainability and infrastructure projects for Ministry of Defense, Rosatom, GAN, Ministry of Transportation, and Russian Shipbuilding Agency with efforts in regulatory development and implementation, and a national accounting system.

Fissile Materials Disposition
LLNL provides support for waste management and packaging, transport, and storage infrastructures for plutonium disposition in Russia.

Nonproliferation and International Security
LLNL assists the Dismantlement and Transparency Program by providing support for conducting technical exchanges and technology development under the Warhead Safety and Security Exchange Agreement, Highly Enriched Uranium (HEU) Purchase Agreement policy, HEU Transparency Implementation and development, Plutonium Production Reactor Agreement implementation, and development of nuclear transparency measures. In addition, LLNL assists technical analysis and technology development, assists regional security efforts in policymaking and negotiations regarding various nonproliferation and arms control regimes, and supports the nonproliferation activities under the new Global Nuclear Energy Partnership initiative. LLNL also provides International Regimes and Agreements with licensing operations, 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. For Global Security Engagement and Cooperation, LLNL supports the safeguards tools and methods development, International Atomic Energy Agency (IAEA) safeguards cooperation and verification of the Democratic People's Republic of Korea (DPRK) and other proliferant states, IAEA environmental sampling needs, vulnerability assessment support for foreign sites of interest, physical protection upgrades, training to foreign nationals as needed, Additional Protocol outreach and training, and Proliferation Resistant Fuel Technology project.

LOS ALAMOS NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	257,918	240,003	193,615
Science Campaign	94,287	87,591	89,162
Engineering Campaign	30,215	25,127	23,935
Inertial Confinement Fusion Ignition and High Yield Campaign	14,144	12,498	12,216
Advanced Simulation and Computing Campaign	180,187	227,435	166,948
Pit Manufacturing and Certification Campaign	191,504	194,671	209,263
Readiness Campaign	4,903	5,336	7,364
Readiness in Technical Base and Facilities	406,287	482,464	424,713
Nuclear Weapons Incident Response	11,552	16,128	21,768
Facilities and Infrastructure Recapitalization Program	29,677	57,460	56,965
Safeguards and Security	180,300	129,843	175,272
Nonproliferation and Verification R&D	95,018	86,034	85,777
Nonproliferation and International Security	13,201	17,315	15,653
International Nuclear Materials Protection and Cooperation	21,841	30,495	29,901
Global Initiatives for Proliferation Prevention	3,317	0	0
HEU Transparency Implementation	2,500	0	0
Fissile Materials Disposition	44,183	30,000	27,200
Global Threat Reduction Initiative	13,234	9,974	10,672
Total, NNSA	**1,594,268**	**1,652,374**	**1,550,424**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	193,372	176,622	167,878	170,439
Science Campaign	92,324	90,079	88,226	89,538
Engineering Campaign	25,411	24,934	24,599	25,084
Inertial Confinement Fusion Ignition and High Yield Campaign	12,945	16,092	15,992	15,823
Advanced Simulation and Computing Campaign	171,969	169,969	168,210	172,210
Pit Manufacturing and Certification Campaign	212,773	220,436	239,618	216,968
Readiness Campaign	10,409	9,264	9,109	7,448

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Readiness in Technical Base and Facilities	429,903	356,641	311,930	319,349
Nuclear Weapons Incident Response	22,528	22,992	23,241	26,810
Facilities and Infrastructure Recapitalization Program	55,523	57,640	59,095	60,637
Safeguards and Security	176,296	212,232	203,391	186,461
Nonproliferation and Verification R&D	99,158	105,163	110,957	114,871
Nonproliferation and International Security	14,235	19,707	20,533	21,541
International Nuclear Materials Protection and Cooperation	43,479	44,428	46,007	46,693
Global Initiatives for Proliferation Prevention	0	0	0	0
HEU Transparency Implementation	0	0	0	0
Fissile Materials Disposition	43,519	75,074	67,205	63,408
Global Threat Reduction Initiative	10,925	8,808	8,634	8,778
Total, NNSA	**1,614,769**	**1,610,081**	**1,564,625**	**1,546,058**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	6,635	6,107	6,107
Other	2,422	2,446	2,446
Total Facility	**9,057**	**8,553**	**8,553**

Congressional Items of Interest: The Safeguards and Security Cyber Security Program received an additional $13.6 million in FY 2006 to continue the expansion of the Red Network project.

Major Changes or Shifts: On December 21, 2005, the NNSA awarded Contract No. DE-AC52-06NA25396 to Los Alamos National Security, LLC (LANS) to manage and operate Los Alamos National Laboratory (LANL). The LANS is comprised of representatives from four organizations; the University of California; Bechtel, Inc; BWX Technologies; and the Westinghouse Group Inc. After a transition period, LANS assumed full administrative and operational responsibility for LANL on June 1, 2006.

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 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 (ROD) for a Site-Wide Environmental Impact Statement (SWEIS) for the continued operation of LANL was published September 20, 1999. The updated ROD is currently scheduled for March 2007.

The site is aligned with "Complex 2030" planning to enhance responsiveness of the nuclear weapons complex. Actions include (1) reducing facility square footage required for weapons activities, (2) establishing shared user facilities to more cost-effectively manage expensive experimental capabilities (3) ensuring laboratory plutonium space efficiently supports interim pit manufacturing and complex-wide special nuclear materials consolidation, and (4) demonstrating organizational leadership required to achieve a more integrated, interdependent nuclear weapons complex.

ACTIVITIES:

Directed Stockpile Work (DSW)
The LANL supports the safety, reliability, and performance of the warheads for which LANL is the responsible Design Agency and for producing some components for all systems. This activity includes the Life Extension Programs (LEPs) for the B61-Alteration (Alt) 357 and the W76 Modification (Mod) -1. The Laboratory is participating in an approved Reliable Replacement Warhead (RRW) 18-month study. The RRW Project Officers Group was tasked to oversee a laboratory design completion for the RRW warhead with first production unit (FPU) occurring between FY 2012 and FY 2015.

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 four science subprogram activities are:

- *Primary Certification subprogram:* 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 effort is directed towards boost physics.

- *Dynamic Materials Properties subprogram:* develops physics-based, experimentally validated data and models of all stockpile materials, at a level of accuracy required by the Primary and Secondary subprograms and Engineering Campaign.

- *Advanced Radiography subprogram:* 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. The major focus of the campaign activities in FY 2008 is the completion of the DARHT 2nd axis refurbishment, and,

- *Secondary Assessment Technologies subprogram* is responsible for developing 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, RRW, and 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 2008, LANL will continue to develop high energy density physics platforms of ICF facilities to focus on increased understanding of stockpile weapons. Using QMU methodology, LANL will continue to identify and quantify technical areas with largest uncertainties and impact to stockpile performance and focus future effort to reduce uncertainties and quantify margins.

Engineering Campaign
As the design agency for 60 percent 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 activity: 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. It also designs and fields advanced diagnostics for National Ignition Facility (NIF), Z, and other High-Energy-Density facilities across the weapons complex.

Advanced Simulation and Computing (ASC) Campaign
LANL ASC activities will focus in three major areas: Maintaining a world-class, national supercomputing user facility at the Metropolis Center, coordinated with and to complement the Terascale Simulation Facility at LLNL, meeting prioritized mission needs; Development and application of simulation tools for the Reliable Replacement Warhead, annual certification, the LEPs, SFIs and the mission priorities of the SSP including the continuing improvement of predictivity and certification methodologies (QMU); and, Application to national nuclear security mission needs including dismantlement, nuclear attribution, effects and emerging threats. Examples of how LANL will contribute to collaborations with the NNSA/Nuclear Non-proliferation (NN) office include modeling work that addresses the neutron spectrum at all relevant times and the EOS for nontraditional threat materials. LANL will contribute to the final deployment of Tri-lab Productivity On-Demand (TriPOD) capabilities for capacity computing that will enable a seamless ASC user environment. In 2008, LANL will continue to operate the base-Roadrunner capacity platform in general availability for weapon program activities.

The national ASC campaign has begun its Complex 2030 transformation process based on Secretary of Energy Advisory Board recommendations and Complex 2030 guidance that requires a reduced computing infrastructure footprint. The transformation includes operating capability platforms similar to that of a large-scale experimental facility and the reduction in number of its weapons program computing sites from three to two. This transformation will have a significant effect on LANL as the Q supercomputer is retired. Although the program seeks to minimize disruption to weapons programmatic work, this transformation will have a cost to ASC in term of both dollars and compute cycles.

Pit Manufacturing and Certification Campaign
The purpose of the Pit Manufacturing and Certification Campaign is to ensure the readiness of the nuclear weapons complex to manufacture and certify pits. The pit is central to weapon performance, and the current inability to manufacture and certify a pit puts the nation at risk to support the stockpile into the future. The strategy of the campaign activities at LANL includes reestablishment of the technical capability to manufacture War Reserve (WR) pits, establishment of a manufacturing capability required to support the nuclear weapons stockpile, and the ability to certify newly manufactured pits for entry into the stockpile without the use of nuclear testing. The near-term activity is focused on W88 pit manufacturing and certification, and long-term activities include demonstrating the capability to manufacture all pits in the enduring stockpile, as well as plan for long-term pit manufacturing capacity.

The primary objectives of the LANL PIT campaign activities are:

- Planning the certification requirements and processes to certify a W88 weapon system with a LANL-built pit without underground nuclear testing in FY 2007;

- Establishing a pit-manufacturing capacity of 10 pits per;

- Developing the capability for producing other pit types in the enduring stockpile, as directed by NNSA; and

- Planning for long-term pit manufacturing.

Readiness Campaign
At Los Alamos, two Readiness subprogram activities are performed: Advanced Design and Production Technologies (ADAPT) and Nonnuclear Readiness. Additionally, Los Alamos provides support to Stockpile Readiness activities in cast technology development and insertion, as well as to High Explosives and Weapons Operations for high explosives diagnostics, development and qualification.

Los Alamos' ADAPT activities reflect both design and production technology development – both major activities at Los Alamos. The scope of work includes all LANL production activities plus supporting capabilities, such as secure networking and certain technical business practices. Activities are principally organized according to the product(s) they are intended to support (e.g., Detonators, Tritium, Pits / Mock Pits, and experimental hardware).

Los Alamos has a significant Nonnuclear production activity in developing capabilities for Los Alamos and other plants. Scope includes deployment of processes, capabilities, and infrastructure required to meet directive schedule requirements for production and surveillance of nonnuclear components. Activities at LANL support detonator manufacturing and component fabrication readiness.

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 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 "warm standby" 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 Engineering, Manufacturing Systems and Methods Shops, Tritium, Dynamic Experimentation, Los Alamos Neutron Science Center (LANSCE), Waste Management, Nuclear Materials Technology (TA-55 & CMR) and Beryllium Technology. The LANSCE is operationally funded through FY 2009. Warm standby work scope includes conventional facility management, infrastructure and utilities, and operation and maintenance of real property and special equipment. This activity also includes infrastructure support: Line item Other Project Costs, general plant project construction, seismic studies, authorization basis, monitoring wells, 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.

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 in the TA-55 technical area. The INP presently includes the integration of the Chemical and Metallurgy Research Facility Replacement (CMRR) project; infrastructure upgrades at TA-55, including a new radiography capability; and proposed safeguards and security upgrades. 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 funded projects are providing improvements to mission facilities and infrastructure that are supporting transformation of the complex. 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. For FY 2008, 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. Facility footprint reduction is especially important at LANL because a non-nuclear administrative building will be demolished within TA-55. LANL continues to participate in the complex-wide Roof Asset Management Program (RAMP) and is achieving improved cost efficiencies and improved life extension of NNSA's roofing assets. In addition to Recapitalization and RAMP projects, the FY 2008 request includes planning for FY 2009 Recapitalization projects and FY 2008 Facility Disposition execution and planning projects. Design of general plant and expense projects in advance of construction is leading to solid project cost estimates and schedule thereby leading to better project execution. LANL will continue demolition of its excess facilities in FY 2008 to support footprint reduction and transformation of the complex objectives.

Nuclear Weapons 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. Support for the National Technical Nuclear Forensics (NTNF) and Stabilization Implementation program will begin in FY 2008.

Safeguards and Security

The LANL Safeguards and Security program provides laboratory protection measures consistent with requirements documented in its Site Safeguards and Security Plan (SSSP). During FY 2008, the laboratory will continue the Nuclear Materials Safeguards and Security Upgrade Project (NMSSUP) Phase II, completion; access control systems begun in FY 2005, as well as implementing new security measures resulting from the completion of the roads project. These upgrades are part of Design Basis Threat (DBT) requirements identified by the laboratory. During FY 2006, validation of the site's revised protection strategy for the 2005 DBT was conducted. Focus of activities will be the site consolidation of Category I Special Nuclear Material (SNM) and the elimination of one Category I SNM area, which will greatly enhance the protective force posture and reduce out-year safeguards and security costs.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

Nonproliferation and Verification Research and Development

LANL provides the U.S. Government with improved analytic tools and sensors to discriminate earthquakes and industrial activities from banned nuclear explosions. LANL continues to deliver the next generation of satellite based electromagnetic pulse sensors and radiation sensors for nuclear explosion monitoring systems. The laboratory will develop expert unattended methods and handheld radiation detection systems to support monitoring operations for compliance to future nonproliferation policies. LANL will continue developing innovative algorithms and specialized processors to process voluminous quantities of remote sensing data into the specific information required by decision makers.

Fissile Materials Disposition

LANL is a multi-program lead laboratory for the development of U.S. weapons pit disassembly and conversion technology. The Advanced Recovery and Integrated Extraction System demonstration system, located at LANL, serves as the prototype demonstration project for the production-scale facility. The laboratory also provides technical services, independent design review, independent assessment of the safety basis for the Mixed-Oxide Fuel Fabrication Facility, and support for technical aspects associated with monitoring and inspection activities.

Global Threat Reduction Initiative

HEU Reactor Conversion effort supports the conversion of reactors and isotope production facilities from the use of WMD-usable HEU materials to LEU materials. LANL management and technical experts support the Reduced Enrichment for Research and Test Reactors (RERTR) program.

Nuclear and Radiological Material Removal efforts support the removal or disposal of excess WMD-usable nuclear and radiological materials worldwide. LANL management and technical experts support the Emerging Threats and Gap Materials (ET) program, and the U.S. Radiological Threat Reduction (USRTR) program. LANL also provides significant facility capability to the USRTR program.

Nuclear and Radiological Material Protection efforts support the protection of at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented. LANL management and technical experts support the Kazakhstan Spent Fuel Disposition program and the International Radiological Threat Reduction (IRTR) program.

International Nuclear Protection and Cooperation (MPC&A)
LANL provides a wealth of expertise to the MPC&A program through material accounting methodologies, specialized material verification techniques, project and construction management for storage facilities, and language specialization. LANL has designed and developed computerized accounting systems that are currently operating at several Russian enterprises. LANL is working with the NNSA in the use of material controls, particularly with the active-nonviolent insider threats when completing MPC&A upgrades at all Russian enterprises. Furthermore, LANL experts provide technical solutions to Second Line of Defense program.

Nonproliferation and International Security
LANL supports safeguards efforts, especially safeguards cooperation and verification of the DPRK nuclear weapons program dismantlement, and the nonproliferation activities under the new Global Nuclear Energy Partnership initiative. LANL supports export control work, primarily in the area of licensing operations, policy support in the development of nuclear transparency measures, fuel cycle analysis, and development in the areas of legal regimes and regional security. In addition, LANL provides support for commercialization efforts globally and efforts to downsize the Russian Nuclear Weapons complex and helps create business opportunities for displaced weapons workers.

NEVADA TEST SITE

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	38,823	37,524	37,621
Science Campaign	43,916	48,862	33,164
Inertial Confinement Fusion Ignition and High Yield Campaign	2,500	0	0
Pit Manufacturing and Certification Campaign	24,998	0	0
Readiness in Technical Base and Facilities	132,004	134,529	130,805
Secure Transportation Asset	171	0	167
Nuclear Weapons Incident Response	39,240	33,625	34,883
Facilities and Infrastructure Recapitalization Program	12,627	25,147	24,807
Nonproliferation and Verification R&D	9,332	6,210	6,210
Nonproliferation and International Security	1,175	451	551
International Nuclear Materials Protection and Cooperation	2,475	0	0
HEU Transparency Implementation	500	0	0
Fissile Materials Disposition	278	300	300
Global Threat Reduction Initiative	3,802	0	0
Total, NNSA	**311,841**	**286,648**	**268,508**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	45,610	44,893	44,927	44,337
Science Campaign	32,172	30,129	29,343	29,838
Inertial Confinement Fusion Ignition and High Yield Campaign	0	0	0	0
Pit Manufacturing and Certification Campaign	0	0	0	0
Readiness in Technical Base and Facilities	117,945	106,773	109,796	112,001
Secure Transportation Asset	171	172	178	181
Nuclear Weapons Incident Response	36,496	36,783	37,082	38,823
Facilities and Infrastructure Recapitalization Program	24,179	25,101	25,734	26,406
Nonproliferation and Verification R&D	6,769	8,170	8,310	8,450
Nonproliferation and International Security	551	551	551	551
International Nuclear Materials Protection and Cooperation	0	0	0	0
HEU Transparency Implementation	0	0	0	0
Fissile Materials Disposition	200	200	225	225
Global Threat Reduction Initiative	0	0	0	0
Total, NNSA	**264,093**	**252,772**	**256,146**	**260,812**

NOTE: Funding for Safeguards and Security is provided through the Nevada Site Office.

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	2,231	2,390	2,441
Other	984	947	971
Total Facility	**3,215**	**3,337**	**3,412**

Congressional Items of Interest: The Safeguards and Security Defense Nuclear Security Program has dedicated funding in FY 2008 for protective forces at the Device Assembly Facility (DAF) and implementation of the Special Response Team.

Major Changes or Shifts: Effective July 1, 2006, National Security Technologies (NSTec) became the Management and Operating contractor for the Nevada Test Site (NTS) and satellite facilities for the National Nuclear Security Administration (NNSA) Nevada Site Office. The NSTec is comprised of representatives from Northrop Grumman, AECOM, CH2M Hill, and Nuclear Fuel Services.

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 NNSA Nevada Site Office assets include facilities in North Las Vegas; Nellis AFB, NV; Andrews AFB, MD; Livermore, CA; Los Alamos, NM; and Santa Barbara, CA.

NTS is aligned with "Complex 2030" planning to enhance responsiveness of nuclear weapons complex infrastructure. For NTS, this includes supporting the consolidation of Category 1/11 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 NTS DSW 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 subcritical experiments (SCEs) and other highly diagnosed dynamic experiments as defined by the Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL) Principal Investigators to meet certification milestones. The work scope includes support for SCEs and high explosive pulse power experiments, use 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 control systems, data acquisition, and data analysis. In FY 2008, the NTS will continue to support the National Weapons Laboratories by supporting LLNL in defining and executing the series of High Explosive Pulse Power (HEPP) experiments to be fielded in FY 2008 and supporting LANL in fielding the large bore powder gun experiments and preparing for the execution of the Cylindrical Mix series of SCEs. 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 three science sub program activities:

- *Primary Assessment Technology* subprograms: Subcritical experiments are conducted at the NTS to enable primary assessment by obtaining dynamic physical properties of stockpile materials at relevant temperatures and pressures. Strength, plasticity, failure, spall, and ejecta, are just a few of the material properties investigated during subcritical experiments. The NTS provides test-bed engineering and construction, diagnostics fielding, controls, and data reduction for the subcritical experiments. In FY 2008, the NTS will support LLNL in preparatory experiments for the PHOENIX experiments and provide diagnostic development support to LLNL N-Program and B-Division. The NTS will support both LLNL and LANL reanalysis of underground test (UGT) data in support of the Stockpile Stewardship Program Weapons Activities.

  Transformational Assessment: Within Primary Assessment Technology, the NTS supports Transformational Assessment by supporting the LANL Dual Axis Radiographic Hydrodynamics Test (DARHT) and the proton radiography experiments at the Los Alamos Neutron Science Center (LANSCE) and Brookhaven National Laboratory. In FY 2008, the NTS will continue to provide accelerator diagnostics for DARHT II activities, focusing on the new commissioning plans and cell-refurbishment project. The Proton Radiography (PRad) group will support experiments at LANSCE Line C by providing troubleshooting support during the experiments, conducting image analyses, and providing reports to LANL.

- *Dynamic Materials Properties* subprograms: The NTS supports the National Weapons Laboratories subprogram by developing diagnostics and fielding experiments. In FY 2008, the NTS will continue to support the NWL in dynamic materials experiments data collection. Special Nuclear Material (SNM) experiment series and diagnostic advancements at the Joint Actinide Shock Physics Experimental Research (JASPER) Facility are planned with LLNL. The NTS will also support dynamic experiments and diagnostic development leveraging gas gun and large bore powder gun capabilities at LANL. The NTS will also provide support to SNL in experiments (e.g., ICE - Equation of State (EOS) experiments on weapon materials), pulsed power source development, and diagnostic advancements (e.g., VISAR, Pyrometry, and X-ray diffraction).

- *Secondary Assessment Technology Subprogram:* The 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, the NTS Livermore Technical Facility provides National Institute of Standards and Technology-traceable calibration facilities for radiation-flow diagnostics needed for High Energy Density (HED) physics experiments.

- Energetics (OMEGA) and LLNL Lasers in support of LLNL - The 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 RTBF program the NTS with essential physical and operational infrastructure required to conduct the engineering, scientific, and technical activities of the Stockpile Stewardship Program. The objective of the RTBF activity at the NTS 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 consist of two subprogram elements: Operations of Facilities and Program Readiness. The Operation of Facilities element includes the operation and maintenance of NNSA-owned programmatic facilities in a mission capable state of readiness, where the site and each facility is operationally ready to execute tasks identified in Weapons Campaigns and DSW. Specific facilities include the DAF, U1a Complex, JASPER, Control Point Complex, High Explosive Facility and the North Las Vegas Complex. The Atlas Pulse Power Facility will continue to operate in a cold-standby condition. Activities supported under Program Readiness include Laboratory Logistics, Other Federal Agencies, Legacy Compliance, Program Operations, Borehole Management Program, and NTS Equipment Revitalization.

Nuclear Weapons Incident Response
For the DOE and the NNSA's 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. 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) and Stabilization Implementation programs will begin in FY 2008. The NNSA Nuclear Emergency Support Team (NEST) is based at Nellis AFB, Las Vegas, NV, for West Coast response and Andrews AFB, MD, for East Coast response. The NEST can respond to any type of emergency involving radioactive materials in the U.S. or abroad.

Facilities and Infrastructure Recapitalization Program (FIRP)
FIRP activities planned for FY 2008 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. Introduction of new electrical boiler replacements will improve air quality. The elimination of inefficient oil-fired boilers, requiring NTS Air Quality Operating permits, reduces the emission of air-contaminants, ends storage for flammable liquid fuel, and reduces potential for soil contamination by hydrocarbons. Roadway improvement projects will enhance the safe operation of vehicles for normal operations and emergency response at the NTS. Roadway improvements will reduce escalating maintenance costs and interruption of service. 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.

Safeguards and 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. During FY 2006, validation of the site's revised protection strategy for the 2005 Design Basis Threat was conducted. Focus will be on providing protection for Category I quantities of Special Nuclear Material transferred from Los Alamos National Laboratory in terms of required protective force personnel, equipment and additional detection and assessment capabilities around a planned Category I storage facility at the site.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

PANTEX PLANT

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	139,212	167,732	167,020
Engineering Campaign	2,575	2,995	2,831
Readiness Campaign	17,644	19,645	9,008
Readiness in Technical Base and Facilities	173,674	120,668	151,995
Secure Transportation Asset	5,740	5,686	5,651
Nuclear Weapons Incident Response	1,130	865	910
Facilities and Infrastructure Recapitalization Program	17,874	39,479	39,510
Environmental Projects and Operations Program/LTRA	0	0	0
Safeguards and Security	124,880	126,110	154,775
Nonproliferation and International Security	547	707	718
Fissile Materials Disposition	2,900	5,000	6,000
Total, NNSA	**486,176**	**488,887**	**538,418**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	167,982	171,724	165,962	169,308
Engineering Campaign	2,971	2,910	2,935	2,996
Readiness Campaign	11,506	11,129	16,092	12,484
Readiness in Technical Base and Facilities	156,555	169,914	158,398	130,954
Secure Transportation Asset	5,996	5,941	6,054	6,175
Nuclear Weapons Incident Response	955	955	1,063	1,100
Facilities and Infrastructure Recapitalization Program	38,509	39,977	40,986	42,056
Environmental Projects and Operations Program/LTRA	4,481	4,575	4,672	4,779
Safeguards and Security	137,589	154,156	168,113	180,896
Nonproliferation and International Security	729	772	781	781
Fissile Materials Disposition	6,000	6,000	6,000	6,000
Total, NNSA	**533,273**	**568,053**	**571,056**	**557,529**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	3,230	3,385	3,259
Other	54	45	31
Total Facility	**3,284**	**3,430**	**3,290**

Congressional Items of Interest: The Pantex Plant is gearing up to support the President's dismantlement goals and W76 Full-Production Rates.

The Safeguards and Security Defense Nuclear Security Program was provided additional funds in FY 2006. These funds will support protection measure actions for the program's compliance with the 2003 Design Basis Threat.

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 participating in an approved Reliable Replacement Warhead (RRW) 18-month study. The site is also aligned with "Complex 2030" planning to enhance responsiveness of nuclear weapons complex infrastructure. For Pantex, this includes actions to improve throughput capacity, accelerate dismantlements, and support consolidation of special nuclear materials.

ACTIVITIES:

Directed Stockpile Work (DSW)
Pantex is the assembly/disassembly plant for all nuclear weapons. Pantex supports the Life Extension Program (LEP) First Production Unit (FPU) schedules, Seamless Safety for the 21st Century (SS-21) projects; weapon system surveillance, sustained retired systems dismantlement, and required production support. Starting in FY 2006, the site has been completing Pantex Throughput Improvement Plan (PTIP) to improve assembly/disassembly operations.

Engineering Campaign
Pantex supports the Enhanced Surveillance subprogram of the Engineering Campaign strategic objectives 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 Advanced Design and Production Technologies (ADAPT) and the High Explosives and Weapons Operations (HEWO) Readiness Campaign subprograms.

ADAPT subprogram: assesses advanced technologies that have the potential for use in design and manufacturing and demonstrates new process tools and capabilities that will provide safety, quality, and productivity enhancements as well as reduce cycle time. In FY 2008, the Pantex Plant plans to continue its work in high explosive chemistry process development and testing capabilities.

HEWO subprogram: 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. In FY 2008, this work continues demonstration of high explosive chemistry processes and fabrication techniques and high explosives diagnostics, development and qualification 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 to Pantex the physical infrastructure and operational capabilities required to conduct the DSW and Campaign activities. This includes ensuring that facilities are operational, safe, secure, 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. Facilities and Infrastructure Recapitalization Program FIRP).

Secure Transportation Asset (STA)
Pantex provides facilities and support for the Federal Agent Force Central Command of the Office of Secure Transportation (OST). 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 FIRP activities principally center on Recapitalization projects and Utility Line Item construction projects. Pantex has established a deferred maintenance reduction strategy that is focused on supporting NNSA's Stockpile Stewardship objectives, with the deferred maintenance reduction in mission facilities and infrastructure that support Stockpile Systems, Stockpile Refurbishment/Life Extension Program, Retired Weapons Systems and Production Support. FY 2008 Recapitalization projects are focused on improving facility systems reliability, minimizing the risk of unscheduled facility outages, and improving safety. Pantex continues to participate in the complex-wide Roof Asset Management Program (RAMP). Ongoing FIRP Utility Line Item projects provide upgrades to the electrical distribution system and gas distribution system.

Environmental Projects and Operations – Long-Term Stewardship
The Pantex Plant legacy environmental cleanup program has historically consisted of a decontamination and decommissioning project expected to be completed in FY 2007 and an environmental restoration project scheduled for completion by the Office of Environmental Management in FY 2008. Long-Term Stewardship (LTS) activities, which include long-term surveillance and maintenance and stewardship activities, will be integrated into the ongoing NNSA landlord site operations beginning in FY 2009 and will continue as long as necessary to assure protection of public health and the environment.

Safeguards and Security
The Pantex Safeguards and Security program provides protection measures consistent with requirements documented in the Site Safeguards and Security Plan (SSSP). During FY 2008, the site will begin implementation of the 2005 Design Basis Threat. The program will continue to focus heavily on life cycle replacement of aging intrusion detection and assessment systems and other protection systems with the focus on utilization of new technologies to minimize protective force staffing costs.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

Fissile Materials Disposition
The Pantex Plant stores surplus pits pending shipment to the Los Alamos National Laboratory in support of the Pit Disassembly and Conversion Facility (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.

SANDIA NATIONAL LABORATORIES

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	417,676	393,588	367,160
Science Campaign	13,183	25,286	34,910
Engineering Campaign	165,323	89,372	85,837
Inertial Confinement Fusion Ignition and High Yield Campaign	50,057	17,605	23,096
Advanced Simulation and Computing Campaign	136,978	153,302	111,741
Pit Manufacturing and Certification Campaign	1,305	784	1,600
Readiness Campaign	21,697	18,395	9,393
Readiness in Technical Base and Facilities	194,390	192,719	179,203
Secure Transportation Asset	31,544	20,985	19,774
Nuclear Weapons Incident Response	11,713	11,803	15,452
Facilities and Infrastructure Recapitalization Program	16,356	33,439	32,986
Environmental Projects and Operations Program/LTS	0	2,958	2,997
Safeguards and Security	93,206	86,890	85,793
Nonproliferation and Verification R&D	70,133	61,611	64,636
Nonproliferation and International Security	11,188	18,785	15,893
International Nuclear Materials Protection and Cooperation	97,547	115,322	91,289
Global Initiatives for Proliferation Prevention	3,250	0	0
HEU Transparency Implementation	1,200	0	0
Fissile Materials Disposition	0	400	400
Global Threat Reduction Initiative	4,454	3,325	1,825
Total, NNSA	**1,341,200**	**1,246,569**	**1,143,985**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	403,171	425,976	429,875	441,557
Science Campaign	25,354	25,596	24,789	26,251
Engineering Campaign	75,297	73,755	72,839	74,279
Inertial Confinement Fusion Ignition and High Yield Campaign	23,628	23,396	23,135	22,816
Advanced Simulation and Computing Campaign	112,996	102,398	98,413	100,194

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Pit Manufacturing and Certification Campaign	2,315	2,423	2,944	3,003
Readiness Campaign	18,635	27,562	21,819	13,947
Readiness in Technical Base and Facilities	192,724	227,617	255,250	233,577
Secure Transportation Asset	19,971	20,721	21,581	22,008
Nuclear Weapons Incident Response	15,555	15,747	16,152	19,436
Facilities and Infrastructure Recapitalization Program	32,151	33,377	34,219	35,113
Environmental Projects and Operations Program/LTRA	2,916	3,189	2,897	2,964
Safeguards and Security	90,875	92,343	98,299	102,253
Nonproliferation and Verification R&D	73,083	78,674	84,055	87,555
Nonproliferation and International Security	16,235	18,416	21,654	21,654
International Nuclear Materials Protection and Cooperation	75,970	68,913	68,661	69,845
Global Initiatives for Proliferation Prevention	0	0	0	0
HEU Transparency Implementation	0	0	0	0
Fissile Materials Disposition	400	400	400	400
Global Threat Reduction Initiative	4,825	2,325	4,425	4,440
Total, NNSA	**1,186,101**	**1,242,828**	**1,281,407**	**1,281,292**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	5,079	4,629	4,611
Other	3,546	3,886	3,869
Total Facility	**8,625**	**8,515**	**8,480**

Congressional Items of Interest: The Safeguards and Security Cyber Security Program has dedicated \$1.9 million in FY 2006 to support the DOE-wide public key infrastructure effort.

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). SNL is aligned with "Complex 2030" planning to enhance responsiveness of nuclear weapons complex infrastructure. For Sandia, consistent with the preferred scenario for Complex 2030 this includes actions to remove category I/II quantities of special nuclear materials from the site by the end of 2008 and to cease NNSA operations at Tonopah Test Range (TTR) by the end of 2009. Changes in future flight testing requirements enabled by the proposed transformation of the stockpile allow lower cost alternatives to the use of TTR.

Sandia'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 SNL supports DSW activities to ensure the reliability, safety, and security of the current and future nuclear weapons stockpile. Sandia supports the Life Extension Program (LEP) activities for the B61-Alteration (ALT) 357 and the W76-Modification (Mod) 1. SNL supports Retired Systems activities, including required characterization of stockpile weapon components. SNL DSW activities support multiple systems in the enduring stockpile including: 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 production mission assignment for neutron generators and a dozen other technologies that require extensive engineering oversight to produce. The activities will develop technology and sub-systems that will be options for the future sustainable stockpile, such as the Reliable Replacement Warhead (RRW). The RRW Project Officers Group was tasked to oversee a laboratory design competition for the RRW warhead with FPU occurring between FY 2012 and FY 2015. The Laboratory is participating in the approved RRW 18-month study.

Science Campaign
The SNL leverages its unique capabilities in Pulsed Power Science and Materials and Process Science to support the Science Campaign. In pulsed power, these capabilities include design, development, and deployment of state-of-the-art, compact, reliable, and high-intensity flash x-ray radiographic sources for SubCritical Experiments at the Nevada Test Site (NTS), and for above-ground dynamic experiments at the Los Alamos National Laboratory (LANL) and Atomic Weapons Establishment (AWE). At the Z facility, SNL also develops intense energetic radiation sources, sophisticated x-ray diagnostics, Z-Beamlet-Laser-radiography capability, and supports their utilization by LANL for Secondary Assessment Technology in radiation transport, complex hydrodynamics, and integrated implosions. The Z pulsed power facility also provides a unique capability to isentropically (i.e., shocklessly) compress and/or to accelerate flyer plates to shock-compress materials to high pressures, thus providing equation-of-state and constitutive property data to SNL, LANL, and the Lawrence Livermore National Laboratory (LLNL) material communities for inclusion in models and the quantification of margins process. 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.

Engineering Campaign
The Engineering Campaign is key to realizing the 21st-century goal of transforming to a responsive complex with a sustainable stockpile. The SNL Engineering Campaign activities provide the Nuclear Weapons Complex with modern tools and capabilities in engineering sciences and technologies to ensure the safety, security, reliability, and performance of the enduring and future sustainable stockpile, and to provide a sustained engineering basis for stockpile assessment and certification. The campaign activity is based on a continually improving, engineering-science foundation, world-class experimental and diagnostic capabilities, life-cycle-engineering-assessment perspective, and responsive life-cycle engineering processes. The SNL portion of the Engineering Campaign supports the following subprograms: Enhanced Surety; Weapon System Engineering Assessment Technology; Nuclear Survivability and Effects; Enhanced Surveillance; and the Microsystem & Engineering Science Application (MESA) Complex.

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. Sandia is currently operating with partial second shift operations of the Z Facility, and performed over 200 Z shots per year, which represents approximately half of the requested stockpile stewardship experiments (Dynamic Materials, Secondary Assessment Technology, and Nuclear Survivability Campaigns 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 backlighter 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 the other national laboratories, Defense Threat Reduction Agency laboratories, universities, and the Atomic Weapons Establishment.

Advanced Simulation and Computing (ASC) Campaign
The SNL ASC activities will focus in three major areas: Development and application of simulation tools for the engineering components of the Reliable Replacement Warhead common to both designs, annual certification, the LEPs, SFIs and the mission priorities of the SSP including the continuing improvement of predictivity and certification methodologies (QMU); Application to national nuclear security mission needs including secure transportation and emerging threats; Supporting the 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. Specific activities include the development of Special Nuclear Material (SNM) computer simulation technology to enable SNM removal from site operations, implementation of new algorithms and models into high-fidelity simulation codes and application of new methodologies for demonstrating credibility of simulation results. SNL will contribute to the final deployment of Tri-lab Productivity On-Demand (TriPOD) capabilities for capacity computing that will enable a seamless ASC user environment.

The national ASC campaign has begun its Complex 2030 transformation process based on Secretary of Energy Advisory Board recommendations and Complex 2030 guidance that requires a reduced computing infrastructure footprint. The transformation includes operating capability platforms similar to that of a large-scale experimental facility and the reduction in number of its weapons program computing sites from three to two. As two state-of-the-art major supercomputing facilities exist (LANL and LLNL), both the outcomes of the SEAB and Complex 2030 plans will have a significant effect on the siting and support of supercomputing at SNL. Although the program seeks to minimize disruption to weapons programmatic work, this transformation will have a cost to ASC in term of both dollars and compute cycles.

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.

Advanced Design and Production Technologies (ADAPT) subprogram: ongoing areas include micro-modular telemetry, transformation of Technical Business Practices and supporting standards. FY 2008 planning will address technology maturation supporting the future LEPs and/or the RRW initiative, including advanced firing system options (e.g., direct optical initiation, integrated micro-firing systems) and will revisit technology options for a more integrated model-based design and development capability across the NWC.

NonNuclear Readiness subprogram: the principal Sandia thrust has been achieving “Readiness” through continued modernization of neutron-generator testers.

Tritium Readiness subprogram: Sandia continues to model the design of the Tritium Producing Burnable Absorber Rods for comparison against experimental data gathered during the initial irradiation cycles in order to understand the permeation performance of the rods.

Readiness in Technical Base and Facilities (RTBF)
The RTBF Program supports a broad base of activities that enable the laboratory to meet its mission obligations to the NNSA and the nation. The activities are derived from the staffing and operation of a number of critical Nuclear Weapon 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. Z, and Tech Area III Full Scale Test Facilities) or production capabilities (e.g. Microelectronics Development Laboratory and Neutron Generator Plant) to the infrastructure fundamentals of Decommissioning and Demolition (D&D), and General Plant Projects. Sandia provides primary standards capabilities for the Nuclear Weapons Complex. Consistent with Complex 2030 strategy, SNL will consolidate flight test operations and cease NNSA operations at Tonopah Test Range by the end of 2009 through use of alternative, non-NNSA operated ranges, elimination of joint test assemblies containing SNM, and through alternative designs and/or test techniques. Following receipt of the future options strategy and in consultation with the weapons design laboratories, the NNSA will select a course of action for Tonopah Test Range consistent with stockpile requirements and ongoing responsive infrastructure activities.

Secure Transportation Asset (STA)
Sandia provides the research, design and engineering development and operational support for new technology, mobile communications, and vehicle production. Sandia conducts safety and security studies and analyzes risks involving nuclear weapons transportation. Sandia maintains the STA safety and security authorization bases, 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 Vehicle C class (EV-C) and maintains a "24X7" emergency response capability during convoy missions.

Safeguards and Security

The SNL Safeguards and Security program provides laboratory protection measures consistent with requirements documented in its Site Safeguards and Security Plan (SSSP). Beginning in FY 2007, the focus of activities will be to reduce Category I holdings of Special Nuclear Material to minimum levels required to support Program operations with corresponding reductions to follow in subsequent fiscal years in the Safeguards and Security area.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

Nuclear Weapons Incident Response

For the DOE and the NNSA's Office of Emergency Response, SNL 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. 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. Support for the National Technical Nuclear Forensics (NTNF) and Stabilization Implementation programs will begin in FY 2008. 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.

Facilities and Infrastructure Recapitalization Program (FIRP)

Sandia National Laboratories (SNL) uses FIRP funding to address needed refurbishment of mission facilities and infrastructure projects that support building systems and utilities. In FY 2008, a second year of FIRP utility line item funding will continue the Heating System Modernization Project that is converting the centralized, fifty year old steam system to a more efficient distributed system for heating and process related hot water requirements. 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 2008 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. Sandia plans to reduce the site footprint to provide optimum site locations for new facilities that will support consolidation efforts in support of Complex 2030 goals. FIRP planning funds will design FY 2009 projects that refurbish critical infrastructure elements and facilities that support DSW, microelectronics R&D and production, and that will address safety issues with major arterial roadways at Sandia's validation and qualification test complex. Advance design ensures the start of construction early in the funding year.

Environmental Projects and Operations – Long-Term Stewardship
The legacy environmental cleanup activities at the SNL were completed in FY 2006 for 259 of 265 release sites by the Office of Environmental Management. The funding requested provides support for Long-Term Stewardship (LTS) activities of the completed release sites. The 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.

Nonproliferation and Verification Research and Development
SNL will develop, demonstrate, and validate improvements to data processing and analysis tools in support of nuclear explosion monitoring. SNL will support the development of new optical detectors for next generation of U.S. satellite-based monitoring to detect nuclear detonations. SNL serves as the national center on research on Synthetic Aperture Radar systems and analysis methods for national security applications. SNL will continue field-testing a remote chemical detection system for stand off detection of nuclear weapon production activities. SNL will continue to develop radiation algorithms to improve performance of commercially available hand-held and portal systems.

International Nuclear Materials Protection and Cooperation
Based on their extensive work for the NNSA, Department of Defense, and other federal agencies, 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. SNL also provides expertise to advise Russian institutes and enterprises as they develop and implement physical protection systems, regulations, and training programs and to support the Second Line of Defense program.

Nonproliferation and International Security
SNL provides support for Global Security Engagement and Cooperation regional security efforts, conducts technical exchanges and technology development under the U.S. Russian Warhead Safety and Security Exchange Agreement, development of nuclear transparency measures, including through technical analysis and technology development, policymaking and negotiations regarding various arms control and nonproliferation regimes, and export control activities and, NNSA regional security objectives, particularly with Cooperative Monitoring Center. For International Regimes and Agreements, SNL supports licensing operations, 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. In addition, SNL supports safeguards cooperation, provides vulnerability assessment support for foreign sites of interest, training to foreign nationals as needed, Additional Protocol outreach and training, and safeguards agreement implementation. Furthermore, SNL provides support for commercialization efforts globally and efforts to downsize the Russian Nuclear Weapons complex and helps create business opportunities for displaced weapons workers. SNL also supports the nonproliferation activities under the new Global Nuclear Energy Partnership initiative.

SAVANNAH RIVER SITE

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	26,932	28,036	30,364
Engineering Campaign	2,219	1,774	1,689
Pit Manufacturing and Certification Campaign	2,211	492	1,044
Readiness Campaign	61,769	33,097	36,483
Readiness in Technical Base and Facilities	101,453	104,429	103,134
Nuclear Weapons Incident Response	1,868	1,981	3,404
Facilities and Infrastructure Recapitalization Program	1,500	0	0
Safeguards and Security	12,508	12,607	12,966
Nonproliferation and Verification R&D	7,204	7,139	7,139
Nonproliferation and International Security	1,952	3,023	3,029
International Nuclear Materials Protection and Cooperation	1,040	0	0
Global Initiatives for Proliferation Prevention	2,284	0	0
Fissile Materials Disposition	40,150	489,510	512,025
Global Threat Reduction Initiative	6,460	5,932	3,769
Total, NNSA	**269,550**	**688,020**	**715,046**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	33,825	33,995	33,030	31,550
Engineering Campaign	1,759	1,732	1,687	1,721
Pit Manufacturing and Certification Campaign	1,814	1,675	2,184	2,228
Readiness Campaign	27,152	26,036	34,673	39,585
Readiness in Technical Base and Facilities	108,414	110,912	113,398	115,674
Nuclear Weapons Incident Response	3,399	3,499	3,846	3,920
Facilities and Infrastructure Recapitalization Program	0	0	0	0
Safeguards and Security	15,504	18,049	19,146	19,032
Nonproliferation and Verification R&D	7,781	9,205	9,365	9,526
Nonproliferation and International Security	3,132	3,590	3,667	3,667

	FY 2009	FY 2010	FY 2011	FY 2012
	(dollars in thousands)			
International Nuclear Materials Protection and Cooperation	0	0	0	0
Global Initiatives for Proliferation Prevention	0	0	0	0
Fissile Materials Disposition	565,808	650,932	697,144	710,680
Global Threat Reduction Initiative	3,867	4,510	4,696	4,797
Total, NNSA	**772,455**	**864,135**	**922,836**	**942,380**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	1,567	1,548	1,476
Other	8,353	8,362	8,416
Total Facility	**9,920**	**9,910**	**9,892**

Congressional Items of Interest: None

Major Changes or Shifts: None

Site Description

INTRODUCTION:

The Savannah River Site (SRS) covers approximately 310 square miles bordering the Savannah River in western South Carolina. The Department of Energy Environmental Management is the site landlord. The Savannah River Site is designated as a National Environmental Research Park and covers a portion of Aiken, Barnwell, and Allendale counties.

The SRS Tritium Facilities, which occupy a portion 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 Stockpile Evaluation Program.
- Restore the capability to extract tritium.
- Conduct U.S. plutonium disposition activities.

The SRS Tritium Facilities are aligned with “Complex 2030” planning to enhance responsiveness of nuclear weapons complex infrastructure. Overtime, most tritium operations across the nuclear weapons complex will be consolidated to SRS.

ACTIVITIES:

Directed Stockpile Work (DSW)
The SRS DSW activities include processing tritium and inert reservoirs and associated components in support of Life Extension Programs (LEPs), Stockpile Services, and Production Support. The LEP activity includes, pre-production, production, and evaluation associated with the refurbishment of the B61 and W76. Stockpile Systems categories include Limited Life Component Exchange (LLCE), Reservoir 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 SLT requirements.

Engineering Campaign
The Enhanced Surveillance subprogram activities develop the tools, techniques, and procedures to advance the capabilities of the Nuclear Weapons Complex to measure, analyze, calculate, and predict the effect 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 (GTS) components.

Pit Manufacturing and Certification Campaign
The Savannah River National Laboratory is supporting development of an improved plutonium purification process and is a member of the Technology Working Group.

Readiness Campaign
The SRS role in support of the Readiness Campaign encompasses two subprograms:

Tritium Readiness subprogram activities include design, construction, start up, and operation of a Tritium Extraction Facility (TEF). The TEF will provide 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 will be completed in FY 2007 and operations will begin.

The Advanced Design and Production Technologies (ADAPT) subprogram serves as a catalyst to change the way the NNSA creates its nuclear weapon products through development, demonstration, and deployment of new information, design, and manufacturing technologies. ADAPT at SRS has been organized into projects including the Reservoir Development project, the Tritium Processing project and the Automated Reservoir Management System Replacement project.

In addition to these site-specific projects, SRS is leading an ADAPT project to deploy digital radiography standards and image management across the complex:

Readiness in Technical Base and Facilities (RTBF)
The RTBF program maintains the facilities and infrastructure in a state of readiness in support of DSW missions, including LEPs, Stockpile Services, and Production Support. Operations of Facilities include facilities management and support activities that maintain the facilities and infrastructure in a state of

readiness 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. 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 vessel, and facility effluent-cleanup systems. SRS performs physical maintenance of various shipping containers, and provides operational, regulatory, and technical support of Pressure Vessels.

Safeguards and Security

The SRS Safeguards and Security program provides security for the Tritium Facility consistent with requirements documented in its approved facility Master Security Plan.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

Facilities and Infrastructure Recapitalization Program (FIRP)

SRS accomplished established program goals in FY 2006 and funding has been transferred to other NNSA sites to address higher priority deferred maintenance reduction projects. The SRS has achieved a steady reduction of deferred maintenance and improvements to facilities and infrastructure, including roof repairs, renovations of electrical distribution systems, HVAC upgrades and associated building monitoring and control systems.

Fissile Materials Disposition

SRS is the site selected for disposition of U.S. plutonium and, as such, provides design authority for the Pit Disassembly and Conversion Facility (PDCF) and site coordination services for the Mixed-Oxide (MOX) Fuel Fabrication Facility (FFF). SRS also supports 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 private sector firms). In addition, SRS provides down-blending services for off-specification highly enriched uranium (HEU). During the construction phases of the MOX FFF and PDCF, SRS will be responsible for site integration and construction of site infrastructure including electric power, water & sewer, roads, communications, waste management, fire protection, security and related services. The H-Canyon is being used to down blend HEU fuel assemblies to Low Enriched Uranium for transfer to the Tennessee Valley Authority (TVA) for use in nuclear power plants. In addition, other forms of HEU are being transferred directly to TVA for conversion to reactor fuel. This is reducing the HEU inventory and the threat of HEU being used for weapons and reduces the long-term storage cost of HEU. SRS will provide project and contract management support for the U.S. plutonium disposition program, which includes the Mixed Oxide (MOX) Fuel Fabrication Facility and the Pit Disassembly and Conversion Facility (PDCF). During construction, SRS will continue to provide contract management services such as funding direction and authority to contractors, overseeing contract performance, and providing legal and accounting services in support of NNSA Headquarters.

Global Threat Reduction Initiative

Nuclear and Radiological Material Removal efforts support the removal or disposal of excess WMD-usable nuclear and radiological materials worldwide. SRS provides support to the Russian Research Reactor Fuel Return (RRRFR) program, participates in fact-finding missions to the eligible countries and is assisting on the development of a Mobile Melt and Dilute system to help accelerate RRRFR. SRS also supports the U.S. Foreign Research Reactor Spent Nuclear Fuel Acceptance (FRRSNF) program to return U.S.-origin fuel to the United States from research reactors around the world. SRS supports planning and scheduling activities, equipment procurement and technical program management under the Emerging Threats and Gap Materials (ET) program.

Nonproliferation and Verification Research and Development

SRS provides nuclear materials analysis efforts (advance mass spectrometry developments, ultra-sensitive separation, and detection techniques) and characterization of nuclear materials.

Nonproliferation and International Security

SRS provides safeguards and export control support for the International Regimes and Agreements Program 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.

Y-12 NATIONAL SECURITY COMPLEX

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	165,769	184,765	220,619
Engineering Campaign	4,219	3,907	3,845
Pit Manufacturing and Certification Campaign	100	99	200
Readiness Campaign	35,518	26,389	19,002
Readiness in Technical Base and Facilities	382,753	332,665	360,652
Secure Transportation Asset	0	0	3,402
Nuclear Weapons Incident Response	1,332	1,365	1,435
Facilities and Infrastructure Recapitalization Program	44,363	79,381	79,434
Safeguards and Security	166,708	137,199	173,662
Nonproliferation and International Security	30	2,086	2,086
International Nuclear Materials Protection and Cooperation	960	0	0
Global Initiatives for Proliferation Prevention	591	0	0
HEU Transparency Implementation	1,258	0	0
Fissile Materials Disposition	42,964	26,598	20,143
Global Threat Reduction Initiative	1,175	3,296	1,542
Total, NNSA	**847,740**	**797,750**	**886,022**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	184,851	188,412	195,340	198,630
Engineering Campaign	4,001	3,957	3,894	3,972
Pit Manufacturing and Certification Campaign	201	199	195	97
Readiness Campaign	17,038	18,493	20,082	12,519
Readiness in Technical Base and Facilities	374,684	385,827	464,868	551,546
Secure Transportation Asset	3,644	3,936	4,112	4,194
Nuclear Weapons Incident Response	1,435	1,524	1,552	1,600
Facilities and Infrastructure Recapitalization Program	77,422	80,374	82,403	84,555
Safeguards and Security	203,377	185,482	193,063	199,558
Nonproliferation and International Security	2,086	2,086	2,136	2,136

(dollars in thousands)	FY 2009	FY 2010	FY 2011	FY 2012
International Nuclear Materials Protection and Cooperation	0	0	0	0
Global Initiatives for Proliferation Prevention	0	0	0	0
HEU Transparency Implementation	0	0	0	0
Fissile Materials Disposition	10,574	9,991	7,195	7,200
Global Threat Reduction Initiative	2,020	1,950	2,000	2,000
Total, NNSA	**881,333**	**882,231**	**976,840**	**1,068,007**

EMPLOYMENT:

Contractor Employment (End of Year)	FY 2006	FY 2007	FY 2008
NNSA	4,094	4,040	3,925
Other	266	310	325
Total Facility	**4,360**	**4,350**	**4,250**

Congressional Items of Interest: The Safeguards and Security Defense Nuclear Security Program has dedicated FY 2006 funds to support protection requirements for compliance with the 2003 DBT policy.

Major Changes or Shifts: None

Site Description

INTRODUCTION:

BWXT Y-12, L.L.C., a BWXT and Bechtel enterprise, operates the Y-12 National Security Complex (Y-12) that and 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, and is located 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

This site is aligned with “Complex 2030” planning to enhance responsiveness of nuclear weapons complex infrastructure. For Y-12, this includes major changes at the site enabled by construction of the

Highly Enriched Uranium Materials Facility (HEUMF) to consolidate storage of special nuclear materials (SNM) and construction of the Uranium Processing Facility (UPF) to consolidate SNM manufacturing operations. These actions will enable:

- Reducing by nearly 90% the site footprint requiring high levels of security for special nuclear materials;
- Create an overall site footprint, consisting of new and recapitalized facilities, that is at least one-half the size of the current footprint;
- Consolidating manufacturing and processing operations, reducing the number of facilities and amount of square footage required, to improve workflow efficiencies and facilitate reduction of high-security perimeter;
- Consolidating material storage operations, thereby reducing the number of buildings and amount of square footage required for storage and reducing 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 and new facilities to improve workflow efficiency and reduce long-term maintenance, operation, and security cost.

ACTIVITIES:

Directed Stockpile Work (DSW)
Y-12 maintains the only capability in the U.S. to fabricate precision parts and components from certain materials for nuclear weapons. Y-12 is also involved in the evaluation of components and sub-systems returned from the stockpile, dismantlement of secondaries, and processing of recovered special nuclear material. Significant FY 2008 tasks will include the completion of refurbishment activities for the B61-7/11 Alteration (ALT) 357 program and production ramp-up for the W76-1 Life Extension Program (LEP). Stockpile Systems evaluations will also continue as will dismantlements of selected retired weapon systems. The site is also a participating Production Agency for the Reliable Replacement Warhead (RRW).

Engineering Campaign
The Y-12 Enhanced Surveillance subprogram activity provides lifetime prediction and improved surveillance diagnostics and methods, including non-destructive techniques for canned sub-assemblies, cases, and non-nuclear 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. Y-12 work also includes 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
Two subprograms are supported by Y-12: *Stockpile Readiness* (SR) and *Advanced Design and Production Technologies* (ADAPT).

The SR subprogram 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 weapons complex, a more productive workforce, and agile processes that enhance responsiveness to future national security needs. These efforts will revitalize the Y-12 ability to meet its mission requirements in a more efficient and cost-effective manner, and provide new or enhanced capabilities to meet the future needs of the nuclear weapons complex.

The ADAPT subprogram: continues and accelerates the development of advanced, cost-effective, and environmentally acceptable nuclear weapons-production technologies and design processes required to maintain an affordable and reliable nuclear weapons stockpile. The ADAPT technologies will result in reduced operating costs, improved manufacturing flexibility, and improved quality.

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. By design, Y-12 is the NNSA home for all aspects of the complex secondary manufacturing, testing, and disposition. Changes in the complex mission, from designing, producing, and monitoring new weapons to maintaining the stockpile and ensuring its safety and reliability in the absence of underground testing, have placed increased emphasis on conducting surveillance of the existing stockpile, predicting its life, performing LEPs, dismantling the weapons removed from the stockpile under treaty provisions, and providing safe, secure management and storage of the nation's strategic reserve of highly enriched uranium (HEU) and other weapons materials.

The elements of the Y-12 RTBF Program include the following:
- Maintain base operation support for approximately 350 Y-12 buildings including maintenance, facility safety, and utilities.
- Support deactivation activities in Building 9206
- Provide construction line item management, including all pre-conceptual planning and other project costs (OPC) for all RTBF-funded line items,
- Provide management of the capital program, capital equipment, and general plant projects activities on the site,
- Develop and update the BWXT Y-12 strategic plan, master site plan, and the Ten-Year Site Plan (TYSP),
- Provide containers for the off-site transportation of special nuclear material and waste,
- Provide for the management and storage of HEU and other materials, and legacy-materials disposition to promote footprint reduction,
- Provide for the recycle and recovery of HEU,
- Manage responsibilities associated with the Chronic Beryllium Disease Prevention Program (CBDPP), and
- Provide for management and disposition of newly generated waste from production facilities.

Two major projects, the Highly Enriched Uranium Materials Facility (HEUMF) and the Uranium Processing Facility (UPF) are underway to provide replacement facilities. Planning is underway to accelerate the modernization activities at the site, resulting in a much smaller footprint with associated operational efficiencies. The HEUMF is underway and in construction; the UPF project has completed conceptual design and will begin preliminary design early in FY 2008. The HEUMF will store all Category I quantities of uranium in a designed denial security environment. The UPF will house all enriched uranium manufacturing processes involving Category I quantities of uranium. Taken together these two facilities support the Complex 2030 goal of consolidating all highly enriched uranium operations at Y-12.

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 complex. For FY 2008, recapitalization projects address deficiencies for electrical, mechanical, utility, specialty and structural systems across the site. Y-12 also continues to participate in the complex-wide Roof Asset Management Program (RAMP) to correct priority deficiencies and extend the life on the roofing assets. In the area of facility disposition for FY 2008, the Y-12 site has targeted facilities that will no longer be required once the new alternate financed facilities are occupied. Y-12 is executing several Line Item projects that address the most demanding utility issues at Y-12, including Steam Plant Life Extension and a Potable Water System Upgrade.

Safeguards and Security
The Y-12 Safeguards and Security program provides protection measures consistent with protection requirements documented in the facility Site Safeguards and Security Plan (SSSP). Activities will include consolidation of Special Nuclear Material, adding protective force posts and redeploying protective force personnel to lengthen adversary delay times, implement new vehicle delay measures, and other interim barrier features. During FY 2006, validation of the site's revised protection strategy for the 2005 Design Basis Threat was conducted. A comprehensive review of the Y-12 Security Improvement Line Item Construction Project (LICP) has resulted in a construction project that better fulfills future programmatic needs and be more affordable and effective from a security protection standpoint.

The Cyber security program will focus on revitalization, which will enable NNSA to respond to its highest priorities and to address current and future risks; 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.

Fissile Materials Disposition
Y-12 serves as the lead for all surplus highly enriched uranium (HEU) disposition activities through the HEU Disposition Program Office. Y-12 is also providing storage and repackaging for surplus HEU pending disposition via shipment to the U.S. Enrichment Corporation/Tennessee Valley Authority (USEC/TVA).

ORO/Y-12 provides for the planning and implementation of HEU disposition activities, which includes the transfer of materials to the United States Enrichment Corporation, blending and transfer of off-specification materials to the Tennessee Valley Authority, transfer of materials to the commercial processor contracted to downblend the material associated with the IAEA material disposition project, tracking and evaluation of surplus HEU inventories, and planning for disposition of unallocated surplus HEU material. The NNSA Y-12 Site Office and the Y-12 National Security Complex HEU Disposition

Program Office at Y-12 assist the Office of Fissile Materials Disposition in 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.

ARGONNE NATIONAL LABORATORY

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)	FY 2006	FY 2007	FY 2008
NNSA			
Science Campaign	185	0	0
Readiness in Technical Base and Facilities	703	0	0
Nuclear Weapons Incident Response	2,620	2,526	2,606
Nonproliferation and International Security	2,828	5,542	4,241
International Nuclear Materials Protection and Cooperation	1,214	523	505
Global Initiatives for Proliferation Prevention	616	0	0
HEU Transparency Implementation	1,250	0	0
Global Threat Reduction Initiative	14,715	18,200	18,050
Total, NNSA	**24,131**	**26,791**	**25,402**

OUT-YEAR FUNDING:

(dollars in thousands)	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Science Campaign	0	0	0	0
Readiness in Technical Base and Facilities	0	0	0	0
Nuclear Weapons Incident Response	2,790	2,881	3,104	3,232
Nonproliferation and International Security	4,246	4,256	4,261	4,261
International Nuclear Materials Protection and Cooperation	578	769	747	762
Global Initiatives for Proliferation Prevention	0	0	0	0
HEU Transparency Implementation	0	0	0	0
Global Threat Reduction Initiative	12,846	9,500	9,700	9,700
Total, NNSA	**20,460**	**17,406**	**17,812**	**17,955**

EMPLOYMENT: Data not available, site is not NNSA landlord responsibility.

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
HEU Reactor Conversion effort supports the conversion of reactors and isotope production facilities from the use of WMD-usable HEU materials to LEU materials. ANL supports the Reduced Enrichment for Research and Test Reactors (RERTR) program, including reactor analysis, conversion assistance, molybdenum-99 target development, advanced fuel development, and technical integration.

Nuclear and Radiological Material Removal efforts support the removal or disposal of excess WMD-usable nuclear and radiological materials worldwide. ANL provides technical support for the subcritical assemblies conversion work under the Russian Research Reactor Fuel Return (RRRFR) program.

Nuclear and Radiological Material Protection efforts support the protection of at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented. ANL management and technical experts also participate in the International Radiological Threat Reduction (IRTR) program.

Nonproliferation and International Security
ANL supports export control work in the areas of licensing and international cooperation; safeguards work, especially in the non-Russian republics of the Former Soviet Union, fuel cycle analysis, and policymaking and negotiations regarding various arms control and nonproliferation regimes. In addition, ANL supports the activities involving International Emergency Management and Cooperation program. ANL supports the nonproliferation activities under the new Global Nuclear Energy Partnership initiative.

BROOKHAVEN NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Readiness in Technical Base and Facilities	99	0	0
Nuclear Weapons Incident Response	1,310	1,337	1,406
Nonproliferation and Verification R&D	1,350	1,350	1,350
Nonproliferation and International Security	1,858	4,695	4,705
International Nuclear Materials Protection and Cooperation	36,000	28,676	31,407
Global Initiatives for Proliferation Prevention	782	0	0
Global Threat Reduction Initiative	1,339	725	725
Total, NNSA	**42,738**	**36,783**	**39,593**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Readiness in Technical Base and Facilities	0	0	0	0
Nuclear Weapons Incident Response	1,477	1,562	1,644	1,680
Nonproliferation and Verification R&D	1,504	1,502	1,532	1,563
Nonproliferation and International Security	6,256	6,296	6,315	6,345
International Nuclear Materials Protection and Cooperation	32,789	25,030	25,738	26,255
Global Initiatives for Proliferation Prevention	0	0	0	0
Global Threat Reduction Initiative	925	725	925	925
Total, NNSA	**42,951**	**35,115**	**36,154**	**36,768**

EMPLOYMENT: Data not available, site is not NNSA landlord responsibility.

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:

International Nuclear Materials Protection and Cooperation (MPC&A)
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. 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. BNL provides support in the development and delivery of MPC&A training courses. BNL is the lead laboratory that provides support for the MPC&A Operations Monitoring Project and for MPC&A Culture Enhancement Project.

Nonproliferation and International Security
BNL supports international cooperation (sister labs) efforts and the activities in the Russian closed cities in the area of economic development, and the nonproliferation activities under the new Global Nuclear Energy Partnership initiative.

Nonproliferation and Verification Research and Development
BNL develops radiation detection, scientific foundations, and instrumentation.

CHICAGO OPERATIONS OFFICE

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Science Campaign	575	0	0
Engineering Campaign	250	0	0
Pit Manufacturing and Certification Campaign	135	0	0
Readiness Campaign	16,389	39,873	26,777
Fissile Materials Disposition	264,023	16,000	0
Total, NNSA	**281,372**	**55,873**	**26,777**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Science Campaign	0	0	0	0
Engineering Campaign	0	0	0	0
Pit Manufacturing and Certification Campaign	0	0	0	0
Readiness Campaign	46,305	28,704	32,179	68,893
Nonproliferation and Verification R&D	0	0	0	0
Fissile Materials Disposition	0	0	0	0
Total, NNSA	**46,305**	**28,704**	**32,179**	**68,893**

EMPLOYMENT: Data not available, site is not NNSA landlord responsibility.

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 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

CHO 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 (TARGET):

	(dollars in thousands)		
	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	127	0	0
Science Campaign	1,049	0	0
Pit Manufacturing and Certification Campaign	107	0	0
Readiness Campaign	0	4,944	1,288
Readiness in Technical Base and Facilities	1,916	0	0
Nuclear Weapons Incident Response	215	220	231
Nonproliferation and Verification R&D	3,790	3,790	3,790
Nonproliferation and International Security	484	515	514
International Nuclear Materials Protection and Cooperation	514	0	0
Global Initiatives and Proliferation Prevention	180	0	0
Global Threat Reduction Initiative	15,005	12,164	11,200
Naval Reactors	57,400	64,600	58,800
Total, NNSA	**80,787**	**86,233**	**75,823**

OUT-YEAR FUNDING:

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	0	0	0	0
Science Campaign	0	0	0	0
Pit Manufacturing and Certification Campaign	0	0	0	0
Readiness Campaign	660	2,027	1,384	708
Readiness in Technical Base and Facilities	0	0	0	0
Nuclear Weapons Incident Response	243	257	257	270
Nonproliferation and Verification R&D	4,131	5,478	5,563	5,649
Nonproliferation and International Security	515	515	515	515
Global Initiatives and Proliferation Prevention	0	0	0	0
Global Threat Reduction Initiative	10,450	7,821	7,900	7,900
Naval Reactors	60,000	61,300	62,600	63,900
Total, NNSA	**75,999**	**77,398**	**78,219**	**78,942**

EMPLOYMENT: Data not available, site is not NNSA landlord responsibility.

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

HEU Reactor Conversion effort supports the conversion of reactors and isotope production facilities from the use of WMD-usable HEU materials to LEU materials. INL is the technical lead for work on advanced fuel development on the Reduced Enrichment for Research and Test Reactors (RERTR) program.

Nuclear and Radiological Material Removal efforts support the removal or disposal of excess WMD-usable nuclear and radiological materials worldwide. INL provides support to the Russian Research Reactor Fuel Return (RRRFR) program, participates in fact-finding missions to the eligible countries, and works on the development of a Mobile, Melt & Dilute system to help accelerate RRRFR.

Nonproliferation and Verification Research and Development

INL provides research to assess alternative fissile material production methods and advanced nuclear fuel cycle development.

Naval Reactors (NR)

The 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 (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Directed Stockpile Work	1,546	2,816	1,817
Science Campaign	1,664	0	0
Readiness in Technical Base and Facilities	4,663	0	0
Nuclear Weapons Incident Response	794	333	355
Nonproliferation and Verification R&D	9,555	9,164	9,164
Nonproliferation and International Security	9,521	17,614	13,262
International Nuclear Materials Protection and Cooperation	122,061	103,099	87,390
HEU Transparency Implementation	4,000	0	0
Global Initiatives and Proliferation Prevention	1,644	0	0
Elimination of Weapons-Grade Plutonium Production	15	0	0
Fissile Materials Disposition	9,762	12,500	4,700
Global Threat Reduction Initiative	3,996	3,550	2,350
Total, NNSA	**169,221**	**149,076**	**119,038**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Directed Stockpile Work	1,878	1,882	1,812	1,848
Science Campaign	0	0	0	0
Readiness in Technical Base and Facilities	0	0	0	0
Nuclear Weapons Incident Response	368	382	403	422
Nonproliferation and Verification R&D	9,988	11,457	11,663	11,869
Nonproliferation and International Security	13,603	15,643	16,168	16,168
International Nuclear Materials Protection and Cooperation	62,379	52,334	50,900	51,879
HEU Transparency Implementation	0	0	0	0
Global Initiatives and Proliferation Prevention	0	0	0	0
Elimination of Weapons-Grade Plutonium Production	0	0	0	0
Fissile Materials Disposition	3,700	2,700	2,700	2,700

	(dollars in thousands)			
	FY 2009	FY 2010	FY 2011	FY 2012
Global Threat Reduction Initiative	5,250	2,900	5,550	5,550
Total, NNSA	**97,166**	**87,298**	**89,196**	**90,436**

EMPLOYMENT: Data not available, site is not NNSA landlord responsibility.

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 (MPC&A)
ORNL 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. ORNL'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. ORNL also provides training expertise and technical support to Second Line of Defense program. ORNL also serves as the laboratory intermediary for complementary DOE and Defense Threat Reduction Agency project areas related to sustainability.

Nonproliferation and International Security
ORNL supports safeguards work verification of nuclear weapons program dismantlement; licensing activities, and export control cooperation with international partners and the nonproliferation activities under the new Global Nuclear Energy Partnership initiative. ORNL supports the development of nuclear transparency measures. The facility also provides expertise on various arms control and nonproliferation agreements and treaties. 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). The facility provides further 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. ORNL also provides specialized expertise in the control of nuclear reactor-related technology, prepares analyses to revise U.S. and international nuclear export

control lists, studies the export control implications of the development of advanced fuel cycle technologies, and tracks global machine tool supply trends. ORNL provides the HEU TI program one segment of the Blend Down Monitoring System (BDMS) that measures the flow of HEU as it is blended-down at Russian uranium processing facilities and traceability of HEU converted to LEU. ORNL personnel support the development, shipping, installation, licensing and maintenance of BDMS equipment, as well as training of both Russian and U.S. personnel on BDMS equipment, operations and maintenance. Additionally, ORNL provides technical experts to serve as permanent and special monitors at Russian facilities and to interpret resultant BDMS data.

Fissile Materials Disposition
ORNL conducts R&D associated with the irradiation of MOX fuel in domestic and commercial reactors to include post irradiation examination of MOX fuel, advise on reactor licensing, and supervises fuel qualification R&D. ORNL supports the Parallex and Gas Turbine-Modular Helium Reactor (GT-MHR) projects and disposition of Russian plutonium.

Nonproliferation Verification Research and Development
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. ORNL provides nuclear material analysis efforts using advanced mass spectrometry and characterization of nuclear materials.

PACIFIC NORTHWEST NATIONAL LABORATORY

TABLES

FUNDING BY PROGRAM (TARGET):

(dollars in thousands)

	FY 2006	FY 2007	FY 2008
NNSA			
Readiness Campaign	14,820	12,789	15,289
Nuclear Weapons Incident Response	949	471	501
Nonproliferation and Verification R&D	45,266	37,023	27,067
Nonproliferation and International Security	11,720	15,722	14,413
International Nuclear Materials Protection and Cooperation	67,340	54,033	55,423
Global Initiatives for Proliferation Prevention	2,602	0	0
Elimination of Weapons Grade Plutonium Production	1,097	900	500
Fissile Materials Disposition	2,335	3,095	500
Global Threat Reduction Initiative	8,710	8,031	2,648
Total, NNSA	**154,839**	**132,064**	**116,341**

OUT-YEAR FUNDING:

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012
NNSA				
Readiness Campaign	13,747	13,743	7,985	5,753
Nuclear Weapons Incident Response	520	544	579	622
Nonproliferation and Verification R&D	34,192	38,050	38,581	40,085
Nonproliferation and International Security	13,653	15,705	15,837	15,837
International Nuclear Materials Protection and Cooperation	73,417	83,001	83,259	84,678
Global Initiatives for Proliferation Prevention	0	0	0	0
Elimination of Weapons Grade Plutonium Production	500	900	0	0
Fissile Materials Disposition	500	500	500	500
Global Threat Reduction Initiative	6,911	3,487	8,307	8,307
Total, NNSA	**143,440**	**155,930**	**155,048**	**155,782**

EMPLOYMENT: Data not available, site is not NNSA landlord responsibility.

Congressional Items of Interest: None

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

PNNL provides tools for radionuclide detection and statistical expertise (seismic discrimination) in the ground-based portion of NA-22's nuclear explosion monitoring efforts. 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. PNNL provides 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). PNNL provides capabilities replacement efforts for NNSA in the 300 Area. The acceleration of Environment Management clean-up activities, with respect to the River Corridor Contract, forces the evacuation of these facilities by 2009. This project supports a joint effort with the DOE Office of Science to construct the 300 Area PNNL Replacement Facility at Hanford.

Nonproliferation and International Security

PNNL assists Dismantlement and Transparency program by providing support for conducting technical exchanges and technology development under the Warhead Safety and Security Exchanges Agreement, HEU Purchase Agreement policy and transparency development, Plutonium Production Reactor Agreement implementation, development of nuclear transparency measures, technical analysis and technology development, and regional security efforts in policymaking and negotiations regarding various nonproliferation and arms control regimes. In addition, PNNL provides International Regimes and Agreements program with licensing operations, including Chemical/ Biological Weapons related training to Department of Homeland Security, multilateral outreach through support efforts for policymaking and negotiations various nonproliferation control regimes, and international cooperation, primarily in the Former Soviet Union but increasingly in transit states as well. For the Global Security Engagement and Cooperation program, PNNL supports the safeguards tools and methods development, IAEA safeguards cooperation and verification of DPRK and other proliferant states, IAEA environmental sampling QA/QC, vulnerability assessment support for foreign sites of interest, physical protection upgrades, training to foreign nationals as needed, Additional Protocol implementation, Proliferation Resistant Fuel Technology project, and Trilateral Initiates. In addition, PNNL provides support for commercialization efforts globally and efforts to downsize the Russian nuclear weapons complex and helps create business opportunities for displaced weapons workers. PNNL also supports the nonproliferation activities under the new Global Nuclear Energy Partnership initiative.

International Nuclear Materials Protection and Cooperation

PNNL provides technical, contracting, and management expertise for DOE'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. PNNL also manages several projects related to 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 and training expertise to the Second Line of Defense program.

Fissile Materials Disposition

PNNL provides support to the U.S. Plutonium Disposition Program in the development of a monitoring and inspection regime for disposition facilities. PNNL also supports nuclear facility licensing and regulatory activities in the Russian Surplus Fissile Materials Disposition program.

Global Threat Reduction Initiative (GTRI)

Nuclear and Radiological Material Removal efforts support the removal or disposal of excess WMD-usable nuclear and radiological materials worldwide. PNNL management and technical experts support the U.S. Radiological Threat Reduction (USRTR) program and the Emerging Threats and Gap Materials (ET) program.

Nuclear and Radiological Material Protection efforts support the protection of at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented. PNNL management and technical experts support the Kazakhstan Spent Fuel Disposition program and the International Radiological Threat Reduction (IRTR) program.

Elimination of Weapons Grade Plutonium Program (EWGPP)

PNNL provides technical support services to the U.S. Elimination of Weapons Grade Plutonium (EWGPP) Program for the reactor shutdown monitoring activities being performed in the Russian Federation. PNNL also provides EWGPP Program programmatic quality assurance monitoring and support for integration services for the coordination and management of the EWGPP International Participation Program.