



# **The United States and Article VI: A Record of Accomplishment**

February 6, 2008



# Introduction



## YOUR PRESENTERS TODAY:

- **THOMAS P. D'AGOSTINO**, Administrator, National Nuclear Security Administration (NNSA), Department of Energy
- **WILLIAM H. TOBEY**, Deputy Administrator for Nuclear Nonproliferation, NNSA
- **DR. CHRISTOPHER A. FORD**, United States Special Representative for Nuclear Nonproliferation

## WHAT IS NNSA?

- Semi-autonomous agency within Energy Department responsible, *inter alia*, for developing, manufacturing, and maintaining all U.S. nuclear weapons, and for working to reduce global dangers from WMD.



# Outline



- **INTRODUCTION**
- **THE U.S. RECORD ON DISARMAMENT – PART I**
  - Reducing delivery systems
  - Reducing reliance on nuclear weapons
  - Weapons drawdown and elimination
  - Reducing the weapons infrastructure
  - RRW
- **THE U.S. RECORD ON DISARMAMENT – PART II**
  - Fissile material removals
  - U.S. programs to strengthen nuclear nonproliferation
- **QUESTIONS & ANSWERS**



# Disarmament and the NPT

- Easing international tension and strengthening trust between States in order to facilitate disarmament is recognized in the **Preamble** as a goal.
- **Article VI** calls for both good faith negotiations on nuclear disarmament and a treaty on general and complete disarmament under international control.
- Dramatic **Article VI** progress is visible in reductions since the end of the Cold War. There is no U.S.-Russian nuclear arms race today, but there is growing concern about the emergence of regional arms races: hence the importance of nonproliferation compliance for Article VI success.
- NPT **Review Cycle** provides for discussion of the Treaty's operation, in all respects.
- RevCons & Final Documents consistently address Article VI issues.
- Differences of view exist as to whether all the nuclear weapon states have gone far enough, fast enough to meet Article VI commitments.
  - United States open to dialogue on conditions needed to achieve both nuclear disarmament and general and complete disarmament.



# U.S. Outreach

## LONGSTANDING PRIORITY OF ENGAGEMENT

- Two briefings on Article VI issues at 2000 NPT RevCon
- Multiple fact sheets and speeches explaining U.S. record
- Public booth and presentation at 2005 NPT RevCon
- Engagement / dialogue on Article VI issues and accomplishments
  - Briefing and papers/brochure on disarmament for 2007 NPT PrepCom
  - Briefing at UN First Committee Meetings in October 2007
  - Briefings to IAEA and Conference on Disarmament in Feb., 2008
- Active public outreach: notice of steps taken & vision for future

<http://www.nnsa.doe.gov/newsroom.htm>

and

<http://www.state.gov/t/isn/wmd/nnp/c21893.htm>



# Concrete Steps



- **Reduced reliance** on nuclear weapons in U.S. security strategy.
- **Drawdown** of operationally-deployed strategic nuclear weapons continues toward Moscow Treaty figures of 1,700-2,200 by 2012.
  - Fewer than 3,800 operationally deployed strategic nuclear warheads in the current stockpile.
  - Retirements originally slated for 2012 already completed by the end of 2007.
- **Dismantlement** of nuclear weapons accelerated.
- **Removal** of fissile materials from national security stocks continue.
  - Energy Secretary Bodman announced in September 2007 the removal of an additional 9 metric tons of weapons-grade plutonium beyond the 52.5 MT already removed.
- U.S. tabled treaty to achieve **ban production fissile material** for weapons (FMCT).
- Continued **moratorium** on nuclear testing (15 years since last U.S. test).
- Ongoing **discussions** with Russia on a Post-START arrangement after Treaty expiration in December 2009.
  - Focus on transparency and confidence-building measures to enhance strategic security relationship.



# Nuclear Weapons in U.S. Policy



- A principal national security goal of the United States is to deter aggression against ourselves, our allies, and friends.
- It is U.S. policy to achieve an effective strategic deterrent at the lowest level of nuclear weapons consistent with our national security and our commitments and obligations to allies.
- In 2001, President Bush directed that the United States **reduce** the number of operationally deployed strategic nuclear weapons to 1,700-2,200 by 2012.
- Corresponding reductions in the nuclear stockpile will result in the **lowest level since the Eisenhower Administration.**



# Nuclear Weapons in U.S. Policy

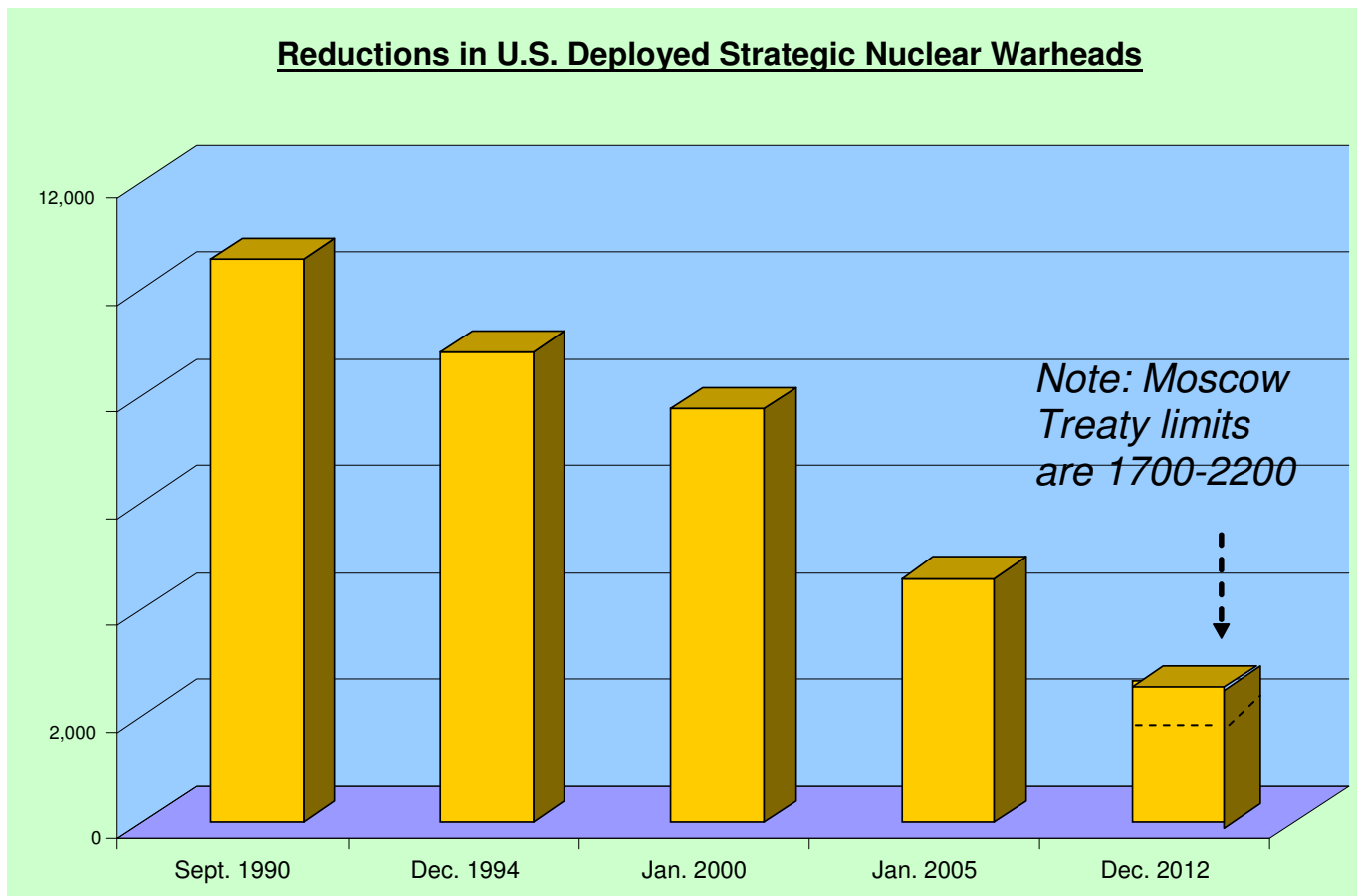


- The future security environment is very uncertain, and some trends are not favorable.
- Some states either have or seek weapons of mass destruction, including nuclear weapons, and the risk of future proliferation cannot be ignored.
- The U.S. is committed to the objectives of NPT Article VI and the Preamble, but nuclear weapons will continue to be required for the foreseeable future.
- Even as it has been shrinking, the U.S. nuclear arsenal serves NPT objectives, assuring our allies that the U.S. security relationship continues to help ensure their security, thus obviating any need for them to develop nuclear weapons on their own.
- Credible U.S. nuclear capabilities and our security commitment to allies remain an indispensable part of deterrence and an important element in our effort to limit proliferation and prevent nuclear arms races.





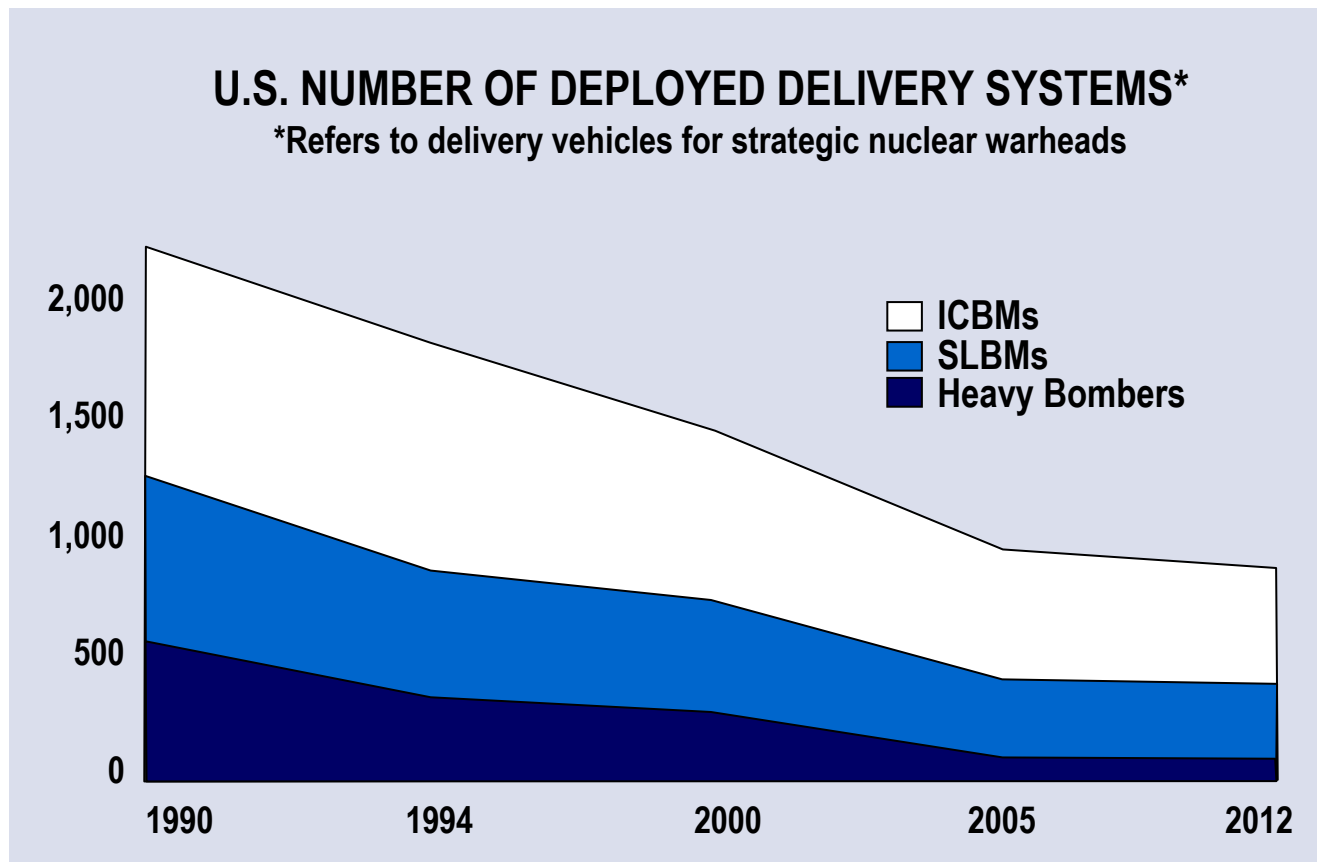
# Reduction in U.S. Deployed Strategic Nuclear Warheads



Note: comparisons between 1990-2005 and 2012 are approximate.



# Reducing Delivery Systems



**Dramatic Reductions Since End of Cold War**



# Nuclear Weapons Dismantlement

Completed W79 dismantlement in 2003

Completed W56 dismantlement in 2006



Pantex Plant weapons assembly and disassembly facility.



Dismantlement of W56

- In 2004, President Bush directed that the stockpile be reduced nearly 50 percent by 2012
- In 2007, NNSA increased dismantlement rates for retired weapons by 146% over prior year
- In 2007, met warhead retirement target originally anticipated for 2012; now working to reduce another 15%

***Since 1992, 13 different nuclear weapon types have been retired and eliminated***



# DOE-NNSA Complex Transformation

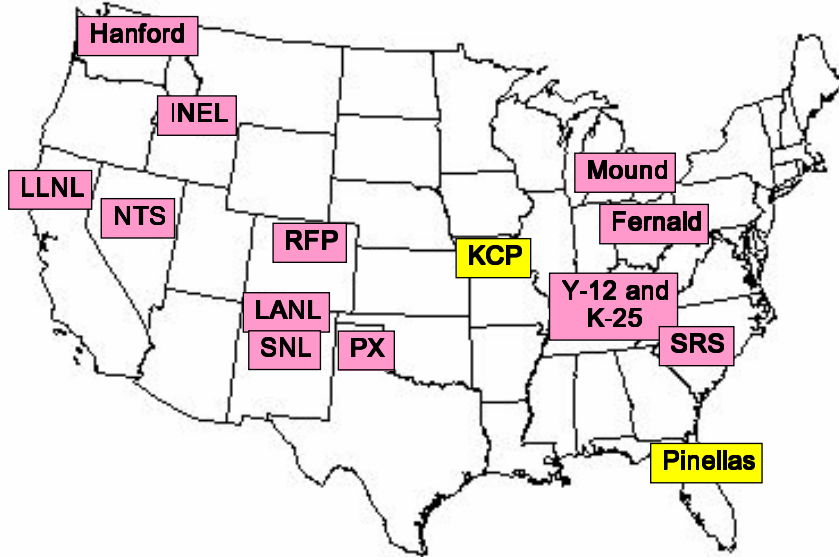


- Mission, capability and facility redundancies required for the Cold War stockpile are no longer needed.
- Since 1980s, **50% reduction in size and staff** of the Department of Energy's nuclear weapons complex.
  - **Warhead dismantlement and disposition now a core mission area for NNSA.**
- DOE-NNSA Complex will be a smaller, safer, and less expensive complex that meets national security requirements.
  - Consolidate functions at fewer facilities and **continue the process of eliminating facilities** no longer needed.
  - Reduced capacity for weapon assembly, high-explosive fabrication, uranium fabrication, and non-nuclear component fabrication.
  - Transformation would likely result in a 30 percent reduction in the square footage of the nuclear weapons infrastructure and a potential overall reduction in the workforce directly supporting the weapons program of 20-30 percent.
- Enhanced deterrence with **smaller stockpile.**
  - Flexible to fix technical problems or respond to geopolitical change.
  - Reduce the need to maintain a large number of reserve weapons.

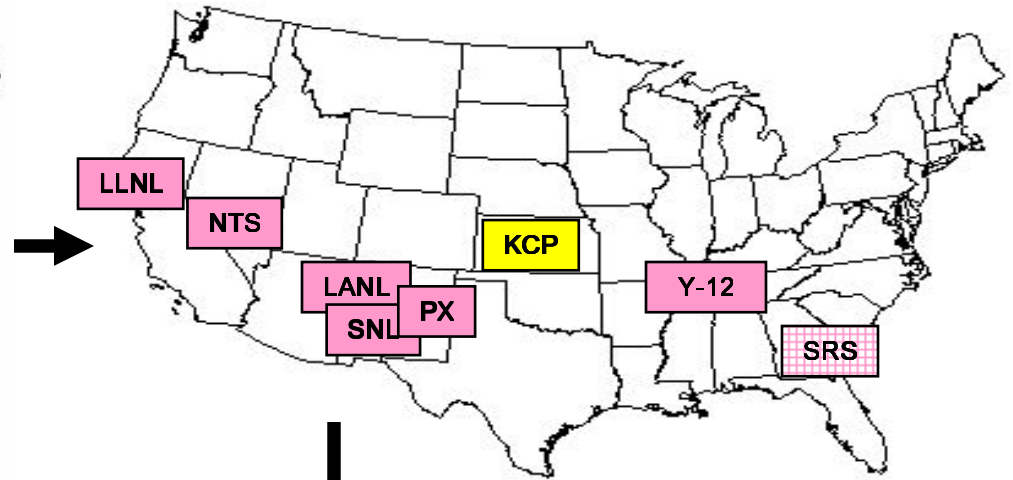


# Past, Present, and Future

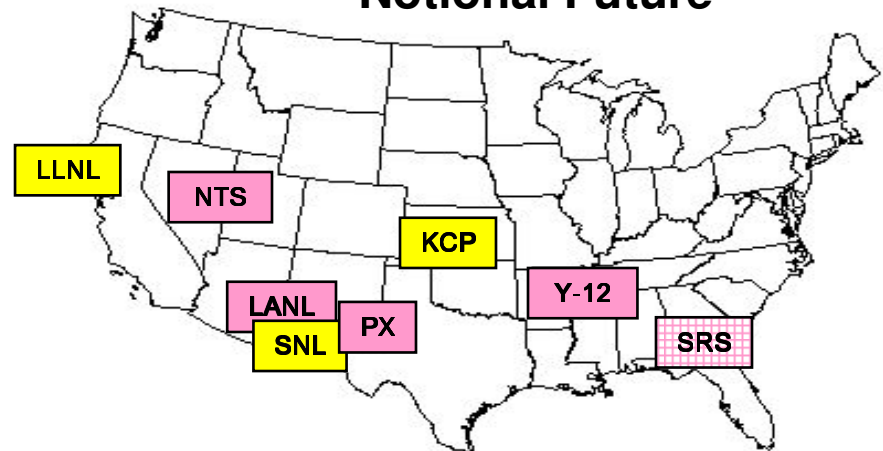
## Nuclear Weapons Complex of Today



## Nuclear Weapons Complex in 1980



## Notional Future



Legend:

Defense Programs Category I/II Material

Other Programs Category I/II Material

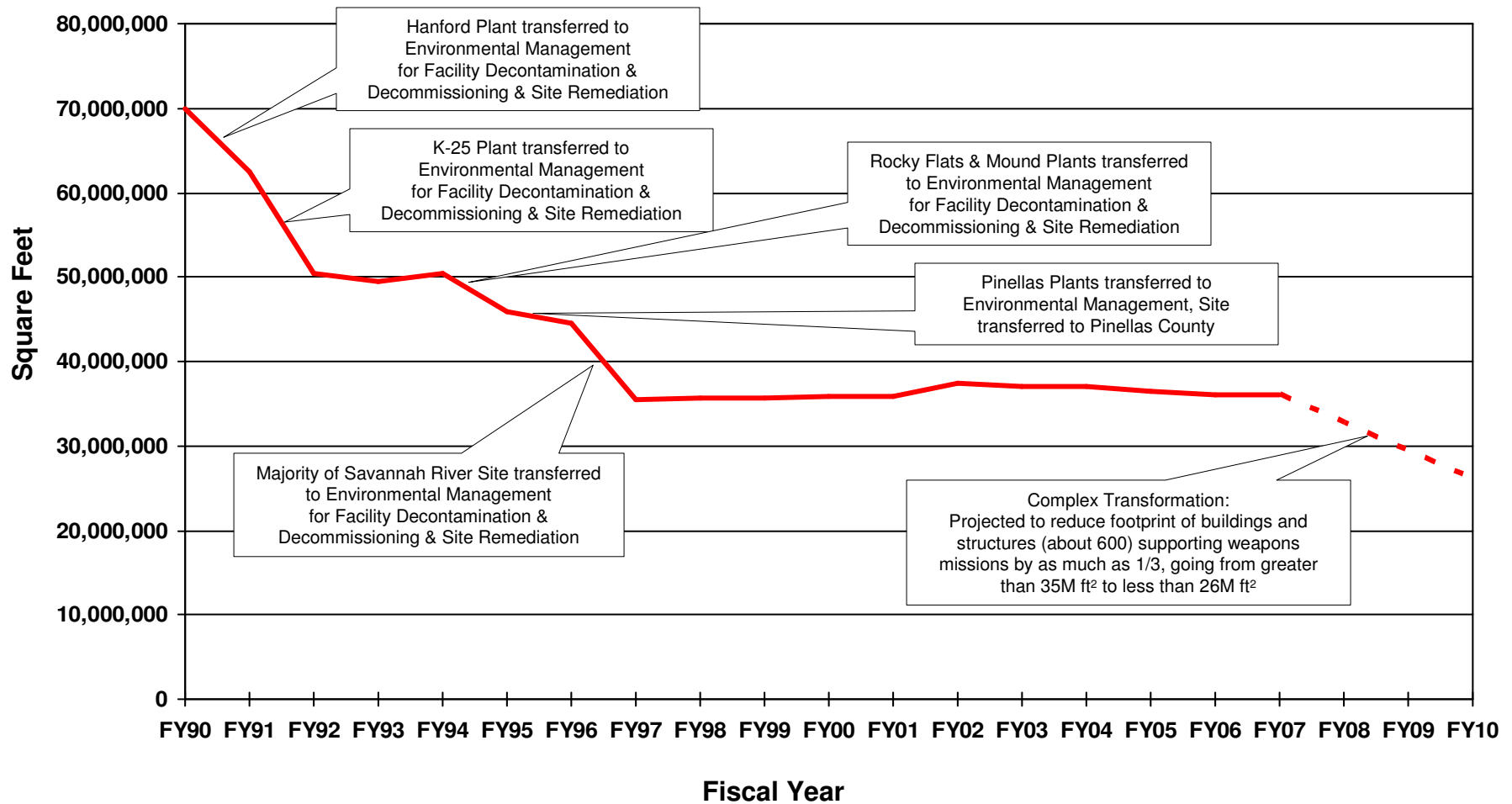
No Category I/II Material



# Reduction in Weapons Complex



## Square Footage Reductions Due to Mission Changes





# Reliable Replacement Warhead



- **If developed, Reliable Replacement Warhead would:**
  - Incorporate the latest advances in safety and security features to prevent unauthorized/accidental use or theft.
  - In the long term ensure high confidence in warhead reliability and **decrease the likelihood of returning to underground nuclear testing.**
  - Allow the United States to maintain its nuclear weapons deterrent with a **smaller stockpile of nuclear warheads** that will allow elimination of some reserve warheads.
- **RRW is key to sustaining our security commitment to allies, and is fully consistent with U.S. NPT obligations. Indeed, for the reasons above, RRW can help advance Article VI goals.**

***RRW does not represent new military capabilities***



# Fissile Material Production for Weapons Stopped



Hanford's F Reactor –  
completely dismantled in 2003

- No production of Highly Enriched Uranium (HEU) for weapons since 1964 and HEU production plants closed.
  - Oak Ridge HEU plant closed in 1987
- No production of plutonium for U.S. weapons since 1988.
  - **Last U.S. plutonium reactors shut down in 1989**





# HEU Removed from National Security Stocks



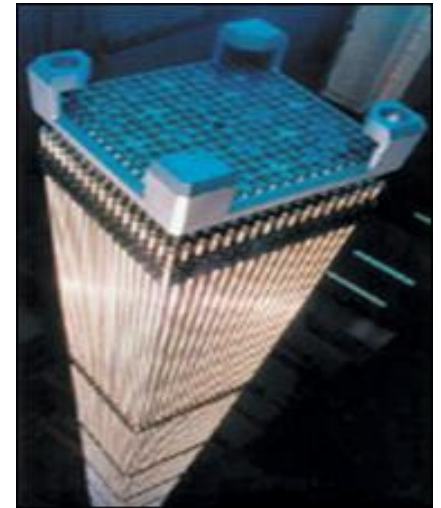
- In 1994, the United States declared 174 MT of HEU excess to defense needs.
  - 89 MT of HEU down-blended to low-enriched uranium reactor fuel
  - 10.6 MT of HEU delivered for near-term down-blending
  - 17.4 MT of HEU set aside for the Reliable Fuel Supply; down-blending to LEU to start this year
- In 2005, the United States withdrew an additional 200 MT of HEU from use in nuclear weapons.

**374 MT of HEU removed from U.S. stocks –  
equivalent to roughly 15,000 nuclear weapons  
(using IAEA “significant quantity” definition)**



# Plutonium Removed from National Security Stocks

- In 1994, roughly 50 MT of plutonium declared excess to national security requirements.
- Plutonium Disposition Agreement with Russia commits both sides to disposition 34 MT each of weapons-grade plutonium.
  - Construction of U.S. MOX facility started in 2007.
  - U.S. and Russia agreed upon a technically and financially credible program for Russian plutonium disposition.
- In September 2007, declared an additional 9 MT of weapons grade plutonium removed from national security stocks.



*Mixed oxide fuel assembly*

**61.5 MT of plutonium removed from U.S. stocks – equivalent to roughly 7,600 nuclear weapons (using IAEA “significant quantity” definition)**



# Ceasing Production of Weapons Grade Plutonium



## **1997 Plutonium Production Reactor Agreement: requires cessation of weapons-grade plutonium production for use in nuclear weapons in United States and Russia**

Monitoring activities provide confidence that:

- 1) shut down reactors in both countries do not resume operation,
- 2) plutonium produced by Russia's last 3 operating reactors is securely stored and not used in nuclear weapons.

## **Elimination of Weapons Grade Plutonium:**

Programs in Zheleznogorsk and Seversk to refurbish and build heat and electricity plants to facilitate the shutdown of the last 3 weapons-grade plutonium production reactors in Russia, which produce approximately 1.2 MT of plutonium annually.

- Reduced weapons-grade plutonium production by 50% at the two remaining Seversk reactors and reached agreement with Russia for reactor shut-down by June 2008, six months early.
- Plan to close Zheleznogorsk reactor by 2009, one year ahead of schedule.



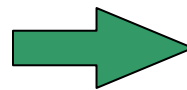
Computer simulation of Zheleznogorsk plant



# HEU Removed from Russian Dismantled Weapons

- **1993 U.S.-Russia HEU Purchase Agreement provides for the elimination of 500 MT of HEU from dismantled Russian weapons to fuel U.S. nuclear power plants.**

~ Transparency measures give U.S. monitors confidence 30 MT Russian HEU is downblended every year and eliminated from Russian stocks. (IAEA equivalent to 1,200 nuclear weapons destroyed annually)



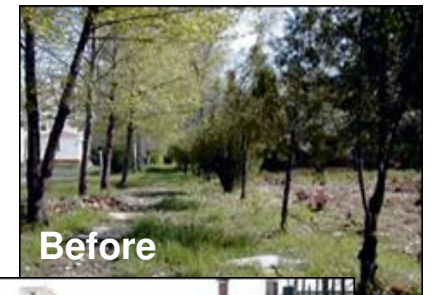
***320 MT of HEU removed from Russian stockpiles to date -- equivalent to destroying 12,800 nuclear weapons (per IAEA significant quantity measure)***



# Securing Nuclear and Radiological Material Worldwide



- **Converted 51 reactors in 29 countries from HEU to LEU (additional 4 shutdown)**
- **Returned 590kg of Russian-origin HEU, 1,140kg of U.S. HEU, and over 140kg of other HEU**
- **Secured nearly 600 vulnerable radiological sites overseas containing over 8 million Curies**
- **Recovered over 16,000 radiological sources domestically containing over 175,000 Curies**
- **Secured 85% of Russian nuclear weapons sites of concern; work underway to complete remainder**
- **Reached agreement with Russia on maintenance of security enhancements completed since 1990s**





# Enhancing Capabilities to Detect and Deter Illicit International Nuclear Transfers

- In 2006, U.S. and Russia agreed to equip all of Russia's border crossings with radiation detection equipment by 2011 (6 years ahead of schedule), building on the 117 crossings already equipped
- NNSA Megaports radiation detection equipment at large international seaports operational in 12 countries with various stages of implementation at ports in 17 other locations.
- Trained nearly 8,000 foreign officials and over 5,600 U.S. officials on WMD commodity identification to detect illicit exports



*Second Line of Defense  
detection equipment*



*WMD Commodity  
Identification Training 22*



# Strengthening & Enhancing Int'l Nonproliferation Efforts



- Engaged thousands of former weapons scientists and engineers, helping to create thousands of civilian jobs at institutes across the former Soviet Union and in Libya and Iraq
- Trained over 1,000 foreign facility operators on nuclear material control and accounting procedures
- Strengthened the Nuclear Suppliers Group guidelines and control lists
- Working with IAEA on mechanisms to assure fuel supply for states and to provide viable alternatives to enrichment and reprocessing





# Nonproliferation Research and Development



**Developing new technologies to improve U.S. capabilities to detect and monitor nuclear weapons production, proliferation, and prohibited nuclear explosions worldwide:**

- **Proliferation Detection Program** develops the tools, technologies, and expertise for the identification, location, and analysis of proliferant weapons and materials.
- **Nuclear Detonation Detection Program** builds operational sensors that monitor the planet to detect and report surface, atmospheric, or space nuclear detonations and produces geophysical datasets enabling seismic monitoring networks to detect and report underground detonations.







# Proliferation Increased Despite U.S. Reductions

**“Over the past decade we have seen very significant reductions in the numbers of U.S. nuclear weapons, reductions in the alert levels of nuclear forces, and the abandonment of U.S. nuclear testing. No new warheads have been deployed and there has been little U.S. nuclear modernization. There is absolutely no evidence that these developments have caused North Korea or Iran to slow down covert programs to acquire capabilities to produce nuclear weapons. On the contrary, those programs have accelerated during this period.”**

-- Ambassador Linton Brooks, Former Under Secretary of Energy for Nuclear Security and Administrator, National Nuclear Security Administration, March 2004



# Conclusion



- **The NPT remains an essential element of the global nonproliferation regime.**
- **The United States has an exceptionally strong record of support for, and compliance with, the NPT in all respects, including Article VI.**
- **Pace and progress of reductions in the U.S. arsenal have been extraordinary.**
  - **Partnership with Russia facilitating great progress on reducing nuclear materials**
- **Improving the security environment is key to achieving the goal of complete nuclear disarmament.**
- **U.S. nuclear posture is consistent with our NPT obligations and supports NPT goals.**



# Reduced Role of Nuclear Weapons



"We can, and will, change the size, the composition, the character of our nuclear forces in a way that reflects the reality that the Cold War is over. I am committed to achieving **a credible deterrent with the lowest possible number of nuclear weapons consistent with our national security needs, including our obligations to our allies.** My goal is to move quickly to reduce nuclear forces."

– President George W. Bush  
May 1, 2001