DOE/NA-0010

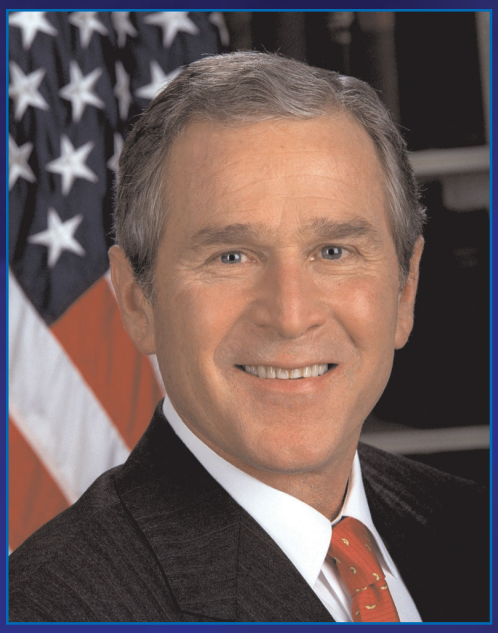
# The National Nuclear Security Administration
# STRATEGIC PLAN

*"Strengthen national security through the military application of nuclear energy and by reducing the global threat from terrorism and weapons of mass destruction."*

National Nuclear Security Administration

U.S. Department of Energy

November 2004



"The greatest threat before humanity today is the possibility of a secret and sudden attack with chemical or biological or radiological or nuclear weapons ... America, and the entire civilized world, will face this threat for decades to come."

**President George W. Bush**
**February 2004**

"The continually shifting nature of geopolitics ... the ever-forward advancement of science and technology ... the hardened determination of terrorists to sow death and destruction – all of these demand that we continually reassess the situation, that we constantly revisit the topic at hand, and that we incessantly update our defenses and our plans to combat proliferation threats."

**Spencer Abraham**
**Secretary of Energy**
**May 2004**

# Message from the Administrator

**Linton F. Brooks, Administrator**
National Nuclear Security Administration

Planning has always been crucial in complex activities, but perhaps never more so than today, when major changes are in progress. As we move toward new approaches to creating a responsive infrastructure, new opportunities to improve oversight, new challenges in safety and security, new missions in nonproliferation, and the continued evolution of the "NNSA of the Future", a strategic plan can help us stay focused on a "future worth creating" and help motivate our efforts to make that future a reality. This plan reminds us why we are enduring the disruption of change.

We've just completed a comprehensive restructuring of the NNSA. This effort involved downsizing of staff by approximately 20% in two years and a redeployment of additional staff to reflect our new management and operating philosophy. Our new approach challenges NNSA employees to radically change the ways in which we operate. Site Office staff are empowered to accept risk for the Government, but are challenged to find less transactional ways to assure contractor performance; Headquarters staff are challenged to clearly identify and define "what" the government wants, but discouraged from micromanaging our contractors; and, Service Center staff are challenged to support Site Offices and Headquarters by finding ways to solve problems rather than simply identifying roadblocks. Settling into these new roles takes time and it is important to remember why we are making these changes.

*All members of the NNSA team should understand that no responsibility of a President is more important than national security. Realizing the part each of us plays in this responsibility and in achieving our mission will help continue to improve our performance.*

Our vision for the "NNSA of the Future" is taking shape. We want to move to a flexible workplace that will allow people to achieve their maximum potential and will cut through some of the bureaucracy and cumbersome procedures traditionally associated with Federal personnel management. In this regard, we are working with the Office of Personnel Management and the private Partnership for Public Service in a pilot program called "Extreme Makeover." We are one of three organizations throughout the Federal Government that will test this program, which is designed to dramatically streamline the hiring process. The outstanding, motivated individuals we need to bring into NNSA will not sit and wait during an interminable selection process. "Extreme Makeover", if it lives up to our expectations, will allow us to recruit the best and the brightest and make the NNSA an "employer of choice".

One of the most difficult things for Government officials is to look beyond the immediate and consider the future. The one thing we can be sure of is that the future will demand creative, committed people, both in Government, in the plants and laboratories, and in the intellectual community that supports national security programs. Over the next few years a large number of people now in NNSA will be eligible to retire. While I hope many of them will choose not to do so, it is clear we will be seeing significantly more turnover in the next decade than in the past. To mitigate this turnover in people, NNSA is establishing an intern program to bring forth the next generation of leaders in security, operations, business, weapons, and nonproliferation.

This Strategic Plan, the second that has been developed by the NNSA, plays a key role in our continuing efforts to ensure a premier nuclear security enterprise. The terrorist attacks of September 11, 2001, gave a renewed sense of urgency to rapidly transforming the NNSA into an organization capable of operating at peak effectiveness under challenging and changing conditions. While we cannot predict with certainty the evolution of U.S. national security strategy, our ability to perform NNSA's core functions depends on continuously renewing our internal capabilities, in terms of both people and plant. Something I read recently sums up the reason for the importance I place on strategic planning: "The end state of national security still begins with basic building blocks: planning, training, education, and leadership." From the guidance of this strategic planning document cascade other planning documents and related business systems that enable us to plan and adapt to the range of unknowable and unpredictable world realities as they evolve.

For example, since those September 11th attacks, NNSA has focused technical and scientific resources on the international war against terrorism. Yet our overall purpose and nuclear security mission remain clear: "Strengthen national security through the military application of nuclear energy and by reducing the global threat from terrorism and weapons of mass destruction."

In carrying out this mission, NNSA will continue to help lead the way to a safer world through the deep reductions in nuclear forces codified by the Treaty of Moscow, through Nunn-Lugar and other cooperative threat reduction efforts. At the same time, we will maintain an effective, reliable, and capable – though smaller – nuclear force as a hedge against a future that is uncertain and in a world in which substantial nuclear arsenals and the threat from weapons of mass destruction remain. Carrying out these activities should enhance our ability to achieve critical U.S. nonproliferation objectives.

As beneficiaries of a proud heritage dating from the Manhattan Project, NNSA is building upon an enduring legacy by identifying and embracing its core values: Excellence, Integrity, Respect, and Teamwork. The planning direction of this document lays the foundation for achieving overall mission success and helps define the NNSA structure of the future. No responsibility of the Federal Government is more important than national security. Realizing the part each of us plays in this responsibility and in achieving our mission will help continue to improve our performance.

*As beneficiaries of a proud heritage dating from the Manhattan Project, NNSA is building upon an enduring legacy by identifying and embracing its core values: Excellence, Integrity, Respect, and Teamwork.*

I am confident that all of us in NNSA will continue to adopt the values, vision, goals, commitment to excellence, and description of the future contained in this plan. Each of us should take pride in the fact that our work is indispensable to the national security of the United States.

**Linton F. Brooks, Administrator**
**National Nuclear Security Administration**

# Mission

Strengthen national security through the military application of nuclear energy and by reducing the global threat from terrorism and weapons of mass destruction.

# Vision

To be an integrated nuclear security enterprise operating an efficient and agile nuclear weapons complex that is recognized as preeminent in technical leadership and program management.

# Our Core Values

## Excellence

We strive for excellence in performing our critical national security missions: scientific exploration and technology development; laboratory and industrial operations; information and materials security; environment, safety, and health activities; and, project and program management.

## Integrity

We demand the highest standards of ethical behavior, for each of us is personally entrusted with and accountable for protecting and defending our national security. We meet our commitments.

## Respect

We treat our colleagues with dignity, value diversity, provide fair opportunity, and reward achievement.

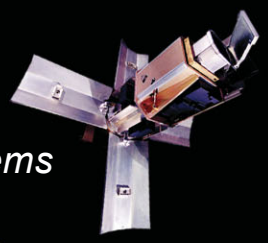
## Teamwork

We accomplish our mission by working cooperatively and respecting the roles of leaders and team members.

# What NNSA

Respond to nuclear emergencies world-wide
Maintain the U.S. nuclear deterrent
Protect and revitalize the weapons complex
Support the nuclear Navy

# Does Worldwide



*Develop space- and land-based detection systems*

*Secure and eliminate nuclear materials*

*Strengthen the nonproliferation regime*

## A. NNSA Strategic Situation

The international community faces a variety of new and emerging threats. As the events of 9/11 made clear, new sub-national threats are emerging that involve hostile groups willing to use or support the use of low-tech weapons of great destructive capability. If these groups come to possess nuclear weapons or other weapons of mass destruction (WMD), U.S. nuclear forces might not deter their use. Thus, diplomatic, political, and other military efforts to prevent the acquisition of nuclear weapons, weapons-usable materials, or chemical or biological weapons, in conjunction with a robust counter-terrorism effort and defenses, may be the only means available to address this threat.

In this new, broader threat environment, nuclear weapons will play a critical but reduced role in the overall United States security posture. Nuclear forces – linked with an advanced conventional strike capability and integrated with a responsive infrastructure – continue to be an essential element of national security by strengthening our overall ability to reassure allies of U.S. commitments, dissuade arms competition from potential adversaries, and deter threats to the U.S., its overseas forces, allies, and friends.

## Future Challenges and Planning Assumptions

Based on potential threats to the U.S. and its allies, NNSA faces several broad challenges in carrying out nuclear threat management and threat reduction. NNSA must:

*Electron-microscope image of bacillus anthracis spores.*

- Sustain its nuclear weapons capabilities, and other contributions to deterrence, in a safe, secure, and reliable manner;
- Establish a nuclear weapons infrastructure that can be responsive to future needs;
- Maintain a robust and effective Naval Reactors program;

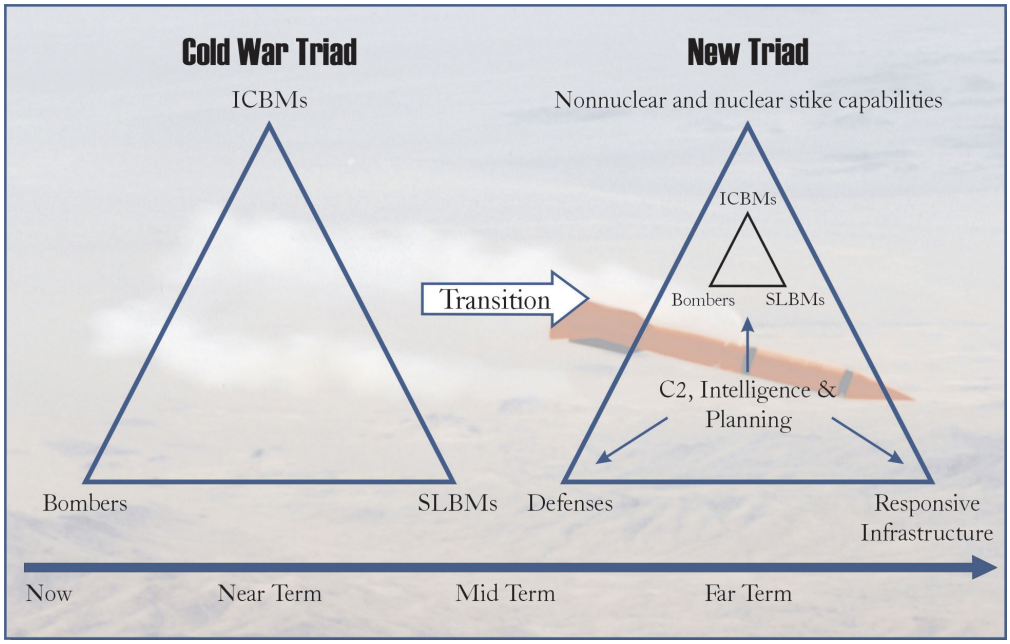
- Develop and implement innovative technical and policy approaches for detecting, preventing, and reversing or, failing that, managing the proliferation of WMD; and,

- Respond to nuclear and other emergencies worldwide.

## Hedging an Uncertain Future

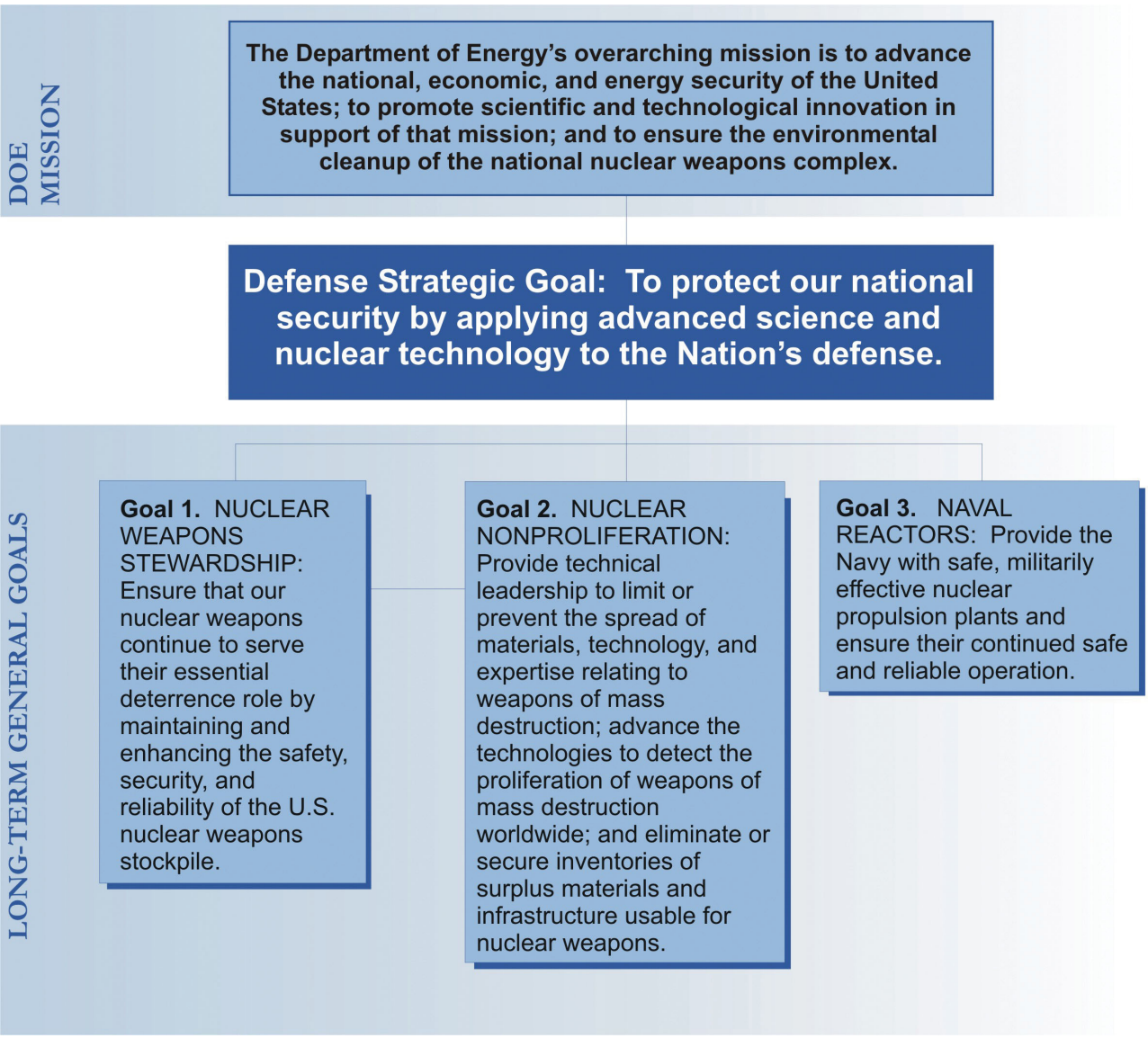
Key elements of our nuclear posture involve hedges – that is, strategies that enable the U.S. to quickly adapt and respond to unanticipated changes in the international security environment or to unexpected problems or "surprises" in the status of our nuclear forces. In the near term, as the Nation draws down to levels established in the Treaty of Moscow – between 1,700-2,200 operationally deployed nuclear warheads – the U.S. will maintain capability to augment warhead levels on available delivery vehicles if circumstances require.

A critical hedge – a key leg in the Nuclear Posture Review's "New Triad" – is to establish a flexible and responsive nuclear weapons infrastructure. A responsive NNSA infrastructure – people and facilities – includes innovative science and technology research and development at the National laboratories and agile production facilities that are able to meet identified needs and capable of responding to surprises. It will provide enhanced surveillance to better "know the stockpile," an improved understanding of nuclear weapons physics and engineering, and flexible production capacity. Responsive infrastructure will enable timely reconstitution to larger force levels, if needed; field new or modified nuclear warheads either to respond to a stockpile "surprise" or to meet new military requirements; and, ensure readiness to conduct an underground nuclear test, if necessary.



## B. The NNSA Strategic Plan

In the Department of Energy (DOE) Strategic Plan issued September 30, 2003, the Department identified four strategic goals and seven long-term general goals toward achieving its mission. The NNSA is charged with responsibility for the **Defense Strategic Goal** and its three associated long-term general goals.



**Goal 1. NUCLEAR WEAPONS STEWARDSHIP: Ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile.**

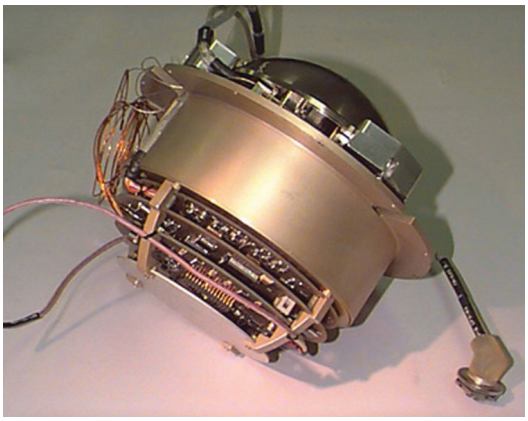
## 1.1 State of the Enterprise

### Regarding the Stockpile

*W87 PEACEKEEPER warheads.*

Following the end of the Cold War, the United States ended production programs to develop and produce new nuclear warheads and began a moratorium on nuclear testing. The main focus of the nuclear weapons program during the 1990s shifted to sustaining existing warheads for the indefinite future. To this end, the Department of Energy adopted a science-based Stockpile Stewardship Program (SSP) that emphasized development and application of greatly improved technical capabilities to assess the safety, security, and reliability of existing nuclear warheads without the use of nuclear testing. As a result of breakthrough science and engineering, planned improvements in the Stockpile Stewardship Program's technical capabilities are progressing well. This progress must be continued, both to maintain the evolving stockpile and to address any new requirements that might arise.

The December 2001 Nuclear Posture Review (NPR) articulated goals for a “responsive nuclear weapons complex” that require an appropriate balance between research and development, and production capabilities to be able to meet a range of plausible contingencies. The NPR gives a responsive infrastructure equal priority with offensive and defensive weapons in the "New Triad" of strategic capabilities. In addition, the NPR endorsed: (1) a nuclear warhead Advanced Concepts Initiative after a post-Cold War decade in which little work was done in this area; (2) accelerated design work on a Modern Pit Facility; and, (3) enhanced underground nuclear test readiness.



*Main electronic subassembly of the new W76 Telemetry System.*

## Regarding Facilities and Infrastructure

The size of today's nuclear weapons complex is almost 50% below its peak during the Cold War. It now comprises approximately 38 million square feet of facilities at 10 sites (see Appendix C). Many of the facilities are 40 years or older, and significant portions of the aging complex infrastructure are in need of renewal. Facilities in poor condition are costly to maintain and secure, and are difficult to keep in regulatory compliance.

The NNSA conducts an effective and integrated program to restore, revitalize, and rebuild the nuclear weapons complex infrastructure. Two complementary programs, Readiness in Technical Base and Facilities (RTBF) and the Facilities and Infrastructure Recapitalization Program (FIRP), are essential to the operations, maintenance, and renewal of the physical infrastructure. RTBF provides the funding needed to operate and maintain the facilities required for annual assessments of the stockpile and warhead certification, thus ensuring the vitality of the nuclear weapons complex and meeting its goal of a consistent readiness level. FIRP is a capital renewal and sustainability program that was established principally to reduce the large backlog of deferred maintenance that had developed during the 1990's to an appropriate level consistent with industry best practices. FIRP also develops corporate facility management practices required to maintain the complex into the future as well as eliminating excess real property.

*RTBF provides the funding needed to operate and maintain the facilities required for annual assessments of the stockpile and warhead certification, thus ensuring the vitality of the nuclear weapons complex and meeting its goal of a consistent readiness level.*

*FIRP is a capital renewal and sustainability program that was established principally to reduce the large backlog of deferred maintenance that had developed during the 1990's to an appropriate level consistent with industry best practices.*

# 1.2 Planning Horizon

## Regarding the Stockpile

The national security environment will continue to evolve and acts of terrorism will continue to be a major concern. Reducing the threat of proliferation and the threat of warhead and nuclear material theft will continue to be important strategies for our enterprise. In this environment, the President seeks the lowest number of nuclear warheads consistent with our Nation's security and has taken important steps to reduce the nuclear stockpile. At the same time, U.S. nuclear weapons remain relevant in deterring hostile states from developing and deploying weapons of mass destruction. The maintenance of a flexible and ready nuclear capability will remain a significant deterrent to hostile states pursuing or contemplating the use of these weapons.

The Treaty of Moscow established a goal of between 1,700 - 2,200 operationally deployed strategic warheads by 2012. Due to aging of weapons and changing requirements, further significant stockpile restructuring is expected to commence within the 2015 - 2020 time frame. The future state (post-2030) projects a stockpile that is both significantly smaller and better able to hold 21st century targets at risk.

*A technician uses a solid-phase microextractor to collect samples of gases produced by organic materials in a weapon.*

For the foreseeable future, the U.S will not produce any new plutonium or highly enriched uranium, but the nuclear weapons complex will retain the ability to process both materials and will produce tritium as required. The complex will have the capability to produce a limited number of new primary and secondary component designs in quantities necessary to support a future weapons stockpile by recycling plutonium and highly enriched uranium from retired weapons. Ease of manufacturing and accelerated certification without underground nuclear testing are major design goals for future systems. Also, to increase flexible manufacturing, use of hazardous and special materials will be minimized or eliminated. Finally, the nuclear weapons complex will have the capability to respond rapidly to the Department of Defense requirements to counter a broad spectrum of emerging threats.

The following assumptions define the characteristics of the stockpile in the long-term.

- The Nation will maintain a deterrent posture second to none.

*TRIDENT missile test launch.*

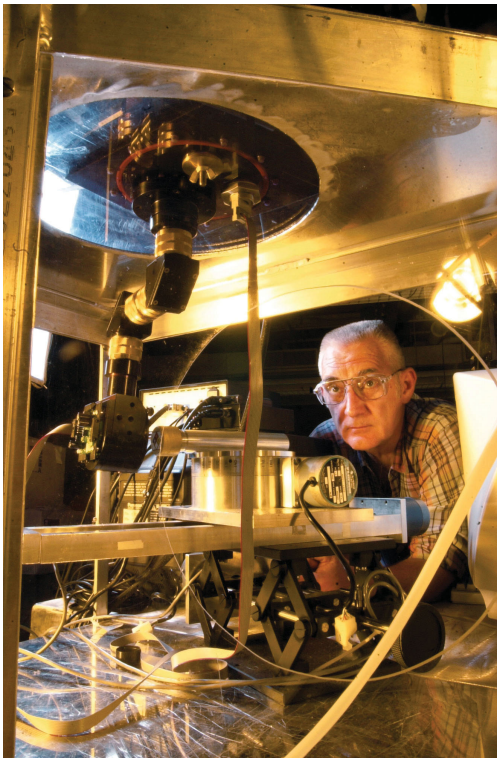
- Beginning in the 2015-2020 timeframe, we should expect that the stockpile transformation will result in a smaller stockpile but one more capable of addressing 21st century threats.

- Any new or modified warheads will include new technologies and will be designed for manufacturability and increased performance margins, and will minimize the use of difficult-to-handle materials and processes that threaten the environment.

- Better warhead command, control, and surety will be integrated into life extension and new designs to reduce risk from either accidents or malevolent actions.

To achieve these characteristics of the long-term stockpile, NNSA will ensure the following:

- An appropriate readiness posture for underground testing will be maintained.
- Development, certification, and production tools will be in place to implement stockpile improvements.
- Inertial Confinement Fusion and Science Campaigns will develop the knowledge and techniques required to support stockpile assessment and certification.
- Certification capabilities will be established for refurbished and new warheads with the goal of seeking certification without nuclear testing.
- Renewal of skilled technical personnel as workers with nuclear testing and warhead development and production experience approach retirement.



*Scientist performs surface inspection using Diffuse Reflectance Infrared Fourier Transform (DRIFT) spectroscopy.*

In order to accomplish this vision, the nuclear weapons complex will:

- Have the capability to produce all nuclear components in a weapon.
- Assure a responsive supply-chain and capable industrial base to meet future high-reliability nonnuclear component needs.
- Have a responsive infrastructure to provide more predictive physics and engineering assessments of stockpile warheads and rapid deployment of modified or new warheads to meet emerging threats.
- Operate as a "virtual corporation" (multi-site/complex-wide) with information accessible to authorized users without regard to location.
- Use a workforce that is highly trained, flexible, mobile, and smaller, consisting of Federal and contractor employees whose mix may change significantly, over time.
- Create and leverage enhanced relationships with other scientific organizations and institutions to ensure scientific and technical excellence in the NNSA workforce and foster long-term, synergistic ventures.

## Regarding Facilities and Infrastructure

The NNSA has established corporate performance goals for deferred maintenance reduction that, when accomplished, will restore the condition of the nuclear weapons complex. Attainment of these goals involves a joint effort, separate but complementary, between the RTBF and FIRP programs.

- By the end of FY 2009, NNSA will:
  1. Aggressively reduce deferred maintenance to industry standards.
  2. Return facility conditions, for mission-essential facilities and infrastructure, to an assessment level of good to excellent.
  3. Have institutionalized responsible and accountable facility management processes, including budgetary ones, so that the condition of NNSA facilities and infrastructure is equal to or better than industry standards.
- For the future, RTBF will make the necessary capital investments for the long-term stewardship of the complex.

*Example of FIRP roof replacement at the Pantex Plant.*

## 1.3 External Factors

The following external factors could affect our ability to achieve the Nuclear Weapons Stewardship goal:

- **Technology**: Technological surprises occur. The discovery of an insurmountable scientific or engineering obstacle in a stockpile weapon could necessitate a recommendation to the President that nuclear testing be resumed.
- **Geopolitical Environment**: Changes in the nuclear threats or other WMD threats could require changes to the Stockpile Stewardship Program.
- **Funding**: A significant reduction or realignment of funding below that provided in our current multi-year plans would adversely affect our ability to achieve this goal.

Goal 2. NUCLEAR NONPROLIFERATION: Provide technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons.

## 2.1 State of the Enterprise

Over the course of the last three decades, NNSA and its predecessor organizations have played a prominent role in combating the nuclear and radiological proliferation threat. While we have made impressive accomplishments over this period of time, particularly through our work with the Russian Federation since the end of the Cold War, we realize our nonproliferation programs must address and adapt to evolving security threats continually. The rapid evolution of the proliferation threat in the context of a globalizing world economy requires NNSA's programs to be flexible, creative, and responsive to emerging threats around the world.

*Highly Enriched Uranium (HEU) is down-blended with other forms of uranium to produce Low Enriched Uranium (LEU), suitable for commercial, civilian purposes.*

NNSA continues to provide technical and policy leadership to reduce the global proliferation threat. NNSA's nonproliferation work started well before 9/11, and our programs are becoming increasingly global in scope as they strengthen and expand nonproliferation activities outside the territory of the Former Soviet Union (FSU). NNSA works in over 60 countries with international partners and allies to prevent the spread of WMD through a wide range of bilateral and multilateral arrangements. NNSA will continue to focus on broadening the international scope of its nonproliferation efforts.

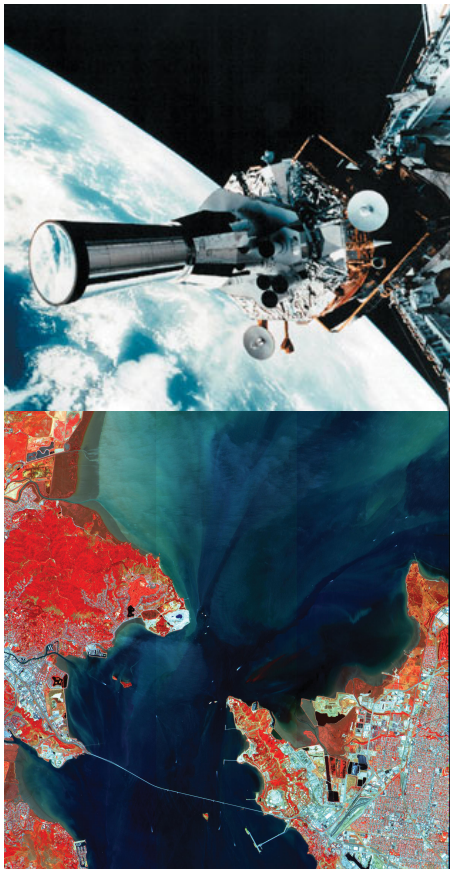
## 2.2 Planning Horizon

### Regarding International Cooperative Threat Reduction Programs

NNSA cooperative threat reduction programs are active in Russia and other FSU states, and they are becoming increasingly global in scope. NNSA will continue to work with other

elements of the Federal Government to develop an overarching framework and strategy that integrates the entire suite of U.S. threat reduction programs and guides further engagement with Russia and other countries on nonproliferation and nuclear security. To implement its mission most effectively and address today's evolving threat environment, NNSA seeks to:

- Secure nuclear weapons and nuclear and radiological materials at vulnerable sites around the world;
- Reduce quantities of nuclear and radiological materials;
- Bolster border security, including seaports;
- Conduct cutting-edge nonproliferation and national security research and development;
- Strengthen international nonproliferation and export control regimes; and,
- Downsize the nuclear weapons infrastructure of the FSU and engage WMD scientists and technicians in peaceful work.



*NNSA provides operational support for space-based and ground-based nuclear explosion monitoring systems.*

## Regarding Further Internationalization of Nonproliferation Programs

NNSA will continue to be a role model within the U.S. Government, and worldwide, for effective and productive engagement with other countries and international organizations in achieving nonproliferation objectives. Most important, support to the International Atomic Energy Agency (IAEA) will continue to play a prominent role in NNSA's nonproliferation efforts. To this end, NNSA will promote smooth DOE-IAEA interactions at DOE facilities and ensure that adequate resources are identified in program requests to meet DOE commitments to the IAEA. NNSA will also ensure that DOE Headquarters components and contractors are informed about, and then carry out, their respective obligations in meeting U.S. commitments to the IAEA.

NNSA will provide technical and policy support to the implementation of existing arms control treaties, nonproliferation agreements, unilateral initiatives, and other efforts to limit the spread or use of nuclear weapons. NNSA will examine, explore, and develop novel approaches, including confidence-building arrangements and other cooperative measures, to strengthen transparency in the international security arena.

## 2.3 External Factors

The following external factors could affect our ability to achieve this goal:

*NNSA will work with major international seaports to detect and deter illicit trafficking in nuclear and radioactive materials.*

- **Cooperation with Russia**: Unprecedented levels of cooperation between the U.S. and Russia have made it possible to make great strides in eliminating and securing inventories of surplus materials. A close working relationship is necessary for progress to continue.

- **International Atomic Energy Agency:** The IAEA is essential to the success of efforts to control nuclear proliferation. It is vital that the IAEA receive the funding it needs and that it demonstrate courageous leadership to member countries to accomplish its mission.

- **Technology**: Technological progress is uncertain and unpredictable. Our ability to develop advanced detection technologies will play an important role in the Nation's ability to successfully prevent proliferation.

*Security upgrades at a nuclear facility in Central Asia.*

- **Funding:** A significant reduction or realignment of funding below that provided in our current multi-year plans, including contributions from international and industry partners, would adversely affect our ability to achieve this goal.

*NNSA continues to provide technical and policy leadership to reduce the global proliferation threat.*

## Goal 3. NAVAL REACTORS: Provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation.

## 3.1 State of the Enterprise

The NNSA, through the Naval Reactors Program, is responsible for providing the U.S. Navy with safe, militarily effective nuclear propulsion plants, beginning with reactor technology development, continuing through reactor operation, and ending with reactor plant disposal. Nuclear power enhances warship capability and creates the flexibility needed to sprint anywhere in the world and arrive ready for combat operations. Sustained, high-speed capability enables rapid response to changing world circumstances and helps the Navy stretch available assets to meet today's worldwide national security commitments.

*The nuclear-powered submarine, VIRGINIA, returning to port following her highly successful sea trials.*

The Program ensures the safe operation of reactor plants in operating nuclear-powered submarines and aircraft carriers, and fulfills the Navy's requirement for new reactors to meet evolving national defense demands. The Program's long-term development work ensures that nuclear propulsion technology provides options to maintain and upgrade current capabilities, as well as meet future threats to U.S. security.

The presence of radiation dictates a careful, measured approach to developing and verifying nuclear technology, evolving needed components, systems, and processes, and implementing them into existing or future plant designs. Intricate engineering challenges and long lead times to fabricate the massive, complex components require many years of effort before technological advances can be introduced into the fleet. As advances in various functional disciplines coalesce, work is integrated into the technology applicable to a naval nuclear propulsion plant.

## 3.2 Planning Horizon

With 105 operating naval reactor plants in warships comprising 40% of the Navy's principle combatants, our primary emphasis and most intense effort will continue to be placed on

ensuring the safety and reliability of these plants. In addition, NNSA has embarked on a long-term effort to develop and deploy new reactor designs for the future. The CVN 21 reactor design is well underway. This new high-energy design represents a critical leap in capability as it will have increased core energy – nearly three times the electrical plant generating capability – and will require half the number of the reactor department sailors when compared to today's operational aircraft carriers. The CVN 21-class lead ship is expected to go to sea in 2014.

NNSA is also working on a new Transformational Technology Core (TTC) that will provide an energy increase to VIRGINIA-class ships with minimal impact to overall ship design. TTC will use advanced reactor core materials to achieve a significant increase to the core energy density – more energy without increasing size, weight, or space – while still at a reasonable cost. Development plans call for the delivery of the first TTC core in 2014.

*The nuclear-powered aircraft carrier, USS RONALD REAGAN (CVN 76), being welcomed for the first time in her new homeport, San Diego, California.*

## 3.3 External Factors

The NNSA does not believe there are major risks currently identified that could affect our ability to achieve this goal. However, given the unique nature of the Program's responsibilities, commitments to both the DOE and the U.S. Navy must be considered at all times. Therefore, any external factor seriously affecting either organization's policies may have an impact on the Naval Reactors Program.

## C. Administrator's Areas of Special Emphasis

In Section B, NNSA programs were discussed in the context of the Defense Strategic Goal and its three long-term general goals and their linkage to the DOE Strategic Plan.

Section C discusses selected activities that the Administrator highlights for "special emphasis" in this strategic plan and for the "NNSA of the Future."

- **Creating a Responsive Infrastructure**
- **Meeting Safeguards and Security Challenges**
- **Changing the Safety Culture in NNSA**
- **Improving NNSA's Response to Nuclear Emergencies**
- **Coordinating DOE's Role in Counterterrorism Efforts**
- **Providing Secure Transportation of NNSA and DOE Materials**

# Creating a Responsive Infrastructure

The 21st century presents a national security environment in which threats may evolve more quickly, be more variable in nature, and be less predictable than in the past. An overarching theme for the nuclear weapons enterprise, therefore, must be the development of a flexible capability to respond to a range of plausible contingencies in a timely manner.

In August 2003, at the Stockpile Confidence Conference at U.S. Strategic Command, the Administrator articulated a vision for a "responsive" nuclear weapons infrastructure as a key element in the NPR's New Triad of strategic capabilities. By "responsive" we refer to the ability of the nuclear weapons enterprise to anticipate innovations by an adversary and to counter them before our deterrent, and its resilience to unanticipated events or emerging threats, is degraded, all the while continuing to carry out the day-to-day activities in support of the stockpile. Right now, Responsive Infrastructure is only a strategy that is evolving, but a truly Responsive Infrastructure would let us do the following:

- ***Anticipate issues:*** Our goal is to continually improve our understanding of weapon performance to have better predictive assessment capabilities and avoid technical surprise.

- ***Fix stockpile problems:*** Our goal is to be able to deploy warheads modified to fix a relatively minor problem within one year.

- ***Adapt weapons:*** Our goal is to achieve a capability to modify or repackage existing warheads within 18 months of a decision to enter engineering development.

- ***Design, develop, and produce a new warhead:*** Our goal is to be able to design, develop, and begin production of a new warhead within 3-4 years of a decision to do so. While there are no current plans to develop and produce new weapons, regaining the capability is an important prerequisite for additional reductions in the nuclear stockpile.

- ***Produce new warheads in quantity:*** Our goal is to restore sufficient production capacity to produce new warheads in sufficient quantities to respond to defense needs that arise without disrupting ongoing refurbishments.

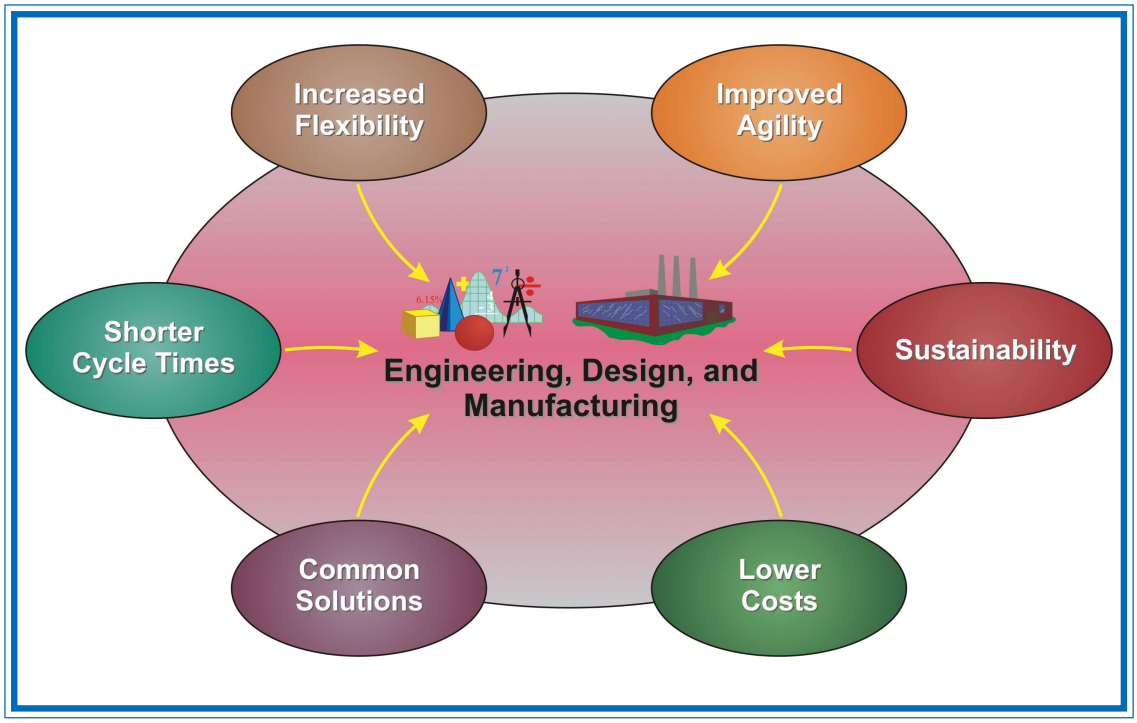
- ***Assure support for force augmentation:*** Our goal is to assure that services such as warhead transportation and tritium support are capable of being carried out in time consistent with the Department of Defense's ability to deploy weapons.

- ***Readiness to conduct underground nuclear tests:*** We have no plan to resume testing; however, our efforts to improve test readiness are a prudent hedge against the possibility of an issue arising in the stockpile whose impact cannot be understood, or a fix that cannot be certified, without a nuclear test. Our goal of an 18-month test

readiness posture is appropriate because that is a typical time to diagnose a problem and design a test to confirm the problem or certify the fix.

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 achievement of deterrence objectives more efficiently even as we move to significantly lower force-levels. A Responsive Infrastructure is necessary to meet the President's commitment to seek the lowest number of nuclear weapons consistent with U.S. national security. If we are responsive, stockpile numbers can be reduced by eliminating some weapons currently kept for use as reliability replacements to hedge against a technical problem in one or more types of warheads in the stockpile.

NNSA will undertake a complex-wide strategic study of the infrastructure needs for NNSA's future missions. This study is endorsed by the Congress, and will be conducted in the context of NPR guidance to provide a robust and Responsive Infrastructure as a key element of U.S. national security.




*Responsive Infrastructure.*

# Meeting Safeguards and Security Challenges

Administrator Brooks emphasized that "the tightening of security that began with the establishment of NNSA in 2000 and accelerated in the wake of the 9/11 terrorist attacks, has resulted in a strong, effective security posture at all nuclear weapons research and production facilities. Our mission is vitally important to the national security of this great Nation. The American people are counting on us and we are not going to let them down. These attacks have dramatically changed the way in which we look at threats to our facilities, to our information, to the U.S. nuclear weapons stockpile, special nuclear materials, high explosives, and other hazardous materials. We are hard at work to sustain that improvement in the security of the complex over the long-term."

*Monitoring security points around the NNSA Complex.*

Within the NNSA organization, the Safeguards and Security function will transition to more of a complementary role to other NNSA programs and operations. Customers (internal and external) will be shown that better protection of the U.S. nuclear deterrent provides satisfaction that our nuclear capability is effectively protected. Employees will take pride in understanding that effective protection of the Nation's nuclear arsenal is provided through their individual and collective efforts.

NNSA assets will be protected by flexible and continuously improving programs, focusing on the use of technology complemented by a well-trained and well-staffed professional work force to drive operational excellence and cost-effectiveness.

*PIDAS (Perimeter Intrusion Detection Access System).*

Essential to the continued success and effectiveness of the Safeguards and Security program is integration with other programs and production missions of NNSA. Integration is necessary to ensure we "build security in" and not have to "add it on." This is particularly important as the Safeguards and Security program undertakes a multi-year effort to implement the DOE Design Basis Threat, and for the future, to address continually evolving threats.

NNSA will focus on three primary strategies in the future:

- Use an integrated program management approach, with formal procedures and processes, to define our near- and long-term operational and performance objectives and priorities, and manage, oversee, and evaluate the Safeguards and Security performance of our contractors consistent with the overall national security mission of the Department and the NNSA.

*Protective barriers.*

- Implement a corporate-wide human capital management plan to improve and sustain the quality and training of NNSA Safeguards and Security professionals. The cornerstone of this program will be an intern program to attract high quality recent college graduates to be trained and developed as the next generation of safeguards and security leaders.

- Focus on the use of technology to offset the reliance on costly and manpower-intensive physical protection strategies.

NNSA will continue to utilize both internal and independent reviews and assessments to validate program effectiveness and identify additional areas for improvement, as we strive for a more cost-effective and efficient operation.

NNSA is committed to ensuring all employees understand the “why” of security, take ownership of security, and integrate security into their day-to-day operational responsibilities as well as in their planning for future operations and projects. NNSA will implement Safeguards and Security programs that add value and make sense to the NNSA community. They will also ensure that environment, safety, and health objectives are considered as part of our day-to-day planning and performance of operations.

# Changing the Safety Culture in NNSA

The NNSA Administrator assembled a team to review the Space Shuttle Columbia Accident Investigation Board (CAIB) Report and identify lessons learned from the National Aeronautic and Space Administration's (NASA) experience relevant to NNSA. The NNSA team reviewed the areas of safety culture, organizational structure, and resources. The NNSA Lessons Learned team observed that there are many similarities in operations and culture between NNSA and NASA, and that many of the CAIB recommendations were applicable to NNSA.

Both organizations were built on the Cold War rivalry with the former Soviet Union, and both experienced discontinuities in their missions with the collapse of the Soviet Union. The political underpinning of NASA's Human Space Flight Program (U.S.-Soviet space competition) was lost, with no equally strong political objective to replace it. Similarly, NNSA's core mission, nuclear weapons design and production, experienced a comparable change in national priority. Both NASA and NNSA have subsequently pursued similar paths, namely downsizing personnel, consolidating operations, and relying heavily on contractors. Both organizations have a proud tradition of managing potential high consequence operations while achieving scientific and technical excellence. This has led to over-dependency on past successes and loss of ability to accept criticism from outside organizations. One clear message that resulted from the review was that NNSA must change its safety culture to improve safety of its operations, to protect the health and safety of its employees and the public, and successfully execute NNSA's mission.

Safety is embedded in NNSA's core values. NNSA must actively encourage a diversity of views, accept outside criticism, and avoid over-simplification of technical information. Additionally, NNSA management must take steps to ensure that the organization does not fall into the trap of being conditioned by past successes. As the CAIB Report states, "Organizations that deal with high-risk operations must always have a healthy fear of failure – operations must be proved safe, rather than the other way around."

*NNSA must actively encourage a diversity of views, accept outside criticism, and avoid over-simplification of technical information. Additionally, NNSA management must take steps to ensure that the organization does not fall into the trap of being conditioned by past successes.*

NNSA will change its safety culture to be more open to alternate views and minority opinions, challenging technical positions in the interest of technical integrity. NNSA will consider differing professional opinions when developing and implementing site-specific and key organizational procedures. It is also clear from the NASA experience that NNSA must establish a climate of healthy professional discourse by developing and implementing the mechanisms and opportunities that support and encourage free flowing discussion and innovation.

NNSA has established a new position, Chief for Defense Nuclear Safety, who will be responsible for developing, maintaining and overseeing nuclear safety policies and standards

for NNSA and for assuring that these standards are enforced across NNSA. This individual will be responsible for monitoring the health of NNSA's nuclear safety program and will have unfettered access to all NNSA sites and facilities to identify safety issues that need to be resolved. The Chief for Defense Nuclear Safety will serve as a senior technical advisor to the Administrator and communicate safety concerns and minority opinions that may have been overlooked or rejected in other parts of the organization. This individual will be instrumental in championing the change in the safety culture within NNSA.

*DOE inspectors perform a safety inspection of G-tunnel at the Nevada Test Site. G-tunnel is used for the disposition of damaged weapons and devices.*

A culture change cannot take place without the complete support and active leadership of top management. NNSA senior managers will develop, own, and establish clear performance expectations for safety as an organizational value that is part of mission accomplishment. An attitude or value is intangible. However, an intangible attitude or value should lead to tangible manifestations that can act as indicators of that value. It is important to be able to judge the status or effectiveness of safety culture as an attitude within the NNSA.

# Improving NNSA's Response to Nuclear Emergencies

*Radiological Assistance Program team member in New York City working at Ground Zero.*

The NNSA represents a key component of the Nation's ability to address the threat of nuclear and radiological terrorism through direct, tailored emergency response and consequence management. Perhaps the most tangible assets to the Nation, as demonstrated after the 9/11 terrorist attacks, are NNSA's "first-responder teams/assets" that provide highly specialized technical expertise to the Federal response in resolving potential nuclear/radiological terrorist incidents and accidents. These teams work in close coordination with the Nation's interagency community and are capable of responding at all times to nuclear/radiological events in the U.S. and around the world. These teams adapt to changing technologies and evolving challenges associated with combating terrorism and accident/incident scenarios in today's world. Outstanding performance in training, exercises, and real-world events supports NNSA's reputation as one of the world's premier nuclear/radiological technical emergency response capabilities. These dedicated NNSA personnel directly support the Nation's "last line of defense" against nuclear and radiological terrorism, as well as the "last line of defense" for emergencies involving or affecting DOE and NNSA sites and facilities.

As the NNSA prepares for the future, its vision remains focused but flexible. Preparedness and responsiveness to current and emerging threats drive the evolution and future growth of the following areas:

- Better and faster analysis of real-time data;
- Enhanced response time of the assets through regionalizing assets and partnerships;
- Greater efficiency in the use of the assets;
- Cutting-edge application of advances in technology, encompassing both improved detection and analysis; and,
- An ever-evolving state-of-the-art communication system.

Enhancing the efficiency and effectiveness of its emergency operations capabilities through state-of-the-art technologies is critical to success. To ensure that emergency response teams/assets are available at all times with their highly specialized skill sets, NNSA will continue to look to research and development to provide technical solutions that will enable the assets to respond to and resolve potential nuclear/radiological terrorist incidents in the U.S. and around the world.

*Exercising radiological emergency response assets in a Consequence Management Capstone drill.*

A set of competencies forms the cornerstone of this vision. To employ the technical and real-world capabilities for the NNSA, and achieve the vision, these competencies are vital.

- Knowledge

  Knowledge of DOE/NNSA's comprehensive emergency management system, including expertise in emergency plans, procedures, and exercises.

- Technical and Analytical Expertise

  A broad range of scientific and technical expertise, along with access to specialized technologies for resolving radiological/nuclear/terrorist incidents. This is accomplished by leveraging the core competencies of the nuclear weapons complex.

- Operational Expertise

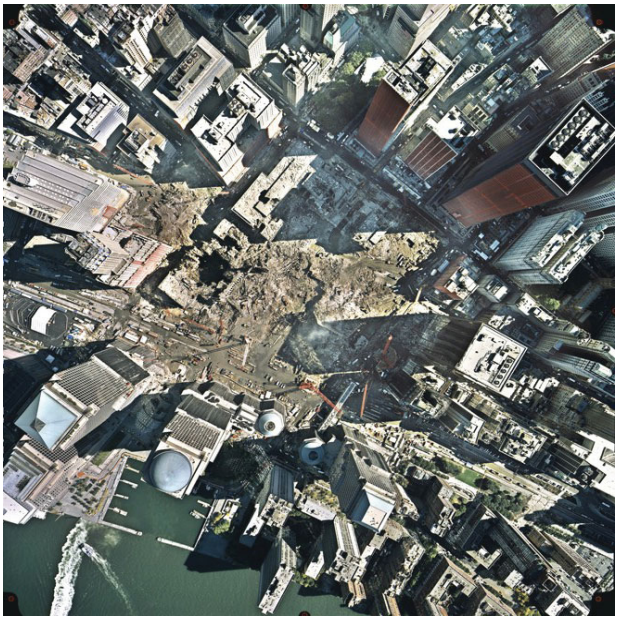
  Operational expertise in responding to incidents involving U.S. nuclear weapons, radiological dispersal devices, and improvised nuclear devices; training and drills; explosive ordinance disposal procedures and techniques for device access, render-safe capabilities, weapon recovery, final disposition and attribution; and, health, safety, including health and treatment capabilities, and environmental expertise.

- National Response Program Expertise

  Expert support to national-level operational responses by searching for, detecting, and rendering safe a terrorist radiological or nuclear device. Expertise in mitigating the consequences of a terrorist radiological or nuclear device. Expertise in responding to and mitigating an accident involving a U.S. nuclear weapon.

# Coordinating DOE's Role in Counterterrorism Efforts

Since the terrorist attacks of 9/11, we have been at war with determined adversaries who seek to kill our citizens, attack our friends and allies, and seriously damage our economy. We must now take into account both conventional terrorist threats and the possibility of attack with nuclear, radiological, or other weapons of mass destruction. Our response must engage all of the capabilities of the Department and work with a broader range of Federal, state, and local government agencies, businesses, academic institutions, and individual citizens than ever before.



*Aerial view of "Ground Zero" taken October 15, 2001.*

Across the NNSA, we have broad capabilities to bring to this fight. Nearly every office has programs that can contribute to homeland security and the global war against terrorism. We seek to draw on the scientific and technical expertise of our national laboratories and to focus the efforts of our national security and nonproliferation programs to make America safer. NNSA's Stockpile Stewardship Program's attention to the security of U.S. nuclear weapons, global nonproliferation programs, and our emergency response teams are all directly relevant to combating terrorism. Likewise, DOE's ongoing efforts to ensure the Nation's energy supply, protect critical energy infrastructure, support the U.S. intelligence community, and conduct broad-based scientific research can contribute to our homeland security as well.

Because of these contributions, the Office of the Deputy Under Secretary for Counterterrorism was created to facilitate coordination of activities within the NNSA while sending a strong message that this position includes bringing resources to bear throughout all of DOE.

A priority for this Office is to promote communication between the various program elements in the Department, the Homeland Security Council, the National Security Council, and the Department of Homeland Security. As the national counterterrorism and homeland security strategy develops, NNSA will facilitate application of the full capabilities of DOE to these new missions that closely align with our existing national security responsibilities.

# Providing Secure Transportation of NNSA and DOE Materials

For nearly 30 years, the Nation's nuclear weapons, components, and material have been transported across the United States by the Secure Transportation Asset (STA), a Departmental resource that today consists of approximately 280 Federal Agents, a centralized command and control center for tracking shipments, 82 specialized escort vehicles, seven aircraft, 51 armored tractors, and 51 trailers that are engineered for safety and security. The STA operates 81 facilities across the United States, including a centralized training site at Fort Chaffee, Arkansas. Federal Agents spend approximately 25% of their time in training – training which enables them to provide an array of responses to incidents derived from accidents, natural phenomena, or terrorist attacks. Supporting the Stockpile Stewardship Program remains the primary mission of the STA.

*NNSA Safeguards Transporter.*

Currently, the STA conducts approximately 90 major convoys each year. In order to meet future demands, the STA will need to increase its mission capacity to 150 major convoys a year. This capacity will be attained over the next five years by increasing the number of Federal Agents to 420, replacing an outdated air fleet, and by replacing older trailers with the larger and newer generation of Safeguards Transporters. This will also allow agent overtime to be reduced from 1,000 to 600 hours per agent per year, providing a responsive capacity that can be available instantly by increasing overtime on an as needed basis.

Over the next 15 years, the new capacity will support an increased workload in the following areas:

- An accelerated materials disposition effort and construction of mixed-oxide facilities in the U.S. and Russia in support of NNSA's Nuclear Nonproliferation program;
- Development of an advanced reactor core (TTC) and to accelerate remediation and upgrades at NNSA's Naval Reactor facilities;
- Relocation of materials from the Hanford Site in support of DOE's Environmental Management program;
- Continued support for supplying reactor fuels for DOE's Nuclear Energy program; and,
- Support to the Department of Defense (DoD) to implement the NPR.

Also over the next 15 years, new generations of escort vehicles, armored tractors, and secure trailers will be designed, tested, and deployed. Current and emerging threats will require the STA to field new technologies and systems. These new technologies will emerge from an ongoing research base that ensures the safety and security of the stockpile and other sensitive materials. NNSA relies on the technology emerging from this research base. NNSA focuses its efforts on testing and evaluating fixed facility safety and security technological solutions to determine their applicability in a mobile environment. This established research base is essential for a "responsive infrastructure."

# Appendices

In support of the DOE Strategic Plan, with its Defense Strategic Goal and three long-term general goals for the NNSA, twenty-four NNSA programs conduct their mission activities at ten sites in the United States as well as other locations around the world.

To ensure budget and performance integration, NNSA, through its Planning, Programming, Budgeting, and Evaluation process, aligns programs and resources with these NNSA goals at various levels throughout the management chain. This cascade approach supports the Government Performance and Results Act (GPRA) and the President's Management Agenda.

Appendix A reflects the performance cascade into the NNSA programs; Appendix B highlights the twenty-four complementary NNSA programs with their unique goals and means and strategies to achieve those goals; and, Appendix C highlights those domestic NNSA sites where the work gets done.

# Appendix A - NNSA Performance Cascade.

**Defense Strategic Goal: To protect our national security by applying advanced science and nuclear technology to the Nation's defense.**

## LONG-TERM GENERAL GOALS

**Goal 1.** NUCLEAR WEAPONS STEWARDSHIP: Ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile.

**Goal 2.** NUCLEAR NONPROLIFERATION: Provide technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and, eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons.

**Goal 3.** NAVAL REACTORS: Provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation.

## NNSA PROGRAMS*

- Directed Stockpile Work
- Science Campaign
- Engineering Campaign
- Inertial Confinement Fusion and High Yield Campaign
- Advanced Simulation and Computing Campaign
- Pit Manufacturing and Certification Campaign
- Readiness Campaign
- Readiness in Technical Base and Facilities (Operations)
- Readiness in Technical Base and Facilities (Construction)
- Secure Transportation Asset
- Nuclear Weapons Incident Response
- Facilities and Infrastructure Recapitalization Program
- Safeguards and Security
- Environmental Projects and Operations***

- Nonproliferation and Verification Research and Development (R&D)
- Nonproliferation and International Security
- International Nuclear Materials Protection and Cooperation
- Russian Transition Initiative
- Highly-Enriched Uranium (HEU) Transparency Implementation
- Elimination of Weapons-Grade Plutonium Production
- Fissile Materials Disposition
- Global Threat Reduction Initiative

- Naval Reactors

- Office of the Administrator**

* Also known as GPRA Units
** Supports Goals 1 - 2
*** Proposed for FY 2006

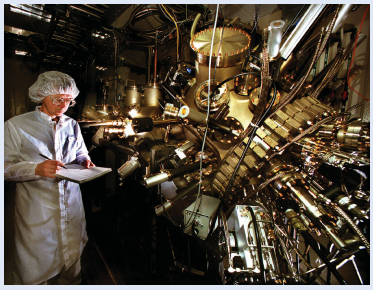
# Appendix B - NNSA Programs

## Directed Stockpile Work

**Goal:**
Ensure that the nuclear warheads and bombs in the U.S. nuclear weapons stockpile are safe, secure, and reliable.

**Means and Strategies:**
NNSA, in partnership with the Department of Defense, national laboratories, and production plants, will conduct routine maintenance and repair; dismantle retired weapons; refurbish warheads through the Life Extension Program; and, maintain the capability to design, manufacture, and certify new warheads, for the foreseeable future.

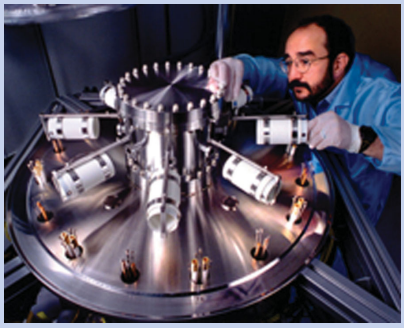
## Science Campaign



**Goal:**
Develop improved capabilities to assess the safety, reliability, and performance of the nuclear package portion of weapons without further underground testing; enhance readiness to conduct underground nuclear testing as directed by the President; and develop essential scientific capabilities and infrastructure.

**Means and Strategies:**
NNSA, in partnership with the national laboratories and the Nevada Test Site, will develop the Quantification of Margins and Uncertainty (QMU) methodology coupled with advanced radiography capabilities and improved understanding of dynamic material properties to assess with continually improving confidence the safety and reliability of the nuclear weapons stockpile; and, achieve 18-month underground nuclear test readiness, within the next decade.

## Engineering Campaign



**Goal:**
Provide validated models and simulation tools to improve surety technologies, radiation hardening capabilities, microsystems and microtechnologies production, component and material lifetime assessments, and predictive aging models and surveillance diagnostics.

**Means and Strategies:**
NNSA, in partnership with the national laboratories, will advance material sciences to detect precursors to age-related weapons problems; and, develop new technologies, models, and radiation hardening approaches and components to improve the safety, security, and control of our nuclear weapons, including the construction of the new Microsystems and Engineering Sciences Application facility, within the next decade.

## Inertial Confinement Fusion and High Yield Campaign

**Goal:**
Develop laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation approaching those in a nuclear explosion, and conduct weapons-related research in these environments.

**Means and Strategies:**
NNSA, in partnership with the national laboratories, the Naval Research Laboratory, General Atomics, Inc., the University of Rochester, and other universities, will conduct high energy density physics experiments necessary to support the SSP. A major goal of this program is the demonstration of ignition at the National Ignition Facility in 2010.

## Advanced Simulation and Computing Campaign

**Goal:**
Provide leading edge, high-end computer simulation capabilities to meet weapons assessment and certification requirements, including weapon codes, weapon science, platforms, and computer facilities.

**Means and Strategies:**
NNSA, in partnership with the national laboratories and leading U.S. supercomputer manufacturers, universities and other Federal agencies, will execute multi-year modeling, computer science and engineering-based activities to provide the high-end simulation capabilities and supporting infrastructure needed to meet weapons assessment and certification requirements within the next decade.

## Pit Certification and Manufacturing Campaign

**Goal:**
Restore the capability and some limited capacity to manufacture pits of all types required for the nuclear weapons stockpile and plan for a long-term pit manufacturing facility to support the enduring stockpile.

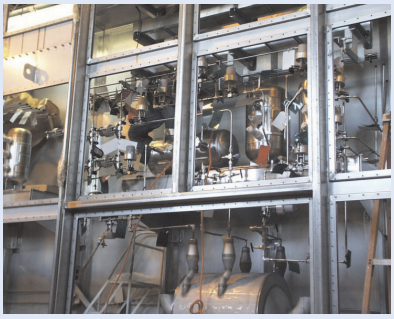
**Means and Strategies:**
NNSA, in partnership with the national laboratories and production plants, will restore a responsive capability to manufacture and certify replacement plutonium pits for a smaller nuclear weapons stockpile of the future. This includes establishing a limited, interim capacity to manufacture pits at a national laboratory and planning for a long-term, responsive infrastructure (e.g., Modern Pit Facility) required in the next two decades.

## Readiness Campaign

**Goal:**
Develop or reestablish new manufacturing processes and technologies for qualifying weapon components for reuse.

**Means and Strategies:**
NNSA, in partnership with the production plants and the private sector, will improve the responsiveness of the nuclear weapon manufacturing infrastructure and its technology base to meet emerging threats to national security through continuing investments in state-of-the-art equipment combined with cutting-edge applications of technology.

## Readiness in Technical Base and Facilities (Operations)



**Goal:**
Operate and maintain NNSA program facilities in a safe, secure, efficient, reliable, and compliant condition.

**Means and Strategies:**
NNSA, in partnership with the national laboratories and production plants, will operate program facilities including costs for utilities, equipment, facility personnel, training and salaries; conduct a robust maintenance program including staff, tools, and replacement parts; all while ensuring strict adherence to environment, health, and safety regulations to ensure that facilities are operationally ready to perform work.

## Readiness in Technical Base and Facilities (Construction)

**Goal:**
Plan, prioritize, and construct state-of-the-art facilities, infrastructure, and scientific tools (that are not directly attributable to Directed Stockpile Work or a Campaign) within approved baseline cost and schedule.

**Means and Strategies:**
NNSA, in partnership with the national laboratories and production plants, will plan and develop line item construction projects as necessary and within approved guidelines and manage these projects within the approved baseline and schedule.

## Secure Transportation Asset

**Goal:**
Safely and securely transport nuclear weapons, weapons components, and special nuclear materials to meet projected DOE, DoD, and other customer requirements.

**Means and Strategies:**
NNSA will provide Federal agents, specialized vehicles, a communications infrastructure, and rigorous training to conduct the safe and secure transportation of nuclear weapons, components, and other material of national security interest in support of NNSA and DOE activities.

## Nuclear Weapons Incident Response

**Goal:**
Respond to and mitigate nuclear and radiological incidents worldwide.

**Means and Strategies:**
NNSA, working in partnership with national laboratories, other Federal agencies, and international partners, will execute multi-year Campaigns to access, train, and drill any specialized technologies for mitigating radiological/nuclear terrorist events at any time.

## Facilities and Infrastructure Recapitalization Program

**Goal:**
Restore, rebuild, and revitalize the physical infrastructure of the nuclear weapons complex.

**Means and Strategies:**
The NNSA, in partnership with the national laboratories and production plants, will meet this goal by effectively executing projects that reduce NNSA's deferred maintenance to industry standards and aggressively dispose of 3 million gross square feet of facilities that are excess to NNSA's needs by FY 2009 and conclude the program by FY 2011.

## Safeguards and Security

**Goal:**
Protect NNSA personnel, facilities, nuclear weapons, and information from a full spectrum of threats, most notably from terrorism, which has become of paramount concern post September 11, 2001.

**Means and Strategies:**
NNSA will employ three primary strategies: utilize an integrated program management approach to define priorities and performance objectives and evaluate contractor performance; implement a human capital management plan to improve and sustain the quality and training of safeguards and security professionals with the cornerstone being an intern program to attract high-quality college graduates; and, focus on technology to offset the reliance on costly and manpower-intensive protection strategies.

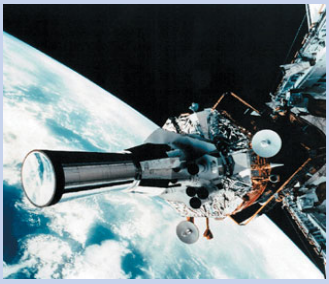
## Environmental Projects and Operations*

**Goal:**
Accelerate risk reduction and cleanup of the environmental legacy at NNSA sites in accordance with applicable environmental laws and regulations, and in consultation with affected stakeholders and tribal governments.

**Means and Strategies:**
NNSA, working in concert with other Federal agencies, states, and affected citizens, will execute its cleanup and waste disposition projects in a cost-effective, compliant and safe manner consistent with end states that support the nuclear weapons complex mission.

* As of Fall 2004, the DOE is proposing to transfer a number of environmental activities from the Office of Environmental Management (EM) to the NNSA beginning in FY 2006.

## Nonproliferation and Verification R&D



**Goal:**
Develop new technologies to improve U.S. capabilities to detect and monitor nuclear weapons production, proliferation, and testing worldwide.

**Means and Strategies:**
NNSA will partner with its national laboratories, industry, and academia in research and development efforts to sustain U.S. technical leadership in the detection and monitoring of nuclear programs and explosions.

## Nonproliferation and International Security

**Goal:**
Strengthen the global nonproliferation regime by (1) limiting sensitive exports; (2) supporting international safeguards; and (3) providing policy recommendations and policy and technical advice to develop and implement U.S. policy (treaties, agreements, and mutual inspections).

**Means and Strategies:**
NNSA will partner with U.S. Government agencies, national laboratories, and international partners to strengthen export control regimes, support the IAEA and the system of nuclear safeguards, conduct technology exchanges with Russia and other countries, strengthen emergency management systems, and reduce incentives for WMD proliferation worldwide.

## International Materials Protection and Cooperation

**Goal:**
Work with Russia and other regions of concern to (1) secure and eliminate vulnerable nuclear weapons and weapons-usable material; and (2) install detection equipment at border crossings and Megaports to prevent and detect illicit transfer of nuclear material.

**Means and Strategies:**
NNSA will work with national laboratories, Russian ministries and nuclear institutes, the private sector, and international partners to secure Russian Navy and Strategic Rocket Forces warhead sites and 600 metric tons of weapons-usable nuclear material. NNSA will convert 17 metric tons of HEU to LEU and install radiation detection equipment at 293 border crossing sites and 20 Megaports within the next decade.

## Russian Transition Initiatives

**Goal:**
Prevent adverse migration of WMD expertise by engaging weapons experts in peaceful efforts and by helping to downsize the Russian nuclear weapons complex.

**Means and Strategies:**
In partnership with national laboratories, the private sector, and Russian ministries and nuclear institutes, NNSA will engage former weapons scientists in technology commercialization and downsize workforce and facilities at Russian WMD sites.

## HEU Transparency Implementation

**Goal:**
Develop and implement transparency measures which increase our confidence that LEU purchased under the 1993 U.S./Russian HEU Purchase Agreement is derived from HEU extracted from dismantled Russian nuclear weapons and eliminated from Russian stockpiles.

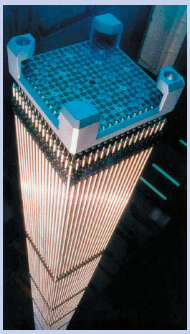
**Means and Strategies:**
NNSA will work with the Department of State to gather data on Russian material processing in plant storage and process areas, and compare it with Russian declared processing rates, inventories, and HEU accountability records to ensure that 500 metric tons of HEU is eliminated from the Russian stockpile.

## Elimination of Weapons-Grade Plutonium Production

**Goal:**
Facilitate the shutdown of the three remaining weapons-grade plutonium production reactors in the Russian Federation.

**Means and Strategies:**
NNSA is working with the Russian Federal Atomic Energy Agency to permanently shut down three plutonium production reactors in Seversk and Zheleznogorsk, and replace them with new and refurbished fossil-fuel power plants that will supply the necessary heat and electricity to the two cities. NNSA is seeking international contributions for the construction of the fossil plant at Zheleznogorsk.

## Fissile Materials Disposition



**Goal:**
Eliminate surplus Russian plutonium and surplus U.S. plutonium and HEU.

**Means and Strategies:**
NNSA will design, build and operate facilities to dispose of 34 metric tons of surplus U.S. weapons-grade plutonium and work with Russia to dispose of similar quantities of surplus Russian plutonium. The Russian program is being funded by the U.S., Russia, France, the United Kingdom, Italy, and Canada. The NNSA is also overseeing the disposition of 174 metric tons of surplus highly enriched uranium.

## Global Threat Reduction Initiative

**Goal:**
Remove and/or secure high-risk nuclear and radiological materials and equipment around the world that pose a potential threat to the U.S. and the international community.

**Means and Strategies:**
NNSA will partner with national laboratories, Federal agencies, international partners and the private sector to secure, recover, remove, and eliminate high-risk nuclear material and related equipment, and radiological sources worldwide.

## Naval Reactors

**Goal:**
Provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation.

**Means and Strategies:**
NNSA, through the Naval Reactors Program, will provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation, to include design of the next-generation nuclear propulsion plants for future aircraft carriers and submarines.

## Office of the Administrator

**Goal:**
Create a well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital; enhanced cost-effective utilization of information technology; and greater integration of budget and performance data.

**Means and Strategies:**
NNSA operates a Planning, Programming, Budgeting and Evaluation process as the core business practice for program, organizational, and budget integration; continues to reengineer Federal staffing to address skill mix deficiencies and to recruit new, younger talent into the organizations; and, pursues the latest approaches in Information Technology to ensure improved efficiency and economy of operations.

# Appendix C - NNSA Sites

## Pantex Plant

**Mission:**
Fabrication of chemical explosives, development work in support of the design laboratories, pit storage, and nuclear weapons assembly, disassembly, testing, quality assurance, repair, retirement, and final disposition.

**Location:**
Amarillo, Texas

**Contractor:**
BWXT Pantex, LLC

**NNSA Contractor Employment:**
~3,200

**Web Address:**
www.pantex.com

## Kansas City Plant

**Mission:**
Manufacture and procurement of nonnuclear components for nuclear weapons. This includes electrical, electronic, electromechanical, mechanical, plastic, and nonfissionable metal components. The broad range of components and devices procured from U.S. industry is supported by an extensive system to qualify suppliers and accept products.

**Location:**
Kansas City, Missouri

**Contractor:**
Honeywell Corporation

**NNSA Contractor Employment:**
~2,900

**Web Address:**
www.kcp.com

## Y-12 National Security Complex

**Mission:**
Fabrication of precision parts and components from special nuclear materials for nuclear weapons.

**Location:**
Oak Ridge, Tennessee

**Contractor:**
BWXT Y-12, LLC

**NNSA Contractor Employment:**
~4,000

**Web Address:**
www.y12.doe.gov

## Savannah River Site

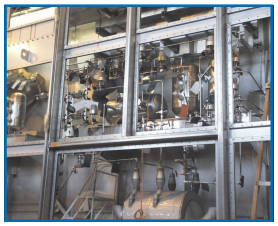
**Mission:**
Loads tritium and nontritium reservoirs to meet requirements of the Nuclear Weapons Stockpile Plan; conducts reservoir surveillance operations and gas transfer system testing; and, manages tritium inventories and facilities. Supports U.S. Surplus Plutonium Disposition activities for the mixed-oxide fuel fabrication effort.

**Location:**
Aiken, South Carolina

**Contractor:**
Westinghouse Savannah River Company, LLC

**NNSA Contractor Employment:**
~1,700

**Web Address:**
www.srs.gov



## Sandia National Laboratories

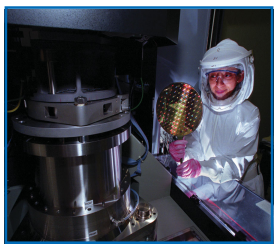
**Mission:**
Responsible for the nonnuclear components and systems engineering for all nuclear weapons. Also provides technical support to prevent and detect WMD proliferation.

**Location:**
Albuquerque, New Mexico
Livermore, California
Kauai, Hawaii
Tonopah, Nevada

**Contractor:**
Lockheed Martin Corporation

**NNSA Contractor Employment:**
~5,100

**Web Address:**
www.sandia.gov



## Lawrence Livermore National Laboratory

**Mission:**
Design laboratory that supports, with Los Alamos National Laboratory, NNSA's integrated program of surveillance, assessment, and refurbishment of stockpile weapons. LLNL possesses unique high-energy density physics capabilities and significant scientific computing assets. LLNL also provides technical support to prevent and detect WMD proliferation.

**Location:**
Livermore, California

**Contractor:**
University of California

**NNSA Contractor Employment:**
~5,100

**Web Address:**
www.llnl.gov

## Los Alamos National Laboratory

**Mission:**
Design laboratory that shares responsibility with LLNL for the safety and reliability of the nuclear explosives package in the nuclear weapons. LANL possesses unique capabilities in neutron scattering, enhanced surveillance, and plutonium science and engineering. LANL also provides technical support to prevent and detect WMD proliferation.

**Location:**
Los Alamos, New Mexico

**Contractor:**
University of California

**NNSA Contractor Employment:**
~5,900

**Web Address:**
www.lanl.gov

## Nevada Test Site

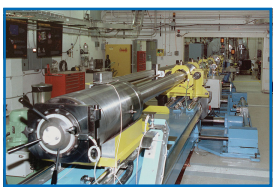
**Mission:**
A unique national asset for safely conducting high-hazard operations, testing, and training in support of NNSA, DoD, and other Federal agencies. The NTS is an integral part of the Stockpile Stewardship Program and provides the U.S. Government with the capability to return to underground nuclear testing should the President deem it necessary.

**Location:**
Las Vegas, Nevada

**Contractor:**
Bechtel Nevada Corporation

**NNSA Contractor Employment:**
~2,200

**Web Address:**
www.nv.doe.gov



## Knolls Atomic Power Laboratory

**Mission:**
Supports the U.S. Naval Nuclear Propulsion Program through the design, development and operational follow of nuclear propulsion plants for naval vessels.

**Location:**
Schenectady, New York

**Contractor:**
Lockheed Martin Corporation

**NNSA Contractor Employment:**
~2,600

**Web Address:**
www.kapl.gov

## Bettis Atomic Power Laboratory

**Mission:**
Supports the U.S. Naval Nuclear Propulsion Program through the design, development and operational follow of nuclear propulsion plants for naval vessels.

**Location:**
West Mifflin, Pennsylvania

**Contractor:**
Bechtel Bettis, Inc.

**NNSA Contractor Employment:**
~3,200

**Web Address:**
www.bettis.gov

# Links to Additional Information

This Strategic Plan lays the foundation for achieving overall mission success and helps define the NNSA structure of the future. In addition to this document, there are many other planning documents that help us adapt as the national security environment continues to evolve. The following links will provide more current and detailed information about the structure and intermediate goals of the various program elements of the NNSA.

| | |
|---|---|
| Department of Energy | www.doe.gov |
| Department of Energy Strategic Plan | strategicplan.doe.gov |
| Defense Programs | www.nnsa.doe.gov/about_dp.asp |
| Defense Nuclear Nonproliferation | www.nnsa.doe.gov/na-20/ |
| Naval Reactors | www.nnsa.doe.gov/about_nr.asp |
| Emergency Operations | www.nnsa.doe.gov/about_eo.asp |
| Infrastructure and Environment | www.nnsa.doe.gov/about_ie.asp |
| NNSA Organizational Structure | www.nnsa.doe.gov/docs/NNSAOrgCharts.pdf |
| NNSA Site Offices and Plants | www.nnsa.doe.gov/map.htm |
| NNSA Budget | www.nnsa.doe.gov/budgetinfo.asp |
| DOE Job Opportunities | chris.inel.gov/jobs/ |
| Additional Information | www.nnsa.doe.gov |

Editor's Notes:

In 2000, the National Nuclear Security Administration (NNSA) was established as a semi-autonomous agency within the DOE in response to a Congressional mandate to reinvigorate the security posture throughout the nuclear weapons program and to reaffirm the Nation's commitment to maintaining the nuclear deterrence capabilities of the United States. NNSA was chartered as a distinct organization within the Department to better focus management attention on enhanced security, proactive management practices, and mission focus within the Department's defense programs. The Department performs its national security missions through NNSA.

The development of this Strategic Plan was the work of only Federal employees and was guided by major policy documents and program evaluations. The point of contact for this document is Kathleen Y. Foley, Director, Office of Planning, Programming, Budgeting and Evaluation who can be reached at 301-903-3334 or by e-mail to Kathleen.Foley@nnsa.doe.gov.

National Nuclear Security Administration

U.S. Department of Energy

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