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**Before the**  
**Committee on Armed Services**  
**U.S. Senate**

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**Introduction**

Mr. Chairman and members of the Committee, thank you for the opportunity to meet with you today on the Nuclear Posture Review and the National Nuclear Security Administration's (NNSA) role in working with the Department of Defense to implement it.

The NPR review of future national security needs, and the nuclear weapons stockpile and infrastructure required to support it, was carried out by DoD in close consultation and cooperation with the NNSA. Secretary Abraham and I fully endorse Secretary Rumsfeld's December 2001 Report to Congress on the NPR.

The central question that I want to address today is: What are the implications of the NPR for nuclear weapons programs? More broadly, what does NNSA need to do to implement the findings and recommendations of the NPR? Let me first give the "short answer," which I will then develop more fully.

First, the NPR reaffirms that nuclear weapons, for the foreseeable future, will remain a key element of U.S. national security strategy. As a result, NNSA must continue to assure the safety and reliability of the U.S. nuclear stockpile. Our stockpile stewardship program is designed to do just that, and to do so in the absence of nuclear testing.

Second, the NPR reaffirms the stockpile refurbishment plan agreed previously between DoD and NNSA, which calls for three warhead refurbishment programs—the W80, the W76 and the B61—to begin later this decade. As a result, NNSA must press ahead with its efforts to reverse the deterioration of its nuclear weapons infrastructure, restore lost production capabilities, and modernize others in order to be ready to begin those refurbishments on schedule.

This raises a key point—the NPR will not reduce NNSA's costs or workload anytime soon. Regardless of the eventual size of the future stockpile, we will need to meet the agreed timelines, established with DoD well before the NPR, to begin refurbishments later this decade on the three warhead types. In this regard, near-term costs are driven not by the total number of warheads to be refurbished, but by the need to restore production capabilities in time to carry out the first refurbishment of each type. Possible cost savings from having to refurbish fewer warheads for a smaller stockpile would not be realized until well into the next decade.

Third, several NNSA initiatives have been endorsed by the NPR including efforts to:

- Enhance nuclear test readiness,
- Reestablish nuclear warhead advanced concepts teams at the national labs/HQ, and
- Accelerate preliminary design work on a modern pit facility (MPF).

Given our multi-year plan to reintroduce program stability to the enterprise, we believe we are “on track” to complete acquisition of the tools and capabilities needed to assure future stockpile safety and reliability, achieve the needed restoration and modernization of the production complex, and implement the NPR initiatives.

### **Role of the Nuclear Weapons Enterprise in Achieving Defense Policy Goals**

Let me elaborate more on these matters starting from “first principles.” Four key defense policy goals were articulated in the Quadrennial Defense Review and later reaffirmed in the NPR.

Briefly, the goals are to:

- *assure* allies and friends by demonstrating the United States’ steadiness of purpose and capability to fulfill its military commitments,
- *dissuade* adversaries from undertaking military programs or operations that could threaten U.S. interests or those of allies and friends,
- *deter* threats and counter coercion against the United States, its forces and allies, and
- *defeat* any adversary decisively and defend against attack if deterrence fails.

In seeking to meet these goals, the NPR has established as its centerpiece a “New Triad” of flexible response capabilities consisting of the following elements:

- non-nuclear and nuclear strike capabilities including systems for command and control,
- active and passive defenses including ballistic missile defenses, and
- R&D and industrial infrastructure needed to develop, build, and maintain nuclear offensive forces and defensive systems.

Perhaps more so than in any previous defense review, this concept of a New Triad reflects a broad recognition of the importance of a robust and responsive defense R&D and industrial base in achieving our overall defense strategy.

The ability of our modern defense industrial base to bring advanced defense technology rapidly to the field is well respected internationally among both friend and foe. The breadth and scope of the U.S. strategic modernization program of the early 80’s, including the potential of a Strategic Defense Initiative (SDI) then in the very early stages of R&D, was key to causing President Gorbachev in the late 1980’s to seek an end to strategic competition with the West and an end to the Cold War. The U.S. defense R&D and industrial base, including the nuclear weapons complex of national laboratories, production plants, and test sites that supported development of sophisticated warheads with build rates exceeding 1,000 weapons per year, permitted that modernization program to take place and was a major factor in reassuring allies (who depend on the U.S. nuclear umbrella), in dissuading, that is, convincing the Soviet Union that arms competition with the United States was futile, and in deterring aggression.

Many modern military capabilities evolved from the legacy of the Manhattan Project, characterized by the massive application of science and technology to the problem of developing and producing the atomic bomb and leading to later efforts across a range of military systems. It was not only nuclear and conventional forces that provided deterrence during the Cold War, but the latent potential—reflected in our defense scientific, technical and manufacturing base—to design and develop ever more advanced and capable military systems, and the ability to produce them in great quantities if need be.

Now that the Cold War is over, how can the nuclear weapons enterprise act both to reassure allies, and to dissuade or deter future adversaries? An enterprise focused on sustainment and sized to meet the needs of a smaller nuclear deterrent can provide capabilities to respond to future strategic challenges. A future competitor seeking to gain some nuclear advantage would be forced to conclude that its buildup could not occur more quickly than the U.S. could respond. Alternatively, an ability to innovate and produce small builds of special purpose weapons, characteristic of a smaller but still vital nuclear infrastructure, would act to convince an adversary that it could not expect to negate U.S. nuclear weapons capabilities. The development and subsequent modification of the B61-7 bomb—converting a few of them into B61-11 earth penetrator weapons—is a case in point.

Thus, it is not only in-being forces, but the demonstrable capabilities of the defense scientific, technical and manufacturing infrastructure, of which a responsive nuclear weapons infrastructure is a key part, including its ability to sustain and adapt, that provides the United States with the means to respond to new, unexpected, or emerging threats in a timely manner. This has served to reassure allies and friends, dissuade adversaries from strategic competition with the U.S., and underpin credible deterrence in a changing security environment.

### **Supporting the NPR—Capabilities for a responsive nuclear weapons enterprise**

How far along are we in creating a “responsive nuclear weapons enterprise?” The answer is: “We’re making progress, but we have a ways to go.”

Over the past decade, our focus has been to develop means to assess and ensure the safety and reliability of the aging stockpile absent underground nuclear testing. We have also sought to reduce the size of the production infrastructure, consistent with post-Cold War force levels, with the goal of modernizing that smaller infrastructure to assure that the nation has the capabilities it will need in the future.<sup>1</sup> The results of these efforts have been mixed. To date we have been able to certify stockpile safety and reliability without underground nuclear testing, but the capability to do so in the future as the stockpile continues to age remains uncertain. No advanced warhead concept development is underway. Past under investment in the enterprise—in particular, the production complex—has increased risks and will limit future options. Currently, we cannot build and certify plutonium “pits” and certain secondary components, much less complete warheads (although we are working hard to re-establish these capabilities). Many facilities are in poor condition—some are unusable—and we have a rapidly aging workforce. Restoring lost

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<sup>1</sup> Among other things, over the past decade we have closed three facilities—Rocky Flats (pit production and reservoirs), the Mound Plant (non-nuclear components), and the Pinellas Plant (neutron generators)—and reduced floor space by over 50% in the manufacturing facilities at Y-12.

nuclear weapons capabilities, and modernizing others, will require substantial investment over the next several years both to recapitalize laboratory and production infrastructure, and to strengthen our most important asset: our people.

The nuclear weapons enterprise that we seek must: (1) continue to assure stockpile safety, reliability, and performance, and (2) respond rapidly and decisively to stockpile “surprise” or to changes in the international security environment. Let me address each in turn.

***Assure stockpile safety, reliability, and performance***

Since 1995, there has been a Presidential requirement for an annual assessment of the safety and reliability of the nuclear stockpile and a determination of whether a nuclear test is required to resolve any safety or reliability problem. This is an extensive technical effort supported by data from non-nuclear experiments, computer simulations, the nuclear test database, aggressive and ever-improving surveillance, extensive peer review by “other lab” design teams, and independent assessments by others.

To strengthen weapons assessment and certification, we are seeking fundamental improvement in our understanding of the physics of nuclear explosions, including the effects of aging or remanufacture on weapons system performance. This requires development of new simulation capabilities that use large, high-speed computers and new experimental facilities in areas such as hydrodynamics testing, materials science, and high-energy density physics. Campaign goals for reducing uncertainties in our understanding of weapons behavior have been established, and schedules and milestones have been set to meet these goals as soon as practicable. Because of the implications for stockpile certification, and the need to meet warhead refurbishment milestones, it is important to keep these campaigns on schedule.

Elements of our program to meet annual certification requirements are well along and include:

- Aggressive surveillance to predict and find problems so that warheads can be refurbished well before aging degrades safety and reliability,
- Conduct planned warhead refurbishments on agreed schedules,
- Seek to anticipate stockpile problems and fix them, if possible, before they arise, and
- Maintain the required numbers of warheads in ready state.

***Respond rapidly and decisively to stockpile “surprise”  
or to changes in the international security environment.***

The NPR highlighted the importance of a robust and responsive defense R&D and industrial base as a key element of the New Triad. Here we refer to the ability of the enterprise to anticipate innovations by an adversary and to counter them before our deterrent is degraded, and its resilience to unanticipated events or emerging threats—all the while continuing to carry out the day-to-day activities in support of the enduring stockpile. Unanticipated events could include the catastrophic failure of a deployed warhead type. Emerging threats could call for new warhead development, or support to DoD in uploading the responsive force. In any case, there are a number of capabilities and activities that will help us to hedge an uncertain future including our ability to:

- Ensure sufficient reserve or surge capacity for both the R&D and production,
- Secure sufficient assets/capabilities (e.g., transportation, tritium, etc.) to support the

- responsive force,
- Retain appropriate numbers and types of weapons at appropriate states of readiness, to ensure a variety of replacement options,
  - Revitalize nuclear weapons advanced concepts efforts at the labs and headquarters,
  - Develop and assess strategies for transitioning the stockpile towards weapons that are intrinsically easier to maintain and certify, conceivably without nuclear testing, and
  - Enhance readiness to resume underground nuclear testing, if required.

A key measure of “responsiveness” is how long it would take to carry out certain activities to address stockpile “surprise” or deal with new or emerging threats. Specific goals are being established for the following four activities; our progress towards meeting them will be an important measure of the success of our program.

***Fix stockpile problems:*** The ability to assess a stockpile problem, once one has been identified, and then design, develop, implement and certify a fix will of course depend on the nature and scope of the problem. For a relatively major problem, we seek to be able to assess the problem and establish an implementation plan—Phases 6.2–6.2A—for the “fix” within one year, and then to conduct development and production engineering activities leading to initial production—Phases 6.3–6.5—within approximately three years.

***New warhead design, development and initial production:*** New or emerging WMD threats from rogue states make it difficult to predict future deterrence requirements. If the U.S. is to have a flexible deterrent, it must be able to adapt its nuclear forces to changing strategic conditions. Adaptation and modernization of forces, including implementation of new technologies, will enable us to continue to achieve deterrence objectives more efficiently even as we move to significantly lower force levels. Our goal is to maintain sufficient R&D and production capability to be able to design, develop, and begin production on the order of five years from a decision to enter full-scale development of a new warhead.<sup>2</sup> To achieve this goal, we must work with DoD to determine and prioritize potential weapons needs over the long term. In certain cases, it may be appropriate to design, develop and produce a small build of prototype weapons both to exercise key capabilities and to serve as a “hedge,” to be produced in quantity when deemed necessary.

***Quantity production of new warheads:*** While there are no plans to increase the size of the stockpile, we must have flexibility to respond to various scenarios. Our goal is to maintain sufficient production capacity to be able to produce new warheads in sufficient quantities to meet defense requirements without disrupting ongoing refurbishments. In this connection, refurbishment demands starting later in this decade, and continuing until about 2014, are expected to dominate production capacity. If necessary, we would work with DoD to adjust production priorities.

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<sup>2</sup> During the era in which the current stockpile was designed, developed, tested, and manufactured, the Phase 3-5 timeframe (design, development, initial production) was roughly 5 years. At that time, continuing new requirements provided a “pipeline” capability so that weapons were regularly entering the stockpile.

***Support to DoD in uploading the responsive force:*** We must assure that NNSA’s tasks, such as warhead transportation, tritium support, etc., are not “long poles in the tent” for uploading the responsive force. That is, they must be carried out on a time scale consonant with DoD’s ability to upload these weapons. Sufficient numbers of responsive warheads must be maintained in the active stockpile to ensure that ready warheads are available to meet upload timelines.

**How do we get to where we want to be?—National commitment and a multi-year plan**

What do we need to do in order to achieve the capabilities of a modern and flexible nuclear weapons design and production enterprise? In short, we need to revitalize and sustain our production capabilities, our R&D and technology base, and our world-class workforce. Critical to this is a national commitment to safe and reliable nuclear forces, which the NPR has reaffirmed, and implementation of a stable, multi-year fiscal plan. Such a plan would provide the long-term commitment and stability to restore or modernize critical infrastructure and capabilities so that we can meet future workload requirements under a more rigorous regulatory regime. It would also allow us to redress the deferred maintenance backlogs, assure world-class science and engineering capabilities and workforce, and carry out the initiatives of the NPR. Let me elaborate further.

***Modernize nuclear weapons production capabilities***

The production complex, which has seen site closures and considerable downsizing since the end of the Cold War, consists of the following “one of a kind” facilities: the Y-12 Plant (uranium and other components), Pantex Plant (warhead assembly, disassembly, disposal, high explosive components), Kansas City Plant (non-nuclear components), and Savannah River Plant (tritium extraction and handling). In addition, production activities for specific components occur at two national labs: Sandia National Laboratories (neutron generators), and Los Alamos National Laboratory (plutonium/beryllium parts, detonators, tritium targets for neutron generators).

The current production complex is limited in the number of weapons that can be processed at the Pantex Plant, with the work split among units undergoing surveillance, refurbishment or dismantlement. Planned renovations of existing facilities will expand capacity sufficient to meet the anticipated NPR workload and include a small reserve that would be available to fix unanticipated problems in the stockpile, respond to new warhead production requirements, or handle a potentially increased dismantlement workload (resulting from force reductions) without disrupting planned refurbishments.

Qualified processes for some uranium manufacturing and processing are not currently in place, but plans are underway to expand the capacity and capability of the Y-12 Plant to meet the planned workload for replacing warhead secondaries and other uranium components.

Regardless of the size of the future nuclear weapons stockpile, substantial work must be completed to get the production complex to the point where it is “ready” to begin refurbishment work on key systems later this decade. Additionally, new construction projects, including that for a modern pit production facility discussed below, are needed to ensure sufficient capacity for planned future-decade stockpile refurbishments.

### *Modernize the R&D and technology base*

Stockpile stewardship requires strong R&D capabilities to predict, discover, and evaluate problems in the current stockpile (especially those associated with component aging or defects), to design, develop and certify new warheads in the absence of testing, and to attract and retain a world-class technical staff. Thus, in addition to modernizing production capabilities, efforts are underway to restore and improve the technical base of the nuclear weapons enterprise and to develop advanced capabilities to meet future requirements. Key needs include:

- Continue to upgrade modeling and simulation capabilities,
- Improve hydrodynamic and sub-critical testing capabilities for warhead assessments,
- Complete high-energy density physics projects to improve understanding of the physics of nuclear explosions,
- Create modern microelectronics capabilities for DOE and DoD components, and
- Deploy modern production processes.

### *Secure and sustain a world-class work force*

Recruitment and retention of an expert workforce is a major challenge. The aging of the technical staff at the national laboratories, the production plants and the NTS is a concern highlighted by a variety of review groups, including the Congressionally-appointed Commission on Nuclear Weapons Expertise (Chiles Commission) and the Foster Panel. In its 1999 report, the Chiles Commission observed that the average age of those supplying critical skills to the weapons program is 48 years—a population considerably older than that for the average U.S. high-tech industry. A major factor in this demography was the low hiring rates in the early-to-mid-1990's as budgets for the weapons program were in decline. Recruiting rates have gone up modestly, but are still much lower than required to support planned programs. More recently, morale problems at the laboratories in the wake of security problems have raised concerns for retention, and recruiting has been more difficult than in the past because of competition from the private sector of the U.S. job market, limited knowledge about the program among the general population, and adverse publicity, among other factors.

But the tide is turning. Morale is improving. Both the laboratories and the plants are working closely with the Federal staff to attract and retain the future workforce. Maintaining a strong science component of the stockpile stewardship program, coupled with real opportunities for working on advanced warhead concepts, developing a strong intern program to integrate new scientists and engineers into the weapons program, improving ties with universities, fixing the deteriorating manufacturing infrastructure, and developing new R&D facilities such as NIF, DARHT and MESA where the most advanced research in the world is taking place, are all examples of these efforts. The loss of knowledge resulting from retirement and attrition, and the need to transfer critical knowledge heighten the urgency of this effort.

### **Implications of the NPR for key NNSA missions**

Next, I describe how specific NNSA missions will be affected by the NPR, and address the “game plan” for implementation of the NPR initiatives.

### *Stockpile Levels and Readiness Requirements*

The NPR stated a goal to reduce the operationally-deployed strategic stockpile to 3800 nuclear warheads by 2007 and 1700-2200 nuclear warheads by 2012. The force would be based on 14

Trident SSBNs (with 2 SSBNs in overhaul at any time), 500 Minuteman III ICBMs, 76 B-52H bombers, and 21 B-2 bombers. There would also be a non-strategic stockpile whose exact quantities and readiness requirements are still to be determined.

Although the NPR did not determine specific stockpile quantities or readiness requirements, it did introduce to the stockpile lexicon the categories *operationally-deployed* and *responsive*. Operationally-deployed warheads are warheads fully ready for use and either mated on, or allocated to, operational delivery systems; these warheads are part of the active stockpile.<sup>3</sup> Responsive warheads are warheads available to be uploaded to delivery systems in the event that world events require a more robust deterrence posture; most or all of these warheads would also be part of the active stockpile.

Remaining warheads not slated for retirement or dismantlement would be retained in the inactive stockpile, available for use in stockpile evaluation support or as one-for-one reliability replacements for warheads in the operationally deployed or responsive forces. Several factors would determine the nature, size and scope of warheads in this “*other*” category including: (1) progress in reestablishing lost production capabilities and infrastructure, (2) response times to fix problems in the stockpile, carry out other required refurbishments to sustain the stockpile, and develop and produce new or modified warheads, and (3) desire to retain a sub-population of non-refurbished warheads to hedge potential common mode failures. Some warheads in this category would, based on future decisions, be retired and eliminated. NNSA and DoD will work together to clarify the NPR “drawdown” in terms of the numbers and types of warheads, by year, to be maintained in the active and inactive stockpiles at various states of readiness.

### ***Stockpile surveillance***

In the past, if a stockpile problem occurred, there was the flexibility, with larger warhead numbers, to maintain deterrence requirements by reallocating warheads to targets. With the force reductions planned under the NPR, these options diminish. As a result, as we go to lower numbers, we need increased levels of confidence in the safety and reliability of remaining deployed forces. This drives the need for an increasingly robust surveillance program to not only strengthen our ability to detect existing stockpile problems but also to predict and respond to stockpile problems (including problems associated with aging) before they occur. Key efforts planned over the next few years will greatly increase our knowledge of component aging. A study to strengthen surveillance efforts has recently been completed; a detailed plan to implement its recommendations will be developed during this fiscal year.

### ***Stockpile Refurbishments—Meeting our commitments to DoD***

The NPR reaffirmed the current stockpile refurbishment plan jointly agreed by NNSA and DoD, including the “block upgrade” concept which provides flexibility to adjust the plan to evolving weapons numbers.<sup>4</sup> The plan calls for all eight warhead types in the enduring stockpile to be

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<sup>3</sup> Active weapons are fully maintained with all Limited Life Components (LLCs, e.g., tritium bottles) installed. Inactive weapons have the LLCs removed upon expiration.

<sup>4</sup> The “block upgrade” approach breaks up our major planned refurbishments into five-year “blocks,” with the option to either continue refurbishments with the current design, switch to a different design based on new

refurbished over the next 25 years. Near-term efforts focus on four warheads: the W87 (ICBM), the B61-7/11 (gravity bomb), the W80 (Air-Launched Cruise Missile (ALCM), Advanced Cruise Missile (ACM) and Tomahawk Land Attack Missile (TLAM-N)), and the W76 (Trident SLBM).

- **W87 (ICBM):** The W87 is currently being refurbished in order to enhance the structural integrity of the warhead. This includes small modifications to the primary, replacement of some non-nuclear components in the warhead, and refurbishment of some secondary components.
- **B61-7/11 (Bomb):** Some secondary components in the B61-7/11 show signs of aging that could affect warhead reliability, if left unchecked. B61-7/11 refurbishment, scheduled to begin in FY'06, will include secondary refurbishment and replacement of some foam support, cables, and connectors.
- **W80 (ALCM):** The W80 will need replacement of its neutron generators. This provides an opportunity to improve surety features and introduce a new gas transfer system. W80 refurbishment is scheduled to begin in FY'06.
- **W76 (SLBM):** W76 refurbishment, scheduled to begin in FY'07, will include re-qualifying the pit, replacing the primary high-explosive, secondary refurbishment, a new arming, fuzing and firing (AF&F) system, and a new gas transfer system.

Efforts to sustain and modernize our R&D infrastructure, restore our production capabilities, and recruit and retain a work force “second to none” are absolutely essential for the effective execution of stockpile refurbishment programs. Our ability to meet refurbishment timelines is a critical measure of merit for stockpile stewardship.

#### *Revitalization of nuclear weapons advanced concepts efforts*

The NPR recognized the need to revitalize nuclear weapons advanced concepts activity, which could include extending concepts that have been developed and tested but not yet deployed, as well as new concepts. To assess further nuclear weapons modernization options in connection with meeting new or emerging military requirements, NNSA has taken an initiative, endorsed by the NPR, to reestablish small advanced warhead concepts teams at each of the national laboratories and at Headquarters in Washington. DoD and NNSA will jointly review potential requirements for new or modified warheads, and identify opportunities for further study.

The vision is for small, focused teams (involving both lab and HQ personnel), in coordination with DoD and the services, to assess evolving military requirements, investigate options, and ensure our DoD partners understand what is and is not possible. The teams will carry out theoretical and engineering design work on one or more concepts, including options to modify existing designs or develop new ones. In some instances, these activities would proceed beyond the “paper” stage and include a combination of component and subassembly tests and simulations to introduce an appropriate level of rigor to challenge our designers.

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information provided by surveillance efforts or as a result of new mission requirements, or simply stop refurbishments based on reduced weapons requirements.

Importantly, this effort will provide opportunities to train the next generation of nuclear weapons scientists and engineers. Part of this effort will be to demonstrate capabilities to assess options and associated timelines for new warhead design, development, and production (e.g., to replace a failed warhead or to field a new system to meet new military requirements) and to assist efforts to assess cost and other implications of any adjustments in production readiness needed in response.

#### ***Warhead retirements and dismantlements***

Although no new retirements or eliminations of warheads were announced in the NPR, DoD and NNSA will jointly address the broad question of the size and character of the active stockpile and inactive stockpile. It will be prudent for NNSA to maintain reserve capacity, in addition to that planned for the near-term refurbishment workload, for warhead eliminations, addressing unforeseen problems in the stockpile, and for possible new production. Under current planning assumptions, NNSA would not define a firm schedule for dismantlements; rather NNSA would “load level” Pantex operations by scheduling dismantlements in a way that does not interfere with ongoing refurbishment or other production efforts.

#### ***Warhead transportation needs***

NNSA is responsible for the ground transportation of nuclear warheads and nuclear material within the U.S. including transport of warheads between DoD sites. We will need to assess the NPR’s implications for NNSA’s transportation workload. Decisions to retire or dismantle additional warheads as part of the drawdown, or warhead upload requirements, could drive increased transportation needs. The future transportation workload should be manageable given current plans to ramp up transportation assets and associated personnel. That said, NNSA will work with DoD to assure that longer-term warhead transportation needs deriving from the NPR can be met.

#### ***Enhanced Test Readiness***

President Bush supports a continued moratorium on underground nuclear testing; nothing in the NPR changes that. Over time, we believe that the stewardship program will provide the tools to ensure stockpile safety and reliability without nuclear testing. But there are no guarantees. It is only prudent to continue to hedge for the possibility that we may in the future uncover a safety or reliability problem in a warhead critical to the U.S. nuclear deterrent that could not be fixed without nuclear testing.

Based on a 1993 Presidential directive, NNSA currently maintains a capability to conduct an underground nuclear test within 24 to 36 months of a Presidential decision to do so. Test readiness is maintained principally by the participation of nuclear test program personnel in an active program of stockpile stewardship experiments, especially the subcritical experiments carried out underground at the Nevada Test Site (NTS).

During the NPR, two concerns were raised about our test readiness program. First, a two to three year readiness posture may not be sustainable as more and more experienced test personnel retire. Not all techniques and processes required to carry out underground nuclear tests are exercised with the work carried out at the NTS. As experienced personnel retire, it will become

more difficult to train new people in these techniques, further degrading test readiness. This argued for an approach in which key capabilities required to conduct nuclear tests are identified and exercised regularly on projects making use of a variety of nuclear test-related skills.

Second, the current two to three year posture may be too long. If we believed that a defect uncovered in the stockpile surveillance program, or through new insight gained in R&D efforts, had degraded our confidence in the safety and/or reliability of the W76 warhead—the warhead deployed on Trident submarines and comprising the most substantial part of our strategic deterrent—the ability to conduct a test more quickly might be critically important.

To address these concerns, the NPR endorsed the NNSA proposal to enhance test readiness by reducing the lead-time to prepare for and conduct an underground nuclear test. To support this, NNSA has allocated \$15 M in FY '03 to begin the transition to an enhanced test readiness posture. Funds will be used, among other things, to:

- augment key personnel and increase their operational proficiency,
- begin the mentoring of the next generation of testing personnel,
- conduct additional subcritical experiments and test-related exercises,
- replace key underground-test-unique components,
- modernize certain test diagnostic capabilities, and
- decrease the time required to show regulatory and safety compliance.

NNSA will work with DoD over coming months to refine test scenarios and evaluate cost/benefit tradeoffs in order to determine, implement, and sustain the optimum test readiness time.

#### *Accelerate Planning for a Modern Pit Facility (MPF)*

Our inability to produce and certify plutonium pits is a shortfall in our stockpile stewardship program. Pit production was terminated at Rocky Flats in 1989 and is now being re-established on a limited scale at Los Alamos National Laboratory. Only engineering test units of a single warhead type have been produced to date, however, and no “war reserve” units are expected to enter the stockpile for about seven years. Current plans envision Los Alamos producing about 20 pits per year with a surge capacity to perhaps 50.

The current pit production strategy is first to carry out an assessment of pit lifetime, through our enhanced surveillance campaign, to yield initial results by FY'03 with completion by FY'06. Once that is completed, our policy is to reestablish pit production capability in a time frame and with a capacity sufficient to meet national needs. Implementing that policy means fielding a capability that is:

- available in time to replace pits that exceed minimum projected lifetime,
- sized to support the planned workload, with ready reserve to address “surprise”, requirements for force augmentation, and potential new warhead production, and
- modular (i.e., expandable further) if further needs dictate.

One thing is now certain—the Los Alamos production capacity will be insufficient to meet future requirements for pits. As a result of the NPR, we seek to accelerate planning and initial design work to establish an MPF. Relevant activities about to begin include preliminary MPF design,

associated technology development, and initiation of the National Environmental Policy Act process.

### *Tritium*

While the NPR will result in a smaller active stockpile of both operationally deployed and responsive forces, the nuclear stockpile—by warhead type, by year, and by readiness state—has not yet been determined. This will be done in detail as part of the NWC process and will enable NNSA to plan for the delivery of sufficient tritium to meet all military requirements. Because stockpile reductions will not be accomplished for several years, we do know that there will be no near-term reduction in the immediate demand for tritium. NNSA plans to begin tritium production in commercial reactors in Fall '03, and to complete construction and begin operations of a new Tritium Extraction Facility (TEF) at the Savannah River Site so that tritium can be delivered to the stockpile in advance of need.

It will be important for NNSA to assess future tritium needs in light of a number of factors in addition to NPR reductions in the active stockpile. These include potential changes to the tritium loadings of several warhead types and potentially increased “pipe line” needs at the Savannah River tritium facilities (in connection with the new extraction facility).

### **Conclusion**

Mr. Chairman, today, our nuclear stockpile is safe, secure, and reliable. We are working hard to assess the implications of the NPR for NNSA and to work closely with our DoD partners in implementation. Most importantly, the flexibility to sustain our nuclear weapons stockpile, to adapt current weapons to new missions, or to field new weapons, if required, depends on a healthy program for stockpile stewardship and peer-review-based certification as well as a robust infrastructure for nuclear weapons production. As numbers of nuclear forces are reduced, it becomes even more important to maintain high confidence in the safety and reliability of remaining forces. We must also have the capability to respond to changes in the strategic environment, if need be, by being able to reconstitute larger force levels with safe and reliable warheads and develop, produce, and certify new or modified nuclear warheads to meet new military requirements. Achieving these goals will require a strong commitment to the recapitalization of the nuclear weapons infrastructure—a smaller infrastructure, to be sure, but one that is sufficiently modern and capable to fully support the NPR and, more broadly, our nation's defense strategy.