

**Statement of Thomas P. D'Agostino**  
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**Before the**  
**Senate Committee on Armed Services**  
**Subcommittee on Strategic Forces**  
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**Introduction**

Mr. Chairman, thank you for the opportunity to discuss U.S. nuclear weapon policies and programs. My remarks focus on our efforts to transform the nuclear weapons complex into a 21<sup>st</sup> century national security enterprise. I will address why we believe that the Reliable Replacement Warhead (RRW) concept should be pursued notwithstanding the recent decision by Congress not to fund completion of the RRW design definition and cost study.

Before I begin, I want to remind you of the tremendous progress made over the past few years in reducing the size of our nuclear weapons stockpile. As you recall, in 2002, President Bush and President Putin signed the Moscow Treaty, which will reduce the number of our operationally deployed strategic nuclear warheads to 1,700 to 2,200 by 2012. In 2004, the President issued a directive to cut the entire U.S. nuclear stockpile—both deployed and reserve warheads—in half by 2012. But this goal was later accelerated and achieved 5 years ahead of schedule in 2007. As of the end of 2007, the total stockpile was almost 50 percent below what it was in 2001, when the President took office.

On December 18, 2007, the White House announced the President's decision to reduce the nuclear weapons stockpile by another fifteen percent by 2012. This means the U.S. nuclear stockpile will be less than one-quarter its size at the end of the Cold War—the smallest stockpile in more than 50 years.

My Department of Defense colleagues are prepared to address fundamental questions of why in the post-Cold War era we continue to need nuclear forces and why, although dramatically reduced, we need the number of nuclear warheads in the stockpile that we plan to have. My testimony will focus more narrowly on our efforts to “transform” the U.S. nuclear weapons stockpile and supporting infrastructure. In this regard, further stockpile reductions rest on (1) our ability to transform the nuclear weapons complex into a more responsive enterprise, (2) ongoing efforts to understand challenges to the stockpile and modern means of addressing these challenges such as the Reliable Replacement Warhead, and (3) efforts between successive Administrations and Congress to restore a consensus on the future nuclear deterrent, force posture and resulting nuclear weapons stockpile.

**Transforming the Nuclear Weapons Complex**

The Nuclear Weapons Complex is at a crossroads—maintaining the status quo is not an option we can afford. Delay and inaction will only increase the costs and elevate the risks associated with maintaining an aging stockpile. Regardless of stockpile transformation plans, these facilities need to be upgraded. The challenge for us will be to move from an aging nuclear weapons complex designed for the Cold War to a smaller 21<sup>st</sup> century national security enterprise that is integrated, modern, cost-effective, and that eliminates unnecessary redundancy, but that is also at the forefront of science and technology and responsive to future national security requirements.

Complex transformation is more than simply replacing an aged physical infrastructure, it includes transforming our contracting, procurement and management practices to embrace the best in business and human capital practices. We also seek to leverage our core competencies in nuclear weapons design and engineering to advance our leadership in counterterrorism, nonproliferation, physical security, cyber security and support of the intelligence community. Our transformation strategy relies on four pillars:

- Transform the nuclear stockpile through the Stockpile Stewardship Program in partnership with the Department of Defense.
- Transform to a modernized, cost-effective nuclear weapons complex to support needed capabilities in our physical infrastructure.
- Create an integrated, interdependent enterprise that employs best business practices to maximize efficiency and minimize costs.
- Advance the science and technology base that is the cornerstone of our nuclear deterrence and essential to our national security.

Infrastructure improvements are a major part of complex transformation and we have made important progress in this area. For example, with the support of this Committee, in 2007, we produced tritium for the first time in 18 years, and the Tritium Extraction Facility (TEF) at Savannah River is now on-line. Still, some major facilities date to the Manhattan Project and cannot easily meet today's safety and security requirements, and the capabilities they provide must be restored. Let me cite two key examples:

**Plutonium "Pit" Production:** A sufficient capacity to produce plutonium pits for nuclear warheads is an essential part of a responsive national security enterprise and is required for as long as we retain a nuclear deterrent. Currently, we have a very small production capacity at Los Alamos National Laboratory (about ten pits per year in Technical Area 55 (TA-55)). This capacity took ten years to reconstitute, using aging scientific and manufacturing facilities. It is insufficient to support the stockpile for the long term and, if not redressed, requires maintaining a larger stockpile than would otherwise be desired. There are two key reasons why this is so:

- Depending on warhead type, our best estimate of minimum pit lifetime is 85-100 years. While this lifespan exceeds previous estimates, degradation from plutonium aging still introduces uncertainty in overall system performance, particularly for lower margin systems. As the stockpile ages, we must plan to replace many pits in stockpiled weapons.
- As the stockpile continues to be reduced, we must anticipate that an adverse change in the geopolitical threat environment, or a technical problem or development, could require manufacture of additional warheads on a relatively rapid schedule. Currently, if we found a major system-wide problem in the stockpile requiring pit replacement, we have insufficient capacity for a timely response.

As part of our transformation, NNSA has evaluated a variety of future pit production alternatives. NNSA's preferred alternative is to retain and build on the existing production facilities at Los Alamos. Whether we continue on our existing path or if we move towards an RRW based stockpile, we will need

a capacity to produce about 50-80 pits per year. To do this, we would use existing facilities in TA-55 with the addition of a new Chemistry and Metallurgy Research-Replacement (CMRR) Nuclear Facility. In addition to its role in pit production, the CMRR will be the sole facility where we will be able to carry out pit surveillance, essential to maintaining the existing stockpile, as well as plutonium and actinide research and analysis. Our approach would provide sufficient production capacity to support smaller stockpile sizes, particularly when coupled with potential reuse of pits. A production capacity of 50-80 pits per year is less than one-tenth of Cold War levels, when we were producing not ten or a hundred, but thousands of warheads a year.

**Uranium Component Production:** As with plutonium, regardless of the type of stockpile we maintain, we will require a responsive capability and capacity to produce uranium components. Our uranium component production facilities date to the Manhattan Project. Securing these facilities from terrorism threats we face after 9-11 is increasingly difficult and costly, as is operating them to modern safety standards. Every warhead, whether refurbished or replacement, will require uranium component manufacture. Construction of the Highly Enriched Uranium Materials Facility at the Y-12 National Security Complex in Oak Ridge will allow us to consolidate uranium storage with a significantly reduced security “footprint.”

Although our emphasis has been on maintaining the stockpile by embarking on complex transformation and examining the potential promise of RRW, we have not lost focus on meeting our commitments to the Defense Department and to other customers. As I pointed out earlier, last year we reconstituted a limited plutonium pit manufacturing capability and produced new pits for the W88 warhead. This year we will continue to produce new W88 pits and begin installing equipment to increase pit production capacity to 30-50 pits per year by 2012-14. In 2006 and 2007, respectively, we delivered the first refurbished B61-7 and B61-11 bombs to the Air Force. We intend to maintain on-time delivery of these weapons to the Air Force in 2008.

In addition, our 21<sup>st</sup> century national security enterprise will continue to leverage the scientific underpinnings of its historic nuclear weapons mission to respond to a full range of national security challenges beyond nuclear weapons. Indeed, the scientific capabilities and infrastructure developed for nuclear weapons are already being utilized by the Departments of Defense and Homeland Security, and by the intelligence community, and are recognized as essential to fulfilling the responsibilities of these organizations. For example, the NNSA laboratories have participated jointly with other government agencies in addressing a wide range of national security challenges—all of which leverage NNSA’s core mission of nuclear weapons development and sustainability. Recent examples include:

- Supporting warfighter needs in Iraq with modeling, analysis and systems to counter improvised explosive devices (IEDs).
- Supporting the DoD and FBI in emergency render-safe and post-event technical nuclear forensics.
- Aiding the intelligence community in its counterterrorism and nonproliferation efforts by drawing upon our nuclear weapons expertise.
- Developing and deploying integrated systems for countering biological releases and bio-

decontamination technologies.

- Developing and deploying portal detector technology to prevent smuggling of special nuclear materials.

Our challenge is to maintain these scientific and technical capabilities, which evolved from the weapons program when budgets were expansive, into the future when resources will be relatively constrained. We must find ways to leverage key capabilities by developing and strengthening strategic relationships with other federal agencies in meeting our nation's security needs.

Our plan for transforming our physical infrastructure, released this past December and detailed in the draft Supplemental Programmatic Environmental Impact Statement (SPEIS) as required by the National Environmental Policy Act (NEPA), will consolidate special nuclear materials to fewer sites and locations within the nuclear weapons complex, close or transfer hundreds of buildings that are no longer required for the NNSA mission, and reduce NNSA's overall footprint by as much as a third. Over ten years, we expect to eliminate at least 9 million square feet, or the equivalent of almost 200 football fields of floor space! Additionally, by eliminating multi-site redundancies and consolidating both mission and capability at our sites, we expect to dramatically improve efficiency and cut costs.

### **Evolution of Our Strategy for Sustaining the Nuclear Stockpile**

Let us turn to the problem of stockpile stewardship and recall how we got to where we are today. In the years following the end of the Cold War, budgets for nuclear weapons programs were in "free fall"—funding was simply not available to sustain both R&D and production capabilities. A strategic decision was made to emphasize R&D to ensure future capabilities to certify the stockpile while neglecting production—we mortgaged the present to ensure the future.

That future was seen as *science-based stockpile stewardship and life extension* of our Cold War legacy warheads. When the U.S. stopped nuclear testing in 1992, it sought to replace this critical tool with a new Stockpile Stewardship Program (SSP) that: (1) emphasized science and technology coupled with a vigorous experimental program as a means to understand better the physics and chemistry of nuclear weapons and their operation, and (2) provided enhanced warhead surveillance tools so that we would have a much better chance of detecting the onset of problems in the stockpile.

The goal of the SSP was to predict the effects of aging in our warheads so that we could replace aging components before they degraded overall system reliability. The end of the Cold War provided this opportunity—our focus was no longer on a continuous cycle of fielding new warheads to provide new military capabilities, but on sustaining existing nuclear capabilities.

We call this "life extension"—the process of observing the aging of individual components of warheads and replacing them before they fail. Consider this challenge. Your vintage 1965 Ford Mustang—maintained as a collector's item—has been sitting in your garage for 40 years. You monitor it for such items as a clogged carburetor, corrosion in the engine block, battery discharge, and you replace parts when you deem it necessary. But you don't get to start the engine and take it for a test drive. The trick is to assure that if you do need it right away—to take your wife (or husband) to the hospital in an emergency—that it would work with certainty. That's sort of what we have to do with nuclear weapons LEPS.

Following the Administration's Nuclear Posture Review, in 2003 we "took stock" of ten years of the SSP and came to some important conclusions.

First, *the Stockpile Stewardship Program is working*—today's stockpile remains safe and reliable and does not require nuclear testing. This assessment is based on a foundation of past nuclear tests augmented by cutting edge scientific and engineering experiments and analysis, and improved warhead surveillance. Most importantly, it derives from the professional (and independent) judgment of our laboratory directors advised by their weapon program staffs.

Second, as we continue to draw down the stockpile, our laboratory directors are concerned that our current path—successive refurbishments of existing warheads developed during the Cold War to stringent Cold War specifications—may pose unacceptable risks to maintaining high confidence in warhead performance over the *long-term* absent nuclear testing.

These concerns arise as we move further and further away from designs certified with underground nuclear tests, resulting from inevitable accumulations of small changes from a continuous process of aging, and refurbishment of aging components, over the extended lives of these highly-optimized systems.

So, while we are confident that the stockpile stewardship program is working and that today's stockpile is safe and reliable, it is only prudent to explore alternate means to manage risk in seeking to ensure stockpile reliability over the long term.

This is, in part, the impetus for our proposed work to study reliable replacement concepts: to ensure the long-term sustainment of the military capabilities provided by the existing stockpile, *not* to develop warheads for new or different military missions as is often portrayed.

Specifically, we have examined the feasibility of providing replacement warheads for the legacy stockpile. By relaxing Cold War design constraints that sought maximum yield in a minimum size/weight package, it would allow design of replacements that are easier and less costly to manufacture, are safer and more secure, eliminate most environmentally dangerous materials, and increase design performance margins, thus ensuring long-term confidence in reliability without nuclear testing.

Finally, we need to transform our complex with or without RRW. That said, we believe that RRW would offer means to transform to a more efficient and responsive, much smaller, and less costly nuclear weapons R&D and production infrastructure.

### **Urgency of RRW**

We are often asked: If today's stockpile is safe and reliable, why do we believe it is important to start on RRW now? Why not wait a few years when you know more? There are four main reasons why I believe it is important to complete the reliable replacement study now.

First, the study will provide critical information to insure that the next administration, as well as the bipartisan commission established by this Committee, can complete a timely review of U.S. nuclear posture as mandated by Congress.

Second, as I raised earlier, there are concerns about our ability to ensure the long-term safety and reliability of today's stockpile absent nuclear testing. For example, the first RRW was intended to replace a portion of W76 warheads deployed on the Trident SLBM system. That warhead comprises a large fraction of today's, and an even larger fraction of our future strategic deterrent force. It has no "back up." Although we have not uncovered any problems with the W76, it is prudent to hedge against a catastrophic failure of that system by introducing a significantly different warhead design into the SLBM force. Our ability over the next 15 years to produce new plutonium parts is limited—the sooner we start the sooner we could achieve this diversity.

Third, after 9/11 we realized that the security threat to our nuclear warheads had fundamentally changed. The security features in today's stockpile are commensurate with technologies that were available during the Cold War and with the threats from that time. Major enhancements in security are not easily available via retrofits in the life extension programs. The car analogy is again relevant. Today's Mustang remains a high-performance automobile, has about the same dimensions and weighs only a few hundred pounds more than the first Mustangs, and has all the modern safety and security features we expect today—air bags, anti-lock brakes, GPS navigation, satellite radio, theft deterrent and alarm systems. The 1965 version had none of these features, not even seat belts! We deploy warheads today that have 1970-80's safety, security and anti-terrorism features. It does not mean that these warheads are not safe and secure, but we can do better and we should do better. Based on our initial assessments, I believe that RRW provides opportunities to incorporate the latest technological advances for precluding unauthorized use in a post-9/11 threat environment.

Fourth, the RRW effort thus far has provided a critical opportunity to ensure the transfer of nuclear design and engineering skills from the generation who honed these skills with nuclear testing to the generation who will replace them. These skills are absolutely vital to the nation, not just for sustaining our deterrent but in such areas as nuclear counterterrorism which will become even more important in the future. In a few years, nearly all of the older generation will be retired or dead. Without this opportunity coming at this time (and not five years hence), we would not be able to sustain key capabilities.

## **Response to Arguments Against RRW**

A number of concerns have arisen in our deliberations with Congress and others about the RRW program. Specifically, critics argue that:

- RRW will undermine the non-proliferation regime either by providing incentives for states to acquire or improve their nuclear arsenals, or by impeding U.S. leadership in pursuing a strengthened non-proliferation regime.
- RRW will cause us to carry out an underground nuclear test.
- More broadly, the U.S. “doesn’t have its nuclear act together”—its nuclear policies are not clearly embedded in a broader international security framework. At minimum, it hasn’t communicated its nuclear policy clearly to Congress. Until it does, some would argue, we should delay RRW and Complex Transformation.

On that last point, the United States has a coherent and rationale policy overarching nuclear weapons programs as reflected in the 2001 Nuclear Posture Review (NPR), the Presidential directive (NSPD-28) addressing command and control and safety and security of U.S. nuclear forces, and the Nuclear Weapons Stockpile Plans issued annually by the President, among others. But we have not done as good job as we should communicating these policies to Congress and the public. We are, however, doing better and I will return to this at the end of my statement.

How is our proposed reliable replacement strategy consistent with non-proliferation and arms control? Some of you may be convinced that there might be valid reasons for going forward but are concerned that these reasons do not outweigh an overriding concern that such efforts could undermine U.S. leadership in the fight against proliferation. I appreciate such concerns, but ask that you consider the following points:

- The RRW, by design, would not provide a new role for nuclear weapons or new military capabilities, but rather would help sustain the military capabilities of the existing arsenal.
- Fielding the RRW would not increase the size of the nuclear stockpile, rather it would enable further stockpile reductions. Once a transformed production complex demonstrates that it can produce replacement warheads on a timescale responsive to technical problems in the stockpile, or adverse geopolitical changes, then many reserve warheads could be eliminated—further reducing the nuclear stockpile and reinforcing our commitment to Article VI of the Nonproliferation Treaty.
- Because replacement warheads would be designed with more favorable performance margins, and therefore less sensitive to incremental aging effects, introducing them into the stockpile would reduce the possibility that the United States would be faced with a need to conduct a nuclear test to diagnose or remedy a stockpile problem. This supports overall U.S. efforts to dissuade other nations from conducting nuclear tests.

- By incorporating modern security features, RRW would strengthen security of U.S. nuclear weapons against unauthorized use (e.g., in the event of a terrorist attack on one of our storage facilities).
- Finally, a safe, secure and reliable U.S. nuclear deterrent, credibly extended to our allies, supports U.S. non-proliferation efforts because allies confident in U.S. extended nuclear deterrence guarantees will not be motivated to pursue their own nuclear forces. This non-proliferation role of U.S. nuclear weapons is often underestimated. Indeed, the nuclear weapon programs of North Korea and Iran have made our nuclear guarantees to allies such as Turkey, South Korea and Japan take on renewed importance.

In summary, our vision to transform the nuclear stockpile and supporting infrastructure through reliable replacement concepts is complementary to, not inconsistent with, our nonproliferation policies and with the long-term goal of global nuclear weapons elimination.

### **Nuclear Testing**

Let me turn in more detail to the nuclear testing issue. I am most concerned about some misunderstandings expressed in the public sphere about our views on the possible need for nuclear testing. Let there be no doubt: Today's nuclear weapons stockpile is safe and reliable and has not required post-deployment nuclear testing to date, nor is nuclear testing currently anticipated or planned. But keeping this stockpile healthy is becoming an increasingly difficult challenge. Periodically we identify problems with warheads that in the past would have been resolved with nuclear tests. Our SSP has worked well so far to help us to avoid that prospect. The considered judgment of the national weapons laboratories directors, however, is that maintaining certification of the finely-tuned designs of an aging Cold War stockpile through the LEP effort and absent nuclear testing involves increasing risk.

An alternative path is a stockpile based on replacement warheads that, unlike Cold War legacy warheads, would be designed for certification without additional nuclear tests. Indeed, our experts best technical judgment *today* is that it will be less likely that we would need nuclear testing to maintain the safety, security, and reliability into the future of the nuclear stockpile if we pursue a reliable replacement path employing all the tools of the SSP, including advanced quantitative means, than if we continue to rely on today's legacy warheads. In December, I provided Congress classified information giving further details on these matters.

Why then do we think it's feasible to field an RRW without nuclear testing? There are four basic reasons:

- First, replacement warhead designs would provide more favorable reliability and performance margins than those currently in the stockpile, and would be less sensitive to incremental aging effects or manufacturing variances.
- Second, feasible replacement designs would be firmly rooted in the past nuclear test data base.
- Third, by pursuing reliable replacement designs now, we would be able to fully utilize the experience of those remaining designers and engineers who successfully fielded our current stockpile during the period of nuclear testing.

- Fourth, the SSP over the past decade has provided improved scientific and analytic tools, including advanced supercomputer simulation and sophisticated experimental capabilities, which were not available to the previous generation of designers/engineers. These tools have led to a much better understanding of the intricacies of nuclear weapons physics and engineering. Indeed, we know more about the complex issues of nuclear weapons performance today than we ever did during the period of nuclear testing.

These four factors, taken together, provide a solid foundation for our confidence that we can certify RRW designs without nuclear tests.

### **Factors Affecting Future Adjustments to our Nuclear Posture**

It is important for us to describe how our concept for transformation—in light of evolving geopolitical threat environments—could provide opportunities for further stockpile reductions. In this regard, the current plan for the nuclear force posture—developed in the 2001 NPR—established objectives for a range of deployed nuclear warheads, a nuclear force structure, and nuclear stockpile for 2012 as well as a general approach to sustain this force beyond 2012. Future administrations will of course adjust, refine and make changes to our posture in response to future events and circumstances. These changes might be unilateral or taken in concert with other nuclear powers. In any case, these changes will be governed by three basic factors: (1) the future geopolitical threat environment, (2) the success of technical efforts underway to ensure a safe, reliable and credible nuclear deterrent for the foreseeable future and to transform the nuclear weapons R&D and production infrastructure that supports it, and (3) our progress in fielding other strategic capabilities, including missile defenses and conventional precision strike.

Geopolitical uncertainties are likely to dominate future considerations of an adjusted force posture. Will Russia succeed in transforming to a democratic society with rule-of-law, respect for human rights, and integration, both economic and political, with the West? Will China’s military modernization and political trajectory affect the ability of the United States to protect key interests in the Pacific region? Will nuclear programs of North Korea, Iran, or emerging proliferants cause a proliferation “cascade” in which U.S. allies and friends in key regions contemplate “going nuclear”? How such questions evolve over the next decade and more will affect how future administrations assess national security needs—including plans for assurance of allies—and adjust the level of deployed nuclear warheads (up or down), the composition of deployed nuclear forces, or both.

There are other major uncertainties that are largely domestic in nature, and related to our efforts to sustain and, as necessary, modernize our forces. With regard to nuclear delivery systems, the planned force of 450 Minuteman III ICBMs will begin to reach end-of-life in 2018. Will there be support to develop and deploy a follow-on capability to the Minuteman III ICBM? If so, when and how many will we deploy? If the ICBM force is not replaced at its end-of-life but retired, other nuclear force elements may need to be bolstered to take its place. There are comparable decisions regarding a possible next generation long-range bomber (sooner) and/or replacement of nuclear ballistic missile submarines (later) that will factor in as well to considerations of adjusting the future nuclear posture.

With regard to the development of U.S. non-nuclear strategic capabilities, there is another set of uncertainties. Will prompt, long-range conventional global strike weapons be developed and deployed?

How many? What types? With what effects? What will be the future direction and scope of ballistic missile defenses? What technical advances/breakthroughs (e.g., hypersonic delivery systems) by the U.S. or potential adversaries will occur? Could these affect the military balance? Answers to these questions will determine whether such capabilities could complement nuclear strike capabilities or conceivably replace nuclear weapons for certain missions and thus lead to further adjustments in our posture.

With regard to the nuclear warheads themselves, our long-term goal is to rely more on the capabilities of the infrastructure and less on reserve warheads in the stockpile to respond to unforeseen events. Until we are confident that we have the capability to respond to unexpected developments, however, we will need to retain more reserve warheads than otherwise would be desired. Specifically, our inability to produce plutonium pits in sufficient quantities means that additional warheads are kept in reserve to hedge against technical problems that could arise in the stockpile or adverse geopolitical changes.

If we have an opportunity to realize the benefits of the RRW program, and a more responsive infrastructure that the RRW could facilitate, there will be opportunities for additional stockpile reductions. We are examining a series of potential milestones, reflecting progress on RRW and a responsive infrastructure, that would allow consideration of further adjustments to the reserve stockpile. Accomplishing these milestones would represent levels of confidence gained, or uncertainties reduced, as we proceed forward with stockpile and infrastructure transformation. At various points, accumulated progress would be assessed to see if further adjustments to the reserve stockpile are warranted. To the degree that geopolitical trends evolve in more favorable directions, opportunities exist to consider options for lower deployed as well as reserve forces.

### **Current Status of the RRW Program**

As I said at the beginning of my statement, the Consolidated Appropriations Act, 2008 did not fund completion of the RRW design definition and cost study. The Departments of Defense and Energy continue to believe that the warhead features characteristic of the RRW are the right ones for ensuring the future of our nation's nuclear deterrent. Moreover, Congress specifically requested that the Administration continue related work in FY 2008 in three key areas:

- First, the Act provided \$15 million for a new “Advanced Certification” campaign designed to address issues raised in the recent JASON’s study of the feasibility of certifying reliable replacement designs without nuclear testing.
- Second, the Act added \$10 million to the Enhanced Surety campaign to “to increase the safety and security of weapons in the existing stockpile and develop new technologies for incorporation into potential future systems.” This is fully consistent with efforts to apply state-of-the-art technology to replacement warhead designs to enhance security and prevent unauthorized nuclear weapons use by terrorists.
- Third, Congress appropriated \$15 million in the FY 2008 National Defense Appropriations Act for the U.S. Navy to carry out studies related to the integration of an RRW warhead with the Trident SLBM reentry system.

NNSA's FY 2009 budget request continues and extends FY 2008 related activities in the following areas:

**Advanced Certification (\$20 million request):** To continue efforts begun in FY 08 to review, evaluate and implement key recommendations from the JASON's RRW study regarding approaches to establishing an accredited warhead certification plan, without nuclear testing, in an era where changes to nuclear components will occur due to aging or design defects.

**Reliable Replacement Warhead (\$10 million request):** To enable maturation of the RRW design in order to address questions raised by the JASON's review of RRW feasibility study activities. Design refinement is necessary to establish parameters for potential impacts on certification. It will also facilitate documenting the work that has been completed through 2007 to support future administration decisions on options for our nuclear weapons stockpile.

Completion of the RRW study was not funded in part due to concerns that the Administration had not fully communicated its policies which guide nuclear forces, posture and programs, including the RRW program. The Administration will shortly provide to Congress a second paper to accompany its white paper on nuclear policy transmitted to Congress in July 2007 by Secretaries Rice, Gates and Bodman. This second paper outlines in detail the overall strategy which guides nuclear weapons programs including the size of the nuclear weapons stockpile and operationally-deployed strategic forces, and how we manage the risk of a less-than sufficient warhead production infrastructure. Our goal is to restore a consensus with Congress to complete the reliable replacement study as a means to insure that the next administration, as mandated by Congress, can complete a timely review of its nuclear posture.

Let me conclude my statement here. I thank the Chairman and the Committee for the opportunity to discuss these critical issues for our nation.

## **WEAPONS ACTIVITIES BUDGET SUMMARY**

### **Defense Programs**

The FY 2009 Budget Request for the programs funded within the Weapons Activities Appropriation is \$6.62 billion, an approximately 5.1 percent increase over the FY 2008 Consolidated Appropriations level. It is allocated to adequately provide for the safety, security, and reliability of the nuclear weapons stockpile and supporting facilities and capabilities.

Directed Stockpile Work (DSW) activities ensure the operational readiness of the nuclear weapons in the nation's stockpile through maintenance, evaluation, refurbishment, reliability assessment, weapon dismantlement and disposal, research, development, and certification activities. The FY 2009 request is organized by Life Extension Programs, Stockpile Systems, Reliable Replacement Warhead, Weapons Dismantlement and Disposition, and Stockpile Services. The request places a high priority on accomplishing the near-term workload and supporting technologies for the stockpile along with long-term science and technology investments to ensure the capability and capacity to support ongoing missions.

The FY 2008 Consolidated Appropriations Act did not contain funding for the Reliable Replacement Warhead (RRW). The Administration believes that the characteristic features of the RRW are the right ones for ensuring the future of our Nation's nuclear deterrent force. The FY 2009 request includes \$10 million to continue the design definition and cost study. The request also continues efforts called out in the Explanatory Statement referenced in Section 4 of Public Law 110-161 to address issues raised in the recent JASON's summer study of the feasibility of certifying RRW designs without nuclear testing.

Campaigns are focused on scientific and technical efforts essential for the certification, maintenance and life extension of the stockpile. The Stockpile Stewardship Program has allowed NNSA to maintain the moratorium on underground testing and move to "science-based" certification and assessments for stewardship by relying on experiments, modeling, simulation, surveillance and historical underground nuclear testing experience. The Science and Engineering Campaigns are focused to provide the basic scientific understanding and the technologies required for the directed stockpile workload and the completion of new scientific and experimental facilities. In the Inertial Confinement Fusion Ignition and High Yield Campaign, the National Ignition Facility (NIF) will focus on completing the first experiment on NIF with a credible chance of demonstrating laboratory-scale ignition in 2010. The Advanced Simulation and Computing Campaign will continue to improve capabilities through development of faster computational platforms in partnership with private industry, and with state of the art techniques for calculations, modeling and simulation, and analysis of highly complex weapons physics information. The Readiness Campaign consists of technology-based efforts to reestablish and enhance manufacturing and other capabilities needed to meet planned weapon component production.

The FY 2009 request makes several changes in the location of programs within Weapons Activities. The Pit Manufacturing and Certification Campaign recently concluded with the successful manufacturing and certification of the W88 pit. Pit manufacturing related activities are moved to the Direct Stockpile Work Stockpile Services program and pit certification activities are transferred to the Science Campaign. In addition, in the Science Campaign, the Advanced Certification program will

continue efforts begun in FY 2008 at the direction of the Congress to review, evaluate and implement key recommendations from the JASON's RRW study regarding approaches to establishing an accredited warhead certification plan without nuclear testing. Work being performed to understand potential improvised nuclear device designs and responses is being transferred to the nuclear weapons incident response account.

### **Secure Transportation Asset**

The Secure Transportation Asset's FY 2009 Budget Request is an increase of \$9.5 million to \$221.1 million. This funding request supports the increase to transportation capacity necessary for the dismantlement of nuclear weapons, departmental initiatives to consolidate and disposition nuclear material, and the implementation of the current operational doctrine to protect nuclear weapons and material in transport.

### **Readiness in Technical Base and Facilities (RTBF) and Facilities and Infrastructure Recapitalization Program (FIRP)**

In FY 2009, we are requesting \$1.89 billion for the maintenance and operation of existing facilities, remediation and disposition of excess facilities, and construction of new facilities. Of this amount, \$1.72 billion is requested for RTBF, an increase of \$83.1 million from FY 2008 operating levels, with \$1.41 billion reserved for Operations and Maintenance. The Operations and Maintenance portion also includes the Institutional Site Support program which supports facility transition and capability consolidation. The request includes \$308.0 million for RTBF Construction.

This request also includes \$169.5 million for the Facilities and Infrastructure Recapitalization Program (FIRP), a separate and distinct program that is complementary to the ongoing RTBF efforts. The FIRP mission, which we expect to be completed in FY 2013, is to restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex, in partnership with RTBF. This program assures that facilities and infrastructure are restored to an appropriate condition to support the mission, and to institutionalize responsible and accountable facility management practices. The Integrated Prioritized Project List (IPPL) is the vehicle that FIRP will rely on to prioritize and fund outyear projects to reduce legacy deferred maintenance. These projects significantly reduce the deferred maintenance backlog to acceptable levels and support the Stockpile Stewardship mission and transformation of the complex.

This request also includes \$77.4 million for the newly established Transformation Disposition (TD) Program. TD is NNSA's facility and infrastructure (F&I) retirement program for old, Cold War-era structures. The NNSA owns over 35 million gross square feet of footprint and over 25% of the footprint may become excess as a result of complex transformation. TD is established with the goal of reducing non-process and contaminated excess F&I. This includes facilities that are excess to current and future NNSA mission requirements, including those contaminated structures which are not currently the responsibility of the Office of Environmental Management. This program supports the performance measure of reducing the total square feet, improves management of the NNSA facilities and infrastructure portfolio, and reduces long-term costs and risks. The TD Program will set the groundwork for a smaller complex.

All of these activities are critical for the development of a more responsive infrastructure and will be guided by decisions based on the Complex Transformation Supplemental Programmatic Environmental Impact Statement (SPEIS) and other factors such as funding and national security requirements. Since a significant fraction of our production capability resides in World War II era facilities, infrastructure modernization, consolidation, and sizing consistent with future needs is essential for an economically sustainable Complex. Facilities designed according to modern manufacturing, safety, and security principles will be more cost-effective and responsive to future requirements. For example, a facility could be designed to support a low baseline capacity and preserve the option, with a limited amount of contingency space to augment capacity, if authorized and needed, to respond to future needs.

Having a reliable plutonium capability is a major objective of NNSA planning and is a key requirement if the nation is to maintain an effective deterrent, regardless of the composition of the stockpile. Options for plutonium research, surveillance, and pit production are being evaluated as part of the Complex Transformation NEPA process, with a decision anticipated in 2008. The preferred alternative in the draft Complex Transformation SPEIS proposes that Los Alamos National Laboratory facilities at Technical Area 55 (TA-55) provide plutonium research, surveillance and pit production capabilities. This alternative includes the proposed Chemistry and Metallurgy Research Replacement – Nuclear Facility (CMRR-NF) to achieve the objectives of (1) closing the aging existing Chemistry and Metallurgy Research (CMR) facility, (2) replacing essential plutonium surveillance and research capabilities currently at Lawrence Livermore National Laboratory and those being conducted in Plutonium Facility 4 (PF-4) in TA-55, and (3) achieving a net manufacturing capacity of 50 – 80 pits per year by allowing surveillance activities now occurring in PF-4 to be conducted in CMRR.

Completion of the Highly Enriched Uranium Materials Facility (HEUMF) would allow a reduction of the overall size of the high security area at the Y-12 National Security Complex. If NNSA ultimately decides to build a Uranium Processing Facility (UPF) at Y-12, then Y-12's high security area would be reduced from 150 acres to 15 acres. This reduction combined with the engineered security features of the HEUMF and UPF, would allow NNSA to meet the Design Basis Threat (DBT) at significantly reduced costs, to lower non-security costs, and to provide a responsive highly enriched uranium manufacturing capability.

## **Environmental Projects and Operations**

The Environmental Projects and Operations/Long-Term Stewardship Program is requested at \$40.6 million in FY 2009. This program serves to reduce the risks to human health and the environment at NNSA sites and adjacent areas by: operating and maintaining environmental clean-up systems; performing long-term environmental monitoring activities; and integrating a responsible environmental stewardship program with the NNSA mission activities. The increase in this program is necessary to continue compliance with statutory requirements and to provide Long-Term Stewardship activities for two additional NNSA sites.

### **Nuclear Weapons Incident Response**

The Nuclear Weapons Incident Response (NWIR) Program serves as the United States' primary capability for responding to and mitigating nuclear and radiological incidents worldwide. The FY 2009 Request for these activities is \$221.9 million, of which \$31.7 million is dedicated to the continued implementation of two national security initiatives that will strengthen the Nation's emergency response

capabilities—the National Technical Nuclear Forensics (NTNF) and the Stabilization Implementation programs.

The NTNF program will continue the development of capabilities to support pre- and post-detonation activities and enhance technical nuclear forensics capabilities. The continued development of this capability will facilitate the thorough analysis and characterization of pre- and post-detonation radiological and nuclear materials and devices, including devices used in nuclear detonations as well as interdicted devices. Developing forensic capabilities of this nature is crucial to the overall objective of identifying the origin and pathways of interdicted nuclear materials, warheads and improvised nuclear devices.

Stabilization is a capability aimed at using advanced technologies to enhance the U.S. Government's ability to interdict, delay and/or prevent operation of a terrorist's radiological or nuclear device until national assets arrive on the scene to conduct traditional "render safe" procedures. NNSA has actively sponsored new research in this area and, additionally, continues to leverage emerging technologies that have been demonstrated successfully by the DoD in support of the global war on terrorism. In the implementation phase, NNSA will transfer these matured projects into operational testing to selected teams across the country, potentially followed by their transition into the collection of tools available to Federal response teams.

### **Physical and Cyber Security**

The FY 2009 Budget Request for Defense Nuclear Security is \$737.3 million, a 7.7 percent decrease from the FY 2008 appropriation. The FY 2009 request supports the base program and the program's focus on sustaining the NNSA sites 2003 Design Basis Threat baseline operations and implementing the 2005 DBT Policy upgrades with the Nevada Test Site reaching compliance in FY 2009. Starting in FY 2009, there is no longer an offset in this account or in the Departmental Administration account for the security charges associated with reimbursable work. These activities will be fully funded by the programs with direct appropriations.

During FY 2009, 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 are no new construction starts.

The FY 2009 Budget Request for Cyber Security is \$122.5 million, an 11 percent increase from the FY 2008 appropriation. The FY 2009 Budget Request is focused on sustaining the NNSA infrastructure and upgrading elements designed to counter cyber threats and vulnerabilities from external and internal attacks. This funding level will support cyber security revitalization, enhancements in assets and configuration management, and identify emerging issues, including research needs related to computer security, privacy, and cryptography.

Additionally, the Cyber Security funding will provide for enhancement, certification, and accreditation of unclassified and classified computer systems to ensure the proper documentation of risks and

justification of associated operations for systems at all sites. The funding within this request will also be applied to foster greater cyber security awareness among Federal and contractor personnel. NNSA will sponsor a wide range of educational initiatives to ensure that our workforce possesses the ever-expanding cyber security skills critical to safeguarding our national security information. Funding provided to NNSA sites will be conditioned upon their implementation of a risk-based approach to cyber security management and policy.

# **National Nuclear Security Administration**

## **Appropriation and Program Summary Tables Outyear Appropriation Summary Tables**

### **FY 2009 BUDGET TABLES**

## National Nuclear Security Administration

### Overview

(dollars in thousands)

	FY 2007 Current Appropriations	FY 2008 Original Appropriation	FY 2008 Adjustments	FY 2008 Current Appropriation	FY 2009 Request
<b>National Nuclear Security Administration</b>					
Office of the Administrator	358,291	405,987	-3,850	402,137	404,081
Weapons Activities	6,258,583	6,355,633	-58,167	6,297,466	6,618,079
Defense Nuclear Nonproliferation	1,824,202	1,673,275	-15,279	1,657,996	1,247,048
Naval Reactors	781,800	781,800	-7,114	774,686	828,054
<b>Total, NNSA</b>	<b>9,222,876</b>	<b>9,216,695</b>	<b>-84,410</b>	<b>9,132,285</b>	<b>9,097,262</b>
Rescission of Prior Year Balances	0	-322,000	0	-322,000	0
<b>Total, NNSA (OMB Scoring)</b>	<b>9,222,876</b>	<b>8,894,695</b>	<b>-84,410</b>	<b>8,810,285</b>	<b>9,097,262</b>

### Appropriation Summary

#### Outyear Appropriation Summary

#### NNSA Future-Years Nuclear Security Program (FYNSP)

(dollars in thousands)

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
<b>NNSA</b>					
Office of the Administrator	404,081	419,848	436,266	451,771	469,173
Weapons Activities	6,618,079	6,985,695	7,197,844	7,286,912	7,460,318
Defense Nuclear Nonproliferation	1,247,048	1,082,680	1,076,578	1,111,337	1,133,982
Naval Reactors	828,054	848,641	869,755	880,418	899,838
<b>Total, NNSA</b>	<b>9,097,262</b>	<b>9,336,864</b>	<b>9,580,443</b>	<b>9,730,438</b>	<b>9,963,311</b>

**OFFICE OF THE ADMINISTRATOR  
NATIONAL NUCLEAR SECURITY ADMINISTRATION**

**Overview**

**Appropriation Summary by Program**

(dollars in thousands)

FY 2007 Current Appropriation	FY 2008 Original Appropriation	FY 2008 Adjustments	FY 2008 Current Appropriation	FY 2009 Request	\$ Change
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**Office of the Administrator**

**Office of the  
Administrator**

358,291<sup>a</sup>    383,487    -3,490    379,997    404,081    +24,084

**Congressional Directed  
Projects**

0    22,500    -360    22,140    0    -22,140

**Total, Office of the  
Administrator**

358,291    405,987    -3,850<sup>b</sup>    402,137    404,081    +1,944

**Public Law Authorization:**

FY 2008 Consolidated Appropriations Act (P.L. 110-161)

National Nuclear Security Administration Act, (P.L. 106-65), as amended

**Outyear Appropriation Summary**

(dollars in thousands)

FY 2010	FY 2011	FY 2012	FY 2013
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**Office of the Administrator**

419,848    436,266    451,771    469,173

<sup>a</sup> Reflects the Congressionally approved appropriation transfer of \$17,000,000 (07-D-04) from a source within the Weapons Activities appropriation and \$1,000,000 from the FY 2007 supplemental in support of the Defense Nuclear Nonproliferation program.

<sup>b</sup> Reflects a rescission of \$3,850,000 as cited in the FY 2008 Consolidated Appropriations Act (P.L. 110-161).

## Weapons Activities

### Funding Profile by Subprogram

(dollars in thousands)

	FY 2007 Current Appropriation	FY 2008 Original Appropriation	FY 2008 Adjustments	FY 2008 Current Appropriation	FY 2009 Request
<b>Weapons Activities</b>					
Directed Stockpile Work	1,430,192	1,413,879	-12,627	1,401,252	1,675,715
Science Campaign	267,758	290,216	-2,592	287,624	323,070
Engineering Campaign	161,736	171,075	-1,527	169,548	142,742
Inertial Confinement Fusion Ignition and High Yield Campaign	489,706	474,442	-4,236	470,206	421,242
Advanced Simulation and Computing Campaign	611,253	579,714	-5,177	574,537	561,742
Pit Manufacturing and Certification Campaign	242,392	215,758	-1,927	213,831	0
Readiness Campaign	201,713	159,512	-1,424	158,088	183,037
Readiness in Technical Base and Facilities	1,613,241	1,652,132	-14,751	1,637,381	1,720,523
Secure Transportation Asset	209,537	213,428	-1,905	211,523	221,072
Nuclear Weapons Incident Response Facilities and Infrastructure	133,514	160,084	-1,429	158,655	221,936
Recapitalization Program	169,383	181,613	-1,622	179,991	169,549
Environmental Projects and Operations	0	8,669	-77	8,592	40,587
Transformation Disposition	0	0	0	0	77,391
Defense Nuclear Security	656,653	806,434	-7,201	799,233	737,328
Cyber Security	104,505	101,191	-904	100,287	122,511
Congressionally Directed Projects	0	48,000	-768	47,232	0
<b>Subtotal, Weapons Activities</b>	<b>6,291,583</b>	<b>6,476,147</b>	<b>-58,167</b>	<b>6,417,980</b>	<b>6,618,445</b>
Security Charge for Reimbursable Work	-33,000	-34,000		-34,000	0
Use of Prior Year Balances	0	-86,514		-86,514	-366
<b>Total, Weapons Activities</b>	<b>6,258,583</b>	<b>6,355,633</b>	<b>-58,167</b>	<b>6,297,466</b>	<b>6,618,079</b>

### Public Law Authorization:

FY 2008 Consolidated Appropriations Act (P.L. 110-161)

National Nuclear Security Administration Act, (P.L. 106-65), as amended

## Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2010	FY 2011	FY 2012	FY 2013
<b>Weapons Activities</b>				
Directed Stockpile Work	1,762,079	1,789,979	1,760,218	1,776,388
Science Campaign	309,091	295,192	296,662	299,902
Engineering Campaign	148,863	146,565	150,475	153,907
Inertial Confinement Fusion Ignition and High Yield Campaign	434,007	381,173	373,005	377,762
Advanced Simulation and Computing Campaign	526,373	510,808	514,405	520,645
Pit Manufacturing and Certification Campaign	0	0	0	0
Readiness Campaign	170,003	161,139	161,130	164,295
Readiness in Technical Base and Facilities	1,904,398	2,153,557	2,275,909	2,372,916
Secure Transportation Asset	249,555	261,543	268,134	269,325
Nuclear Weapons Incident Response	229,661	235,211	242,425	250,947
Facilities and Infrastructure Recapitalization Program	192,945	196,379	195,096	194,779
Environmental Projects and Operations	37,288	39,026	37,468	36,040
Transformation Disposition	89,457	88,589	88,008	87,863
Defense Nuclear Security	818,285	817,809	793,856	814,928
Cyber Security	113,690	120,874	130,121	140,621
<b>Total, Weapons Activities</b>	<b>6,985,695</b>	<b>7,197,844</b>	<b>7,286,912</b>	<b>7,460,318</b>

