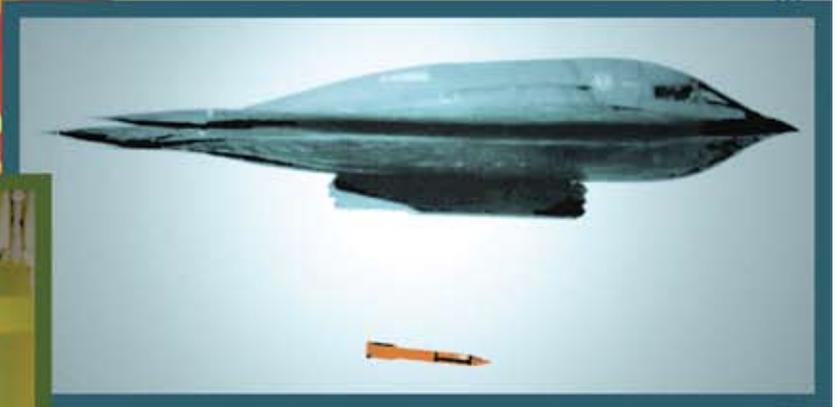


## Summary and Recommendations



# Transforming the U.S. Strategic Posture and Weapons Complex for Transition to a Nuclear Weapons-Free World



# **Transforming the U.S. Strategic Posture and Weapons Complex for Transition to a Nuclear Weapons-Free World**

PREPARED BY THE  
**Nuclear Weapons Complex Consolidation (NWCC) Policy Network**

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**ON THE COVER (top to bottom):** The BADGER test, part of Operation Upshot-Knothole, a 23 kiloton tower shot, April 18, 1953 at the Nevada Test Site.

A B-2 Spirit Bomber, from Whiteman Air Force Base, MO., test drops a de-armed B61-11 at the Tonapah Test Range in Nevada. The B61-11 is an earth-penetrating modification of a nuclear bomb. It entered the stockpile in 1997.

W76 warheads destined for Trident submarines. The Bush Administration planned to process ~2,000 of these 100 kiloton weapons through a Life Extension Program that would give them a new fuse capable of ground bursts and a reentry vehicle with improved target accuracy. That combination could effectively change the W76 from a “countervalue” weapon for deterrence to a “counterforce” first strike weapon against hardened targets.

Technical Area-55 at LANL, with the existing plutonium pit production facility PF-4 on the right, the new “Radiological Lab” for the CMRR Project on the left, and behind it the excavation for the pending CMRR “Nuclear Facility.” Photo courtesy of Nuclear Watch New Mexico.

# Foreword

This is a time for change in America, especially in our relations with the rest of the world. There are no aspects of U.S. policy more ripe for change than the nation's strategic posture and the nuclear weapons activities it conducts to support that posture. Congress recognized this by mandating, in the 2008 Defense Authorization Act, that the new Administration complete a comprehensive review of the nuclear posture of the United States by the end of 2009.<sup>1</sup> In Sec. 106 of the same bill, Congress established a Commission on the Strategic Posture of the United States to “conduct a review of the strategic posture of the United States, including a strategic threat assessment and a detailed review of nuclear weapons policy, strategy, and force structure.” That Commission plans to release its report in April 2009.

In October 2008, before either of those reviews was completed, the National Nuclear Security Administration (NNSA), a semi-autonomous arm of the U.S. Department of Energy (DOE), issued a Final Supplemental Programmatic Environmental Impact Statement (SPEIS)<sup>2</sup> on its plans for the nuclear weapons complex.<sup>3</sup> In December, NNSA issued two Records of Decision on the future of the complex.<sup>4</sup> The NNSA based its environmental analysis and decisions on an obsolete “Nuclear Posture Review” that the Bush Administration conducted in 2001.

The Obama Administration has given every indication that it plans to alter U.S. strategic policy dramatically in its upcoming Nuclear Posture Review (NPR). For example, the White House website states, “Obama and Biden will set a goal of a world without nuclear weapons, and pursue it.”<sup>5</sup> The Administration has also announced it intends to seek a reduced limit of 1,000 warheads in the next round of treaty negotiations with Russia. This report sets out numerous recommendations for the Obama Administration to include in a revised nuclear strategy and force posture.

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1 National Defense Authorization Act for Fiscal Year 2008 (P.L. 110-181). Sec. 1061.

2 U.S. Department of Energy. National Nuclear Security Administration. *Final Complex Transformation Supplemental Programmatic Environmental Impact Statement (Final SPEIS)*. DOE/EIS-0236-S4. October 2008. [www.complexttransformationspeis.com/project.html](http://www.complexttransformationspeis.com/project.html).

3 The term “nuclear weapons complex” refers to eight major sites around the country where NNSA performs research, development, testing, maintenance, production, refurbishment, and dismantlement activities for all the nuclear weapons in the U.S. stockpile. The eight sites are: Los Alamos National Laboratory (LANL) in Los Alamos, NM; Livermore National Laboratory (LLNL) in Livermore, CA; Sandia National Laboratory (SNL), which has facilities in Albuquerque, NM and Livermore, CA; the Pantex Plant near Amarillo, TX; the Y-12 Site in Oak Ridge, TN; the Savannah River Site (SRS) near Aiken, SC; the Nevada Test Site (NTS) near Las Vegas, NV; and the Kansas City Plant (KCP), in Kansas City, MO. NNSA also conducts flight tests of nuclear weapons at the Tonopah Test Range near Tonopah, NV.

4 Records of Decision for the Final SPEIS, U.S. Federal Register. Vol. 73, No. 245. December 19, 2008. Pp. 77644–77663. <http://frwebgate1.access.gpo.gov/cgi-bin/PDFgate.cgi?WAISdocID=63150117454+2+2+0&WAISSaction=retrieve>.

5 [www.whitehouse.gov/agenda/foreign\\_policy](http://www.whitehouse.gov/agenda/foreign_policy).

This report is the fruit of a two-year collaboration among six citizens' groups to promote a major consolidation and reduced level of operations for the U.S. nuclear weapons complex. Our groups are based near five of the eight sites in the nuclear weapons complex and together we have significant expertise in the workings of the entire complex. Consequently, this report goes beyond questions of strategic posture and nuclear weapons policy and places emphasis on how to shrink the nuclear weapons complex to support a smaller stockpile in a safer, more secure, and less costly manner. A smaller weapons complex can sufficiently maintain the nation's nuclear deterrent until nuclear weapons are eliminated, while devaluing the importance of nuclear weapons and improving U.S. credibility in working to halt and reverse their proliferation.

The lead author of the report is Robert Civiak, who is a former Office of Management and Budget (OMB) Examiner for the Department of Energy's Nuclear Weapons Programs, and is now an independent consultant. Major contributions were also made by Christopher Paine of the Natural Resources Defense Council (NRDC), Jay Coghlan of Nuclear Watch NM, and Marylia Kelley of Tri-Valley CAREs. Ingrid Drake and Peter Stockton of the Project On Government Oversight (POGO) drafted Chapter 7 on security issues. Representatives from all of the groups in the NWCC Policy Network participated in the planning and review of this report.

# Acknowledgments

First and foremost, this project would not have occurred without the support and encouragement we received from the Connect U.S. Fund and its staff, especially Eric Schwartz and Heather Hamilton, and from the project's independent evaluators David-Devlin Foltz and Joshua Weissburg of the Aspen Institute. We hope that the resulting fruits of our collaboration, including critical analysis in the public review of NNSA's *Supplemental Programmatic Environmental Impact Statement on Complex Transformation*, litigation against a new nuclear weapons component production plant, and fresh thinking on policy as evidenced by this report, are what the Connect U.S. Fund had in mind when it advanced the notion of supporting "policy networks" willing to challenge status-quo thinking in foreign and security policy. We also would like to thank the staff of the Tides Foundation for their patience and diligence in helping us to assemble all the necessary grant documentation from the six disparate organizations belonging to the network.

Several of our groups also received generous support from the Ploughshares Fund and the Colombe Foundation that was vital to their participation in this project. In addition, NRDC wishes to acknowledge the support of the David and Katherine Moore Foundation, the Prospect Hill Foundation, and the Telemachus Foundation for its work on nuclear weapons complex issues. Tri-Valley CAREs would like to thank the New-Land Foundation, and the Samuel Rubin Foundation for their support of TVC's activities regarding nuclear weapons. Nuclear Watch New Mexico thanks the Town Creek Foundation and the New Mexico Community Foundation. Just Peace thanks the Rachael and James Dougherty Foundation for its financial support and the Dallas Peace Center for its administrative support. In addition, we all thank our private contributors for their invaluable support

The authors also wish to thank Mavis Belisle of Just Peace and Ann Suellentrop of the Greater Kansas City Chapter of Physicians for Social Responsibility. They contributed their significant knowledge to many discussions of the NNSA facilities in their local areas and reviewed drafts of the document.

Finally, we would like to thank Sally James and Katie Burgess of Cutting Edge Design in Washington, DC for transforming a dull looking manuscript into a vibrant document. They were helped in that regard by John Witham of Nuclear Watch New Mexico, who produced numerous versions of a map of the existing and our shrunken nuclear weapons complex, before he was able to incorporate the gist of our story onto one page. In addition, Sasha Pyle of Nuclear Watch New Mexico provided our cover art.

# Summary and Recommendations

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The world of today is very different from that of the Cold War era. The superpower competition, which drove the deployment of tens of thousands of nuclear warheads, no longer exists. Nevertheless, the combined nuclear stockpiles of the United States and Russia still number roughly 20,000 warheads. Seven other nations (Britain, France, China, India, Pakistan, Israel, and North Korea) have independent nuclear arsenals, with a combined 1,000 to 1,200 warheads. New dangers have arisen that present more likely threats to U.S. security than a deliberate large-scale nuclear attack by Russia. Terrorists or rogue elements within governments might gain access to nuclear weapons or the fissile materials needed to make them. Nuclear-armed states embroiled in regional conflicts or internal strife could use their nuclear weapons or lose control of them. And, nuclear-tipped missiles still maintained on high alert could be launched accidentally.

*New dangers have arisen that present more likely threats to U.S. security than a deliberate large-scale nuclear attack by Russia.*

The continued existence of large nuclear weapon stockpiles in the United States, and in other countries, does not increase our security, but instead makes it more precarious. The time for a new approach to nuclear weapons is long overdue. Countering nuclear proliferation and terrorism and reducing nuclear arsenals must become the central focus of U.S. nuclear weapons policy and strategy.

**We recommend that the United States lead the world in halting and reversing nuclear weapons proliferation and reducing the threat of nuclear weapons. To that end, the United States should dramatically reduce its own nuclear weapons stockpile and devalue nuclear weapons as instruments of national security.**

This report sets out numerous detailed recommendations for a new strategic posture and nuclear weapons policy to move toward a world without nuclear weapons. We discuss steps that can be taken now to reduce the numbers of nuclear weapons and strategic delivery vehicles and to lessen the risk inherent in existing nuclear weapons and materials. The United States should devalue the importance of nuclear weapons by, among other steps, halting efforts to improve them.

Until an assured international mechanism for eliminating nuclear weapons is established, the United States can maintain a more than adequate nuclear deterrent without modifying or attempting to improve its existing nuclear weapons. **We recommend that the United States refrain from installing new military capabilities in existing nuclear weapons, freeze the current designs, and drastically reduce nuclear weapons research and development activities.**

The underpinning of the nuclear weapons policy and strategy recommended here is a vision of a world free of nuclear weapons. That vision, articulated by Presidents

Reagan and Gorbachev at Reykjavik, Iceland in 1986, was brought back into the political spotlight through essays in the *Wall Street Journal* in January 2007 and January 2008 by former Secretaries of State George Schultz and Henry Kissinger, former Secretary of Defense William Perry, and Senator Sam Nunn. Since then, numerous leaders from around the world, including President Barack Obama, have expressed their support for the concept. There is no question that this is a long-term effort. However, the world will be a safer, more secure, less hostile place when the vision of a world free of nuclear weapons is realized.

## What Are Nuclear Weapons For?

If our recommendations are followed, the United States will maintain a small but credible nuclear deterrent, until no other nation has nuclear weapons. Nuclear weapons will serve no other purpose. However, we do not believe that nuclear deterrence is a legitimate or even a stable long-term position. Rather, we believe that continued reliance on nuclear weapons is morally unacceptable and dangerous. **We recommend that the United States pursue a strategy that will lead to the verified and enduring elimination of nuclear weapons throughout the world as quickly as possible.**

This report does not prescribe the political and military security arrangements that should replace nuclear deterrence. Instead, we focus on nearer-term changes. We outline a transitional nuclear deterrent doctrine and the weapons stockpile needed to support it. We also propose a maintenance strategy and nuclear weapons complex for a smaller stockpile. Our plan points the United States in a new direction, positioning it to conduct negotiations with other nations on building the global institutional arrangements that will be required to supplant nuclear deterrence and pave the way to eliminate nuclear weapons.

***The United States should eliminate even veiled threats to use nuclear weapons from its global military posture.***

The immense destructive power of nuclear weapons sets them apart from any other type of weapon. The term “weapons of mass destruction” (WMD), which lumps chemical and biological weapons with nuclear weapons, blurs the very real distinction we see between them. While we also view the prospective use of chemical or biological weapons as morally reprehensible, the effects of their use are different in scale and their production and use are already banned by international agreement. We believe that military means other than the threat of nuclear preemption or retaliation can and must suffice to address these lesser threats.

**We recommend that the strategic posture of the United States eliminate any reference to the use of nuclear weapons in retaliation to (or in preemption of) other nations’ use of chemical or biological weapons or to the generalized threat of “weapons of mass destruction.”** Indeed, the United States should eliminate even veiled threats to use nuclear weapons from its global military posture and forego integrating the potential use of nuclear weapons with strategies for use of conventional force. Both would be a distinct and welcomed change from the Bush 2001 Nuclear Posture Review. The United States must live up to its democratic ideals, defending its interests primarily by engaging other nations through negotiation and reciprocal accommodation, without invoking a nuclear “ace-in-the-hole.”

The United States must respect the principles of the UN Charter. A responsible strategic policy should reject any notion of an “exceptional” U.S. privilege to engage in the unilateral use of military force to further its interests or to extinguish perceived threats anywhere on the globe. Other than the potential use of nuclear weapons by others, the United States is not confronted by any credible threat to its security, or to that of its allies, which might require nuclear escalation to counter it. Therefore, **we recommend that the President and the Congress declare, without qualification, that the United States will not be the first nation to use nuclear weapons in any future conflict.** This “no first use” policy should be reflected in our nuclear force structure and readiness posture. U.S. nuclear forces should neither be structured nor postured for preemptive attacks against any other nation.

In today’s world, regional tensions in South Asia, the Middle East, and the Korean Peninsula are significant drivers of nuclear weapons development. Resolving tension in those regions must be seen as an important aspect of the strategic posture and nuclear weapons policy of our nation. This requires adherence to a set of principles that will detach nuclear forces and threats of preemption from the process of resolving political and territorial disputes. Only then can negotiations reach beyond issues of national survival and attempt to reconcile the specific conflicting objectives that are causing tension. Regional military imbalances should be dealt with through cooperative security negotiations and arrangements to reduce tension and, if necessary, by commitments of our own or allied conventional forces, not by the threatened use of nuclear forces or strategies employing preemptive or preventive nuclear attacks.

In an ideal world, the question, “what are nuclear weapons for?” would be moot. There would be no nuclear weapons. As we move toward that vision, **the United States should view its nuclear weapons for one purpose and one purpose only—to deter the use of nuclear weapons by others.** The Department of Defense and the National Nuclear Security Administration should structure U.S. nuclear forces and the weapons complex accordingly.

## **Proposed Force Structure and Readiness Posture**

*We believe that the target for the next round of U.S. and Russian nuclear force reductions should be 500 total warheads each.*

**We recommend that President Obama clearly articulate his vision of a world free of nuclear weapons in a major speech. Further, Congress should firmly establish in legislation the pursuit of a world free of nuclear weapons as the cornerstone of U.S. nuclear policy and the guiding principle for decisions regarding nuclear weapons and the future of the U.S. arsenal.** The President and the Congress must then define a nuclear force level for the United States that leads the world on the path to zero, but also provides sufficient deterrence against the use of nuclear weapons by others along the way.

Cold War theory envisioned massive force-on-force exchanges between two hostile superpowers bent on achieving some hypothetical advantage by destroying the other side’s capacity for nuclear war fighting. Such thinking was questionable then and is ludicrous today. What then is a reasonable starting point for sizing the U.S. nuclear weapons stockpile? Since the British, French, and Chinese nuclear forces are all at or below 300 operational warheads, we believe that the target for the next round of U.S.

and Russian nuclear force reductions should be 500 total warheads each, including tactical nuclear weapons and any non-deployed warheads, spares, and reserves.

**We recommend that the Obama Administration make every effort to extend the Strategic Arms Reduction Treaty (START) with Russia, before it expires at the end of 2009, and speed up negotiations for a follow-on treaty. The U.S. goal should be a verifiable treaty with a limit of 500 total warheads in the active and reserve stockpiles of each nation with commensurate reductions in delivery vehicles for strategic weapons.**

In February 2009, the Obama Administration announced its intent to seek a limit of 1,000 warheads in the next round of START negotiations. It is unclear what exactly that figure represents, but it appears that the Administration is referring to the counting rules of the 2002 Moscow Treaty, which apply to only “operationally deployed strategic warheads.” That would allow each side to retain thousands of additional warheads. Quick agreement on an interim ceiling of 1,000 operationally deployed strategic warheads, combined with a reduced number of strategic nuclear delivery vehicles within the current START framework, is a good first step. However, this should be merely a stepping-stone to a comprehensive verifiable treaty with a ceiling of 500 *total* warheads in the active and reserve stockpiles of each nation.

We recognize that the number 500 may appear somewhat arbitrary. However, we view getting to 500 total warheads each as a vital confidence-building step that is not complicated by the need to address the arsenal sizes of the other nuclear weapons powers. Once that step is completed, the U.S. and Russia should engage other nations in multilateral negotiations to reduce all nuclear arsenals further.

The details of how the U.S. structures its nuclear forces, within the limit of 500 warheads, are not as important as reducing the overall numbers. A wide range of force structures with 500 warheads could meet the requirement for a credible, survivable deterrent. In Chapter 2, we present potential force structures with as few as two and as many as seven different types of nuclear weapons. However, **we do recommend that the United States remove all U.S. nuclear weapons from foreign bases.** The concept that nuclear weapons must be forward deployed to slow or stop a massive conventional attack is outdated. Furthermore, there is little credibility to claims that U.S. nuclear weapons are needed on foreign territory to guarantee that the United States would come to the defense of its allies. Forward basing of U.S. nuclear weapons is more of a liability than an asset.

We would prefer to see a verifiable treaty with Russia mandating reciprocal reductions before the United States makes any further significant reductions in its nuclear stockpile. Such a treaty would not only provide the U.S. with assurance that Russia will match U.S. reductions, but it would also lay the groundwork for the verification and transparency measures needed for other states to join in moving toward the elimination of all nuclear weapons.

On the other hand, we believe that U.S. nuclear forces remain much larger than needed to deter a nuclear attack by Russia, or any other nation, and remain sufficiently survivable regardless of the size of the opposing force. Thus, even if U.S./Russian conclusion of a new START treaty is delayed, the U.S. should set an example

by unilaterally reducing the size of its nuclear stockpile toward 500 total warheads. As a precaution, the U.S. should not dismantle all excess warheads, until a treaty is concluded with Russia or Russia transparently follows the U.S. lead in reducing its stockpile.<sup>6</sup> If the U.S. did so, it could lose leverage in negotiations with Russia for an agreement to verify the irreversible destruction of excess nuclear warheads, which is essential for achieving the longer-term goal of a world free of nuclear weapons.

The United States and Russia each maintain about 2,000 nuclear warheads on land- and sea-based missiles on ready alert. This ready alert status is another carryover from the Cold War and needlessly feeds an adversarial posture between two nations that generally are on otherwise cordial terms. It also elevates the seeming importance of nuclear weapons in our strategic policy and represents an unnecessary risk of mistaken, accidental, or unauthorized launch of a nuclear weapon. Maintaining a high alert status places a continuing burden on command and control systems to correctly identify and respond to a real attack, while never mistaking peaceful space launches or military flight tests for an attack in progress. The U.S. and Russia long ago removed their strategic bombers from ready alert and do not keep nuclear payloads onboard those aircraft.

During the election campaign, Senator Obama declared, “As President, I will immediately stand down all nuclear forces to be reduced under the Moscow Treaty and urge Russia to do the same.” We do not think that is enough. **We recommend that President Obama order steps to begin de-alerting all U.S. nuclear forces in a manner that lengthens the time, but does not compromise the capability, for U.S. retaliation in the event of a nuclear attack. He should also encourage Russia to take similar measures.**

The saying goes that “timing is everything.” In this case, the objective is reciprocal measures that impose physical delays in responding to perceived attacks and provocations. That would allow for more rational deliberations, before either side takes steps that could lead to a nuclear apocalypse. De-alerting forces would also greatly reduce the potential for an accidental or unauthorized launch of nuclear weapons. As we discuss in Chapter 3, de-alerting of land- and sea-based missiles goes well beyond simply changing the targeting instructions of those missiles, which can be quickly reinstalled.

As with reducing the number of nuclear weapons, we believe that the United States can begin de-alerting its missile forces without prior assurance of Russian reciprocity. However, to maintain leverage in treaty negotiations on the necessary transparency measures, full de-alerting of U.S. nuclear forces should await reciprocal steps by Russia and other nations within the context of a verifiable agreement. De-alerting a significant portion of U.S. missiles could help ease Russian concerns about the potential vulnerability of its strategic forces and help that nation follow the U.S. lead in further reducing and de-alerting its nuclear forces. Such steps would greatly demonstrate to the world that the U.S. and Russia are stepping away from their reliance on nuclear deterrence as the organizing principle of their geopolitical relationship

*We believe that the United States can begin de-alerting its missile forces without prior assurance of Russian reciprocity.*

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6 At triple today’s pace of dismantlement, there would still be thousands of warheads awaiting dismantlement for the next decade in any event.

and are, at last, serious about meeting their obligations under Article VI of the Non-Proliferation Treaty (NPT). Article VI requires all treaty signatories “to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.”

## **Additional Steps to Reduce the Threat of Nuclear Weapons**

### **A Comprehensive Test Ban Treaty**

First and foremost among the additional steps, **we recommend that President Obama resubmit the Comprehensive Nuclear Test Ban Treaty (CTBT) to the U.S. Senate for ratification and, following U.S. ratification, work with the remaining nations that must approve the treaty before it enters into force.**

Universal adherence to a Test Ban Treaty is important for limiting both the proliferation of nuclear weapons and the further development of new types of weapons in those nations already possessing them.

The CTBT has been signed by 180 states and ratified by 146. However, before it can enter into force, all 44 nations that possessed nuclear research or power reactors in 1996 must ratify it. Of those 44 nations, three—India, Pakistan, and North Korea—have not signed the treaty. A further six nations—the United States, China, Egypt, Indonesia, Iran, and Israel—have signed, but not yet ratified the treaty.

Ratification of the CTBT by the United States would send a strong message to the world regarding its new strategic posture and would strengthen the Non-Proliferation Treaty. China has stated it would ratify the CTBT when the U.S. does so. With all five permanent members of the UN Security Council on board, parties to the treaty could bring stronger pressure on the remaining holdouts.

In 1999, the U.S. Senate failed to gain the necessary two-thirds majority to ratify the CTBT, in part due to misplaced concerns that the treaty could not be effectively verified and that the United States might need to test to maintain its deterrent. Since then, verification techniques have improved and detection networks have been expanded. Regarding the potential need for the U.S. to test, every year since 1999, the Secretaries of Defense and Energy, on the advice of the head of the Strategic Command and the directors of the nuclear weapons labs, have certified that there was no need to perform a nuclear test to assure the reliability or safety of the U.S. nuclear weapons stockpile. In Chapter 5 of this report, we discuss procedures that would better guarantee that the U.S. could maintain its deterrent indefinitely without nuclear testing and without spending nearly as much money on nuclear weapons research as is currently spent.

While ratifying the CTBT is important, it would be a mistake for the Obama Administration to strike a deal with the weapons labs to give them more resources and leeway for modifying or improving nuclear weapons in return for their support for the treaty, as some have suggested. Increasing R&D spending on nuclear weapons technology or improving nuclear weapons would send the wrong message to the world regarding the continuing importance of these weapons in U.S. security policy,

*It would be a mistake for the Obama Administration to strike a deal with the weapons labs to give them more resources and leeway for modifying or improving nuclear weapons.*

open the U.S. to charges of nuclear hypocrisy, and undercut many of the political benefits of ratifying the CTBT.

### **Ban on the Production of Fissile Material Directly Usable In Nuclear Weapons**

The most difficult step in obtaining a nuclear weapon is producing or otherwise acquiring the fissile materials—plutonium (Pu) or highly enriched uranium (HEU)—needed to make them work. Ending the production of fissile materials and reducing and eventually eliminating existing material stockpiles is a key step on the road to a world without nuclear weapons. A treaty to cut off the production of fissile material for nuclear weapons has been discussed in international circles for more than two decades, but negotiations are deadlocked over two issues—whether to include existing stocks of fissile material in the treaty and whether to make the treaty verifiable.

**We recommend that the U.S. seek to jump-start negotiations on a Fissile Materials Cutoff Treaty (FMCT), at the UN Conference on Disarmament, by agreeing to begin the negotiations without preconditions. Once treaty negotiations begin, the U.S. should seek a verifiable treaty that addresses existing stocks of fissile materials as well as new production.**

***We recommend that the Obama Administration declassify and publicly release all information pertaining to U.S. nuclear weapons that would not weaken our national security.***

### **Retrieve and Secure Global Stocks of Weapons Usable Fissile Material**

Beyond seeking a fissile materials cutoff treaty, there is much that the U.S. can do to reduce the amount of separated plutonium and HEU in this country and around the world. The most urgent objectives in this regard are the global elimination of civil and poorly secured military stocks of HEU. The U.S. and Russia have cooperated for more than fifteen years to improve the security of military stockpiles of fissile materials that were at risk after the collapse of the Soviet Union. However, more work remains to be done. In addition, about 130 research reactors around the world are still fueled by HEU. They represent an unacceptable proliferation danger, especially since the technology exists to fuel all but a handful of them with low enriched uranium (LEU).

**We recommend that the Obama Administration place greater emphasis and more resources on securing all fissile materials and, in particular, on significantly reducing the use of HEU in civil reactors and research facilities throughout the world.**

### **Increase U.S. Nuclear Transparency and Seek Comparable Disclosure by Other Nuclear States**

Before the world can be free of nuclear weapons, the community of nations must be assured that no nation has clandestine stores of nuclear weapons or weapons material. This will require an enormous worldwide shift toward transparency in nuclear matters. Eventually it will require a comprehensive treaty regime with strict monitoring and control measures.

**We believe the U.S. government should prepare for that by leading the world in increasing the openness and transparency of its nuclear weapons programs. We recommend that the Obama Administration declassify and publicly release all information pertaining to U.S. nuclear weapons that would *not weaken our national security*, including:**

- The numbers and types of nuclear weapons in the U.S. stockpile and plans for the future;
- The numbers and types of warheads awaiting dismantlement and past, present and projected rates of dismantlement;
- Basic information regarding each type of nuclear weapon in the stockpile or awaiting dismantlement, such as their yield and when they were built, modified, or refurbished; and
- The aggregate amounts of Pu, HEU, and tritium contained in: (a) nuclear weapons in the active and reserve stockpiles (b) material stockpiles reserved for use in nuclear weapons, including material in components and weapons awaiting dismantlement (c) stockpiles reserved for other uses (e.g. naval propulsion and radioisotope power sources) and (d) amounts declared excess to weapons and other military uses and made available for disposition or civil use.

In Chapter 3, we specify additional information that the Administration should declassify to encourage informed public debate on issues such as maintaining the reliability and safety of the U.S. stockpile, without nuclear testing.

## **The Nuclear Weapons Complex**

The National Nuclear Security Administration (NNSA), a semi-autonomous arm of the U.S. Department of Energy (DOE), is responsible for maintaining the U.S. nuclear weapons stockpile. NNSA also dismantles nuclear weapons after they are removed from service. In the past, the same organization designed, built, and tested new nuclear weapons, and it still maintains capabilities to do so, but the United States has not developed a completely new nuclear weapon in nearly two decades. NNSA conducts its activities at eight major sites around the country, which are collectively referred to as the “nuclear weapons complex” (see map on the following page).

In October 2008, NNSA released a Final Supplemental Programmatic Environmental Impact Statement (SPEIS) on Complex Transformation. According to NNSA, the SPEIS “analyzes the potential environmental impacts of reasonable alternatives to continue transformation of the nuclear weapons complex to be smaller, more responsive, efficient, and secure in order to meet national security requirements.” On December 19, 2008, NNSA published two “Records of Decision” in the Federal Register setting forth its plans for Complex Transformation. According to NNSA, those decisions will result in a smaller and more efficient weapons complex.

However, under NNSA’s plan, nuclear weapons activities would continue indefinitely at all eight existing sites. We believe that NNSA’s plan, based on continuing support for a stockpile of several thousand weapons and the saber-rattling strategy of the 2001 Nuclear Posture Review for employing them, was woefully outdated even before it was published. In Chapters 5 and 6 of this report, we present a plan for a smaller, more secure, less costly complex to support the nuclear weapons stockpile as it is reduced to 500 weapons and beyond.

**We recommend that NNSA significantly modify how it maintains nuclear weapons and that it shrink and consolidate the nuclear weapons complex from**

# Nuclear Weapons Complex Consolidation Policy Network

## Our Plan for Shrinking the Complex from Eight Sites to Three by 2025

### Lawrence Livermore National Lab

*Current Activities/Capabilities:*

Nuclear Design/Engineering  
Plutonium R&D  
High Explosives R&D  
Tritium R&D  
Hydrotesting  
Weapons Env. Testing

*Our Plan:*

Transferred out of weapons programs by 2012.

### Sandia - CA

(see NM Site below)

### Nevada Test Site

*Current Activities/Capabilities:*

Underground Test Readiness  
High Explosives Testing  
Hydrotesting

*Our Plan:*

Transferred out of weapons programs by 2012.

### Kansas City Plant

*Current Activities/Capabilities:*

Non-nuclear Components Production

*Our Plan:*

Weapons activities end by 2015.

### Y-12 National Security Complex

*Current Activities/Capabilities:*

Production and Dismantlement of Secondaries  
HEU Operations

*Our Plan:*

Weapons activities end by 2025.

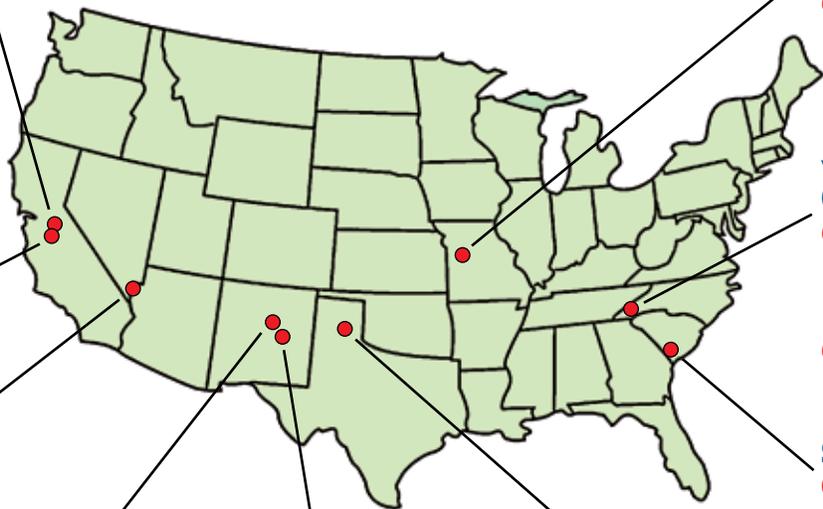
### Savannah River Site

*Current Activities/Capabilities:*

Tritium Extraction, Loading, Unloading  
Tritium R&D

*Our Plan:*

Weapons activities end by 2020.



### Los Alamos National Lab

*Current Activities/Capabilities:*

Nuclear Design/Engineering  
Plutonium R&D and Pit Production  
Assembly/Disassembly of Secondaries  
Tritium Operations  
Some Non-nuclear Components  
High Explosives R&D  
Hydrotesting  
Weapons Env. Testing

*Our Plan:*

Reduce weapons/plutonium R&D.  
Pit production capability put on cold standby.  
Replace tritium in the residual stockpile.  
Transfer high explosives R&D to Pantex.  
Reduce Weapons Env. Testing.  
Maintain capabilities for surveillance and certification.

### Sandia National Laboratories

*Current Activities/Capabilities:*

Non-nuclear Design/Engineering  
Some Non-nuclear Component Production  
Explosive Components R&D  
Major Weapons Env. Testing

*Our Plan:*

End weapons activities in CA.  
Reduce weapons R & D in NM.  
Maintain capabilities for surveillance and certification.  
Fabricate more types of nonnuclear replacement parts for fewer weapons.

### Pantex Plant

*Current Activities/Capabilities:*

Weapons Assembly/Disassembly  
High Explosives R&D and Production  
Weapons Dismantlement  
Plutonium Pit Storage

*Our Plan:*

Increase weapons dismantlement.  
Increase capacity for pit storage.

## Residual Capabilities

## in a 3-site Nuclear Weapons Complex Supporting 500 Warheads

[Note: In "Environmental Testing" the Labs subject nuclear weapons to extremes of temperature, vibration, shock and radiation to mimic the conditions of delivery to the target and ensure their performance during a nuclear war.]

**eight sites spread around the country to only three sites (Los Alamos National Laboratory, Sandia National Laboratory-New Mexico, and Pantex Plant) that are within 280 miles of each other. Our complex would be: 1) sharply reduced in scale; 2) an interim step toward a nuclear weapons free world; and 3) would result in no net increase in nuclear weapons activities or funding at any of the three remaining sites.**

A map on the inside front cover of this report shows the eight sites in the nuclear weapons complex, as it is today, and the three-site nuclear weapons complex as it would be under our plan to support residual operations for a stockpile of 500 or fewer nuclear weapons.

***Existing capacity at the three remaining sites could adequately meet the residual workload, as an interim step toward total, global nuclear disarmament.***

Shrinking and consolidating the nuclear weapons complex would demonstrate U.S. leadership toward a world free of nuclear weapons and would save taxpayers billions of dollars. While we are confident in the merits of our plan, we strongly emphasize that due process needs to be followed before it can be implemented. For example, there has to be analysis and public review of such a “major federal action” under the National Environmental Policy Act to insure that potential environmental impacts are properly considered, mitigated, or best of all avoided. Environmental justice issues and Tribal concerns must also be met, the latter on a government-to-government basis as needed. We believe these important concerns can be satisfactorily met, because shrinking the nuclear weapons complex, made possible by a dramatically reduced and technologically stable stockpile, should result in reducing the overall level of activity at each of the three remaining sites (with the possible exception of a short-term increase in dismantlements at Pantex). Another way of saying this is that existing capacity at the three remaining sites could adequately meet the residual workload, as an interim step toward total, global nuclear disarmament. We reiterate, before any major missions are transferred from one site to another within the weapons complex there must be due process involving all potentially impacted communities.

## **Curatorship: A New Strategy for Maintaining the Weapons Stockpile**

Shortly after the U.S. entered a moratorium on underground testing of nuclear weapons in 1992, NNSA’s predecessor, the DOE’s Office of Defense Programs, adopted a strategy called “Stockpile Stewardship” for maintaining the nuclear weapons stockpile in the absence of testing. The strategy sought to “replace” nuclear testing with costly new experimental and computational capabilities, in an effort to model precisely the behavior of exploding nuclear weapons that could no longer be detonated underground in Nevada.

***Computer simulations cannot provide the same level of confidence in modified warheads that was provided for the original warheads through full-scale nuclear tests.***

NNSA has made considerable progress in this modeling effort, but there is a fatal flaw in its strategy. The more confident the weapons labs have become in their modeling capabilities, the more they have been tempted to modify the nuclear weapons in the stockpile. However, computer simulations cannot provide the same level of confidence in modified warheads that was provided for the original warheads through full-scale nuclear tests. Presidents Clinton and Bush, on the advice of their Secretaries of Defense and Energy, repeatedly certified that the nuclear weapons in the current stockpile are safe and reliable. However, over time, *if changes continue to be introduced into warheads*, the level of confidence in the stockpile will inevitably diminish.

**We recommend a more conservative approach to maintaining the existing nuclear weapons stockpile, based on ensuring that today’s safe and reliable warheads are changed as little as possible and only in response to documented findings that corrective action is needed to fix a component or condition that could degrade performance or safety.** The key to this approach is our conclusion that there is no need for the United States to design any new nuclear weapons or to make performance or safety-enhancing modifications to existing ones. This technical approach is more consistent with U.S. initiatives in nuclear non-proliferation and nuclear threat reduction.

***We recommend that NNSA suspend the current Life Extension Programs.***

Our methodology is called “Curatorship.” Just as a museum curator maintains artistic treasures and occasionally restores them to their original condition, so too would NNSA and the Department of Defense (DoD) maintain nuclear weapons to their original design and condition, with occasional restorations. NNSA’s role in maintaining nuclear weapons would focus on scrupulous surveillance and examination of warheads to determine if any component has changed in any manner that might degrade the safety or performance of the warhead. If so, it would then restore that part as closely as possible to its original condition. With changes to warheads strictly controlled, confidence in the performance of the remaining warheads would be higher than under Stockpile Stewardship. The financial cost and the loss of international credibility regarding nuclear proliferation would be much lower.

***Under Curatorship, only if laboratory experts could present compelling evidence that a warhead component has degraded, or will soon degrade, and that such degradation could cause a significant loss of safety or reliability, would NNSA replace the affected parts.***

Under Stockpile Stewardship, NNSA is performing extensive “Life-Extension Programs” (LEPs) for each type of warhead in the stockpile. In practice, “life extension” has become a misnomer for a nearly complete rebuild and upgrade of a warhead system that is nowhere near the end of its life. Under the LEPs, NNSA, and DoD have jointly authorized hundreds of changes to nuclear weapons, adding new components and modifying weapons’ military characteristics. NNSA and DoD have chosen to make weapons lighter, more rugged, more tamper proof, and more resistant to radiation.

NNSA is currently performing an LEP on the sub-launched W76 warhead, which it estimates will cost over \$3 billion. The extensive changes NNSA is making include adding a new Arming, Fuzing & Firing (AF&F) system, which will add a ground burst capability that is more destructive of buried targets than the previous air burst firing system, and fitting the warhead to a new reentry body for placement on the D5 missile, which has much greater accuracy than the previous delivery vehicle. Taken together, these changes give the W76 a hard-target kill capability, effectively changing it from a weapon of deterrence to a possible first-strike nuclear weapon.

In contrast, under Curatorship, NNSA would take a very conservative approach to modifying warheads. Only if laboratory experts could present compelling evidence that a warhead component has degraded, or will soon degrade, and that such degradation could cause a significant loss of safety or reliability, would NNSA replace the affected parts. These replacement parts would truly extend the life of the warhead, without modifying its performance or military characteristics. NNSA currently takes apart approximately eleven warheads of each type per year and examines them under its Surveillance and Evaluation Program. Under Curatorship, NNSA would increase the scope and importance of the Surveillance

and Evaluation Program to assure that every component of every warhead design is scrupulously examined and tested each year.

*We further recommend that no changes of any type be made to existing nuclear weapons, unless there is a compelling reason to do so.*

**We recommend that NNSA suspend the current Life Extension Programs (LEPs) and that the Obama Administration adopt the Curatorship approach to maintaining the nuclear weapons stockpile. President Obama should issue a Presidential Decision Directive (PDD) prohibiting any change in the military characteristics (MCs) or the Stockpile to Target Sequence (STS) requirements of any nuclear weapon, unless the change is essential for maintaining the safety or reliability of the existing warhead.**

**We further recommend that no changes of any type be made to existing nuclear weapons, unless there is a compelling reason to do so. To further that end, we recommend that Congress establish a stringent change control process for nuclear weapons, in legislation, including a requirement for outside review of all changes.** Congress should require that both the outside reviewers and the final decision makers weigh the potential benefits of any proposed change against the adverse non-proliferation consequences and the likelihood that changes could, over time, contribute to reduced confidence in the performance of the warhead. Major changes should require separate authorization and funding by Congress.

The change control process could take many forms, but we believe it should include some form of review from outside the weapons laboratories. Independent review might be solicited from the JASON scientific advisory group, the National Academy of Sciences, or a new entity established solely for that purpose.

## **Shrinking Weapons Research Under Curatorship**

Under the Curatorship approach, **we recommend that the NNSA de-emphasize nuclear weapons science and technology and cease its quest for more and more detailed simulations of exploding thermonuclear weapons.** The existing codes are sufficient, in conjunction with limited use of hydrotesting, for the analyses needed to maintain the stockpile as it is. Improved codes have little use except for designing new types of nuclear weapons or verifying the impact of major changes to existing ones. Designing new nuclear weapons would run counter to U.S. commitments under Article VI of the Non-Proliferation Treaty and would set a bad example for the rest of the world. President Obama has already declared that the United States will not design new nuclear weapons. The NNSA's claim that it needs better computer codes to maintain existing weapons is tantamount to Iran's claim that it needs a domestic uranium enrichment capability for nuclear power. Both claims may provide fig leaves for thinly-veiled nuclear weapons development programs.

**We recommend that NNSA dramatically reduce its research efforts in several areas, including equation of states studies, dynamic modeling, studies of the physical and chemical properties of Pu and HEU, hydrodynamics experiments, and sub-critical tests.** NNSA should continue to validate its codes against existing test data and apply those codes to questions of relevance to the existing stockpile. It should also expand the testing and analysis of components taken from actual warheads in the stockpile to assure that any changes to components due to aging are

discovered and analyzed before they become detrimental to nuclear weapons performance. A simple way of putting it is that we recommend an “engineering” rather than a “science-based” approach to stockpile maintenance.

With significantly less weapons R&D under Curatorship, NNSA could shrink its R&D infrastructure. **We recommend reducing the number of facilities and personnel dedicated to nuclear weapons research, development, and testing and consolidating such efforts to Los Alamos National Laboratory (LANL) and Sandia National Laboratory-New Mexico (SNL-NM). In particular, we recommend closing all nuclear weapons R&D facilities at Lawrence Livermore National Laboratory (LLNL) and Sandia National Laboratory-California (SNL-CA) or transferring them to other DOE programs for non-weapons research.**

*We recommend closing all nuclear weapons R&D facilities at Lawrence Livermore National Laboratory (LLNL) and Sandia National Laboratory-California (SNL-CA) or transferring them to other DOE programs for non-weapons research.*

Under our plan, LLNL would retain a small “red-team” of experts to continue studies and analyses relevant to Curatorship of the existing stockpile and provide peer review for certification actions. DOE would shift LLNL’s primary mission from nuclear weapons research to basic science, energy and environmental research, while maintaining strong programs in non-proliferation, safeguards, transparency and verification of warhead dismantlement, intelligence, and nuclear emergency response. Also, under our plan, NNSA would cease, or transfer to SNL-NM, all weapons-related activities at SNL-CA. All other facilities at SNL-CA would be closed or transferred to other DOE offices or to other agencies.

**We also recommend that NNSA cease all sub-critical testing and most other nuclear weapons-related tests and experiments at the Nevada Test Site (NTS) and transfer the landlord responsibility for the site to another DOE office or other appropriate entity.** Operations at the U1A facility should be suspended and the facility closed. DOE or other agencies could continue to operate other research, development, and testing facilities at NTS, including the Big Explosives Experimental Facility (BEEF) and large gas guns, as user facilities.

## **Shrinking and Consolidating Weapons Production Activities**

Along with NNSA’s R&D infrastructure, we recommend shrinking and consolidating NNSA’s infrastructure for maintenance and production of nuclear weapons. We base our strategy for shrinking and consolidating nuclear weapons production activities on four guiding principles:

- NNSA should reduce its infrastructure to that needed to support a total stockpile of 500 nuclear weapons, under a Curatorship approach, which stringently minimizes changes to existing warheads.
- NNSA does not need any capability to produce components that are not currently in weapons in the stockpile.
- NNSA should expand its capabilities for surveillance of warheads remaining in the stockpile and retain facilities to replace genuinely “limited life components,” and, if necessary, replace any other component when there is evidence of a problem that left unattended could significantly degrade warhead performance or safety.

- NNSA should dismantle excess warheads and consolidate and reduce stockpiles of special nuclear materials, as quickly as possible, to reduce costs and security risks.

Adhering to these principles would result in a much smaller production complex than exists today. Currently, most nuclear weapons production and maintenance activities are carried out at six sites:

- Los Alamos National Laboratory conducts surveillance, production, and other operations on components containing Pu, particularly the plutonium pit or “trigger.” It also produces nuclear weapons detonators.
- Y-12 Plant conducts surveillance, production and other operations on components containing uranium.
- Pantex Plant disassembles/assembles warheads for dismantlement, surveillance, or refurbishment, stores excess pits awaiting dismantlement, and produces high explosives.
- Kansas City Plant produces or procures 85 percent of nonnuclear components for nuclear weapons.
- Savannah River Site processes tritium and refills tritium reservoirs.
- Sandia National Laboratory-New Mexico conducts surveillance on most non-nuclear components and produces neutron generators and other parts.

***We believe that a 500-warhead stockpile, with stringent constraints on modifying those warheads, could be more than adequately supported by only three sites.***

The other locations—LLNL, Nevada Test Site, SNL-CA—primarily conduct supporting nuclear weapons research, development, and testing, but they also perform some surveillance work.

We believe that a 500-warhead stockpile, with stringent constraints on modifying those warheads, could be more than adequately supported by only three sites. Moreover, because nuclear weapons activities would be sharply curtailed, each of those three sites should experience a net reduction in workload, with the possible exception of a short-term increase in dismantlements at Pantex.

Under our plan: LANL would be responsible for nuclear-related operations, (primaries, secondaries, and tritium); SNL-NM would produce or procure most nonnuclear components and, as it has been doing, integrate weapon functions; and Pantex would have responsibility for chemical high explosives and for warhead disassembly/assembly operations, with an increased focus on dismantlements. All three sites would conduct surveillance on various components. In addition, supporting research and analysis, devoted primarily to peer review of important warhead issues, would continue at LLNL. The timing of consolidation from six production sites (out of eight sites in all) to three and the sizing of any new facilities that might be needed to accomplish the consolidation is difficult to specify. Both depend on the timing of stockpile reductions to the 500-warhead level and beyond. If the vision of a world free of nuclear weapons is realized soon, it might be cheaper merely to wind down activities at the existing sites, without ever relocating any operations. On the other hand, if stockpile reductions proceed on a gradual glide path over twenty years or more, as is more likely, there would be substantial environmental, security, and cost benefits in consolidating to three sites.

For planning purposes, we assume that the U.S. reduces its stockpile to 500 total nuclear warheads, beginning now and concluding between 2015 and 2020, and that consolidation to three sites is completed shortly after the stockpile is reduced to 500 warheads. **Accordingly, we recommend that NNSA begin the planning needed to shrink and consolidate all production, surveillance, and disassembly/reassembly activities to LANL, SNL-NM, and Pantex and prepare for a smaller complex by cancelling or deferring construction of several large new facilities, including:**

- **the Uranium Processing Facility (UPF) at Y-12,**
- **a new nonnuclear components manufacturing complex in Kansas City,**
- **the “Nuclear Facility” (NF) for the Chemistry and Metallurgy Research Building Replacement (CMRR) Project at LANL,**
- **the Weapons Engineering Science and Technology (WEST) facility, scheduled for construction at LLNL beginning in 2010,**
- **the proposed annex to the High Explosives Application Facility (HEAF) at LLNL,**
- **the Pit Disassembly and Conversion Facility (PDCF) planned for SRS,**
- **the Mixed Oxide (MOX) fuel fabrication plant at SRS, and**
- **the Waste Solidification Building (WSB) planned for SRS.**

Until the pace of arms reductions is clearer, NNSA should make no decisions to build new facilities or relocate facilities that it might need to consolidate production activities, with one exception. **We recommend that NNSA study the alternatives for transferring essential nonnuclear component fabrication activities from KCP to SNL-NM, LANL, or the private sector, with a view toward closing KCP by 2015.**

**In addition, we recommend that NNSA should:**

- **Remove all Category I and II amounts of special nuclear material (SNM) from LLNL by the end of 2010 and consolidate SNM to fewer locations at the sites that retain significant quantities.**
- **Cancel plans for expanding pit production capacity beyond the currently sanctioned 20 pits per year, but maintain a capability to fabricate one or two plutonium pits annually at LANL. Maintain additional production capacity at LANL on cold standby, with the ability to resume production of up to 20 pits per year should a generic defect be discovered. As a rule, but only if necessary, rely on pit “reuse” at Pantex rather than new production at LANL.**
- **Increase the pace of dismantling retired warheads at Pantex from today’s rate of 300-400 per year to 800-1,000 per year, or more, consistent with maintaining safety and without building major new facilities.**

- **Continue storing dismantled pits at Pantex and perform a new site-wide Environmental Impact Statement for Pantex to examine whether the safe storage limit can be increased from 20,000 to 25,000 pits.**
- **Declare all plutonium outside of warheads in the stockpile plus a working inventory of 500 kg as excess to national security needs.**
- **Place plutonium disposition activities in the United States on hold pending a bottom up review of all reasonable alternatives. The disposition option(s) chosen should be transparent and should facilitate future international verification of Pu disposition under a treaty advancing the elimination of all nuclear weapons.**
- **Dismantle excess canned subassemblies (CSAs) in existing facilities at Y-12 as rapidly as possible, consistent with safe operations, which we believe could be 1,000 or more per year.**
- **Declare all HEU outside of warheads in the stockpile, a working inventory of 2,000 kg, and a 50-year reserve held to fuel US naval vessels as excess to national security needs.**
- **Relocate residual HEU-related stockpile surveillance and production activities from Y-12 to LANL after the stockpile is reduced to 500 or fewer warheads.**
- **Cease all tritium production and extraction activities by removing all Tritium Producing Burnable Absorber Rods (TPBARs) from the Watts Bar nuclear power plant and closing the Tritium Extraction Facility at SRS after extracting the tritium from those TPBARs.**
- **Relocate all residual support for tritium reservoirs (unloading, purification, recycling, and reloading) from SRS to the Weapons Engineering Tritium Facility (WETF) at LANL after the stockpile is reduced below 1,000 warheads.**

**TABLE 1. Summary of Site-Specific Recommendations**

Site	Short Term Steps	Longer-Term Plans
<b>Los Alamos National Lab (LANL)</b>	<ul style="list-style-type: none"> <li>• Significantly reduce nuclear weapons R&amp;D, in conformance with a Curatorship approach, and encourage mission diversification.</li> <li>• Cancel the CMRR-NF Project and upgrades for LANSCE.</li> <li>• Expand surveillance and testing of existing components.</li> <li>• Cancel plans for expanded pit production. Maintain a capability to produce 1 or 2 pits/yr with additional capacity in cold standby to produce up to 20/yr in 12–18 months if needed.</li> <li>• Retain a residual capability to design and certify nuclear components, if needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Relocate support for tritium reservoirs from SRS to the WETF at LANL when the stockpile is reduced below 1,000 warheads.</li> <li>• Transfer residual HEU activities from Y-12 to LANL after the stockpile is reduced to 500 warheads.</li> </ul>
<b>Lawrence Livermore National Lab (LLNL)</b>	<ul style="list-style-type: none"> <li>• Remove all Category I and II SNM from LLNL by the end of 2010.</li> <li>• Close out SNM processing and handling, except for limited surveillance activities.</li> <li>• Close most of Superblock, including Buildings 332 and 334.</li> <li>• Close all nuclear weapons R&amp;D facilities or transfer them to other missions.</li> <li>• Close Site 300 or transfer it for use to other missions.</li> <li>• Cancel plans for new weapons-related facilities, including an annex to HEAF and a new WEST facility.</li> <li>• Retain independent teams of experts to analyze warhead safety and reliability issues relevant to the current stockpile.</li> <li>• Peer review recertification of warheads and components and potential changes to them.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase lab activities in basic science, energy and environmental research, while maintaining strong programs in non-proliferation, safeguards, transparency and verification of warhead dismantlement, intelligence, and nuclear emergency response.</li> <li>• By 2012, LLNL will no longer be considered part of the nuclear weapons complex administered by NNSA.</li> </ul>
<b>Sandia Lab New Mexico (SNL-NM)</b>	<ul style="list-style-type: none"> <li>• Limit experimental facilities primarily to surveillance and environmental testing of existing components.</li> <li>• Maintain cradle to grave responsibility for design, testing, and recertification of nearly all existing nonnuclear components.</li> <li>• Fabricate or procure new and replacement components, as needed, as responsibilities transfer from the KCP.</li> <li>• Retain a residual capability to design and certify nonnuclear components and perform weapons integration, if needed.</li> </ul>	<ul style="list-style-type: none"> <li>• Remain the predominant site for all engineering, surveillance, production, and dismantlement of nonnuclear components.</li> <li>• Host future facilities needed for environmental testing of components as part of the surveillance program.</li> <li>• Continue residual production and maintenance of neutron generators, including tritium loading of neutron target tubes.</li> </ul>
<b>Sandia Lab California (SNL-CA)</b>	<ul style="list-style-type: none"> <li>• Close out all NNSA activities. Some facilities may continue operating for other missions under other entities and some activities, including surveillance, may transfer to other NNSA sites.</li> </ul>	<ul style="list-style-type: none"> <li>• By 2012, SNL-CA will no longer be considered part of the nuclear weapons complex administered by NNSA.</li> </ul>

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Site	Short Term Steps	Longer-Term Plans
<b>Nevada Test Site (NTS)</b>	<ul style="list-style-type: none"> <li>• Cease sub-critical testing and close the U1A facility.</li> <li>• BEEF, large gas guns, and some other facilities could continue as user facilities with new owners.</li> <li>• Transfer site landlord responsibility from NNSA to another DOE office or other appropriate entity.</li> </ul>	<ul style="list-style-type: none"> <li>• By 2012, NTS will no longer be considered part of the nuclear weapons complex administered by NNSA.</li> </ul>
<b>Pantex Plant</b>	<ul style="list-style-type: none"> <li>• Begin process to increase storage capacity from 20,000 to 25,000 pits.</li> <li>• Close pit storage bunkers in Zone 4 and transfer pits to more secure, underground storage on the site.</li> <li>• Continue operation as the sole facility for routine disassembly/assembly of nuclear weapons.</li> <li>• Consolidate all high explosive production and fabrication to Pantex.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase dismantlement rate to 800–1,000 warheads per year.</li> </ul>
<b>Y-12 Facility</b>	<ul style="list-style-type: none"> <li>• Cancel the Uranium Processing Facility (UPF).</li> <li>• Maintain a capability to fabricate no more than 20 canned sub-assemblies (CSAs) per year.</li> <li>• Move all HEU, except for processing inventories, into HEUMF by the end of 2011.</li> <li>• Blend down HEU to 20% U-235 at existing facilities, new facilities in HEUMF, or B&amp;W-owned facilities.</li> <li>• Expand surveillance of CSAs.</li> <li>• Continue to supply enriched uranium to meet the fuel needs of the U.S. Navy.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase dismantlement rate for CSAs to at least 1,000 per year.</li> <li>• Transfer all production and surveillance activities (except for dismantlements) to LANL after the stockpile reaches 500 warheads.</li> <li>• Complete all dismantlements by 2025, at which point Y-12 will no longer be considered part of the nuclear weapons complex administered by NNSA.</li> <li>• Continue operating as a uranium and HEU processing and storage center.</li> <li>• Downblend all excess HEU to LEU by 2030.</li> </ul>
<b>Kansas City Plant (KCP)</b>	<ul style="list-style-type: none"> <li>• Do not build new plant.</li> <li>• Downsize in place and begin shifting missions to SNL-NM and LANL.</li> </ul>	<ul style="list-style-type: none"> <li>• All NNSA activities cease by the end of 2015. No longer considered part of the nuclear weapons complex.</li> </ul>
<b>Savannah River Site (SRS)</b>	<ul style="list-style-type: none"> <li>• Cancel the PDCF.</li> <li>• Place the MOX fuel plant and the Waste Solidification Building on hold.</li> <li>• Close the Tritium Extraction Facility after removing tritium from remaining TPBARs.</li> </ul>	<ul style="list-style-type: none"> <li>• Transfer all support for tritium reservoirs from SRS to LANL, as the stockpile is reduced toward 500 warheads (between 2015 and 2020), at which time SRS will no longer be considered part of the nuclear weapons complex administered by NNSA.</li> </ul>

## Security Issues

The potential impact of a terrorist attack using nuclear weapons on U.S. soil is too horrific to permit the ineffective security at DOE's nuclear weapons facilities that has persisted for many years. Experts warn that the threat of nuclear terrorism is growing. There are three main threats from nuclear terrorism on U.S. soil:

- The creation of an improvised nuclear device on site, by suicidal terrorists, which could be as easy as dropping one slightly sub-critical piece of HEU on another.
- Intruders' use of conventional explosives on site to create a radiological dispersal device, also known as a dirty bomb.
- The theft of nuclear materials in order to create a crude nuclear weapon off-site, which could be used to devastate a U.S. city.

Numerous security lapses at sites in the nuclear weapons complex are well-documented and are summarized in Chapter 7 of our report. We believe that DOE has not done enough to address the deficiencies these lapses demonstrate and to reduce security risks throughout the weapons complex. We have three principal recommendations for improving security.

**We recommend that DOE more rapidly reduce the number of places where Category I and Category II (weapons-grade and weapons-quantities) of SNM are stored.** Consolidation is not a new idea. In May 2004, DOE endorsed consolidation of nuclear materials at fewer sites, and in fewer, more secure buildings within existing sites. Our proposals, outlined in Chapters 5 and 6 of this report, would consolidate SNM much more rapidly and extensively than under NNSA's plan.

**We recommend that DOE more rapidly reduce the amount of SNM in the complex and around the world, with special attention paid to HEU.** NNSA's plan for Complex Transformation does not declare any additional HEU as excess or set any downblending goals. HEU is more valuable to terrorists than any other nuclear material, because it is relatively easy to assemble into a crude nuclear weapon. However, at great cost and risk, NNSA continues to store 400 MT of HEU in a wooden storage building and four other World War II era buildings at Y-12. We would significantly speed up the downblending of excess HEU by using existing facilities at Y-12, by adding downblending capability to the HEUMF, and by making greater use of private sector downblending capabilities at Babcock and Wilcox (B&W) Company's Nuclear Fuel Services plant in Tennessee and its Nuclear Products Division in Lynchburg, VA.

**We recommend that DOE federalize its protective forces.** Unlike firefighters and other first responders, DOE's protective force officers do not receive benefits to ensure that they and their families are cared for in the event of a serious injury or death. This lack of first responder benefits dampens the protective force officers' willingness to accept high levels of risk, and raises a question about whether they will stay and fight if bullets fly. A federal force would also be easier to select, vet, train, equip, and control, which would lead to better response.

## **Cost Savings Under Our Plan**

Our plan would reduce NNSA's spending on nuclear weapons by \$2.3 billion in 2010 compared to the Obama Administration's recently released 2010 budget request of \$6.3 billion. To his credit, the Obama budget request is itself \$660 million less than the Bush Administration's projection for 2010. Our projected budget for 2015 would cut another \$1.35 billion from our 2010 spending level and we would reduce spending by yet another \$556 million in 2020.

Under our plan, NNSA spending on nuclear weapons in 2020 would be about \$2.14 billion in FY09 dollars, which is about one-third what it is today. More importantly, our plan will greatly reduce nuclear threats from adversaries abroad, as well as from terrorists anywhere in the world, and will reduce the risk of nuclear accidents. In addition, the U.S. would, by example, provide solid leadership in global nonproliferation efforts, pointing toward a world without nuclear weapons.

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## Nuclear Weapons Complex Consolidation Policy Network

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