



# Status of Complex 2030 Transformation

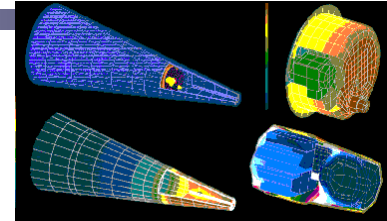
*Presentation to  
Southeast Environmental  
Management Association*

*April 18, 2007*





# The Defense Programs Mission

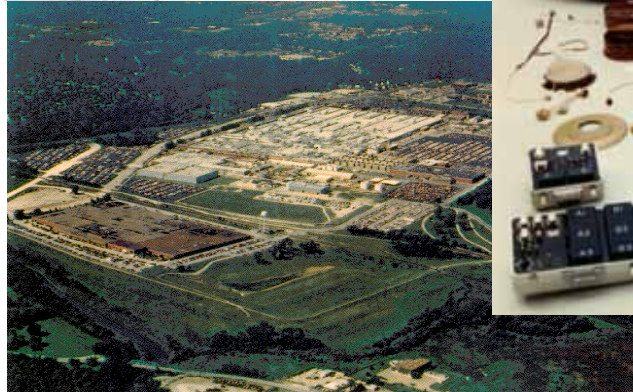
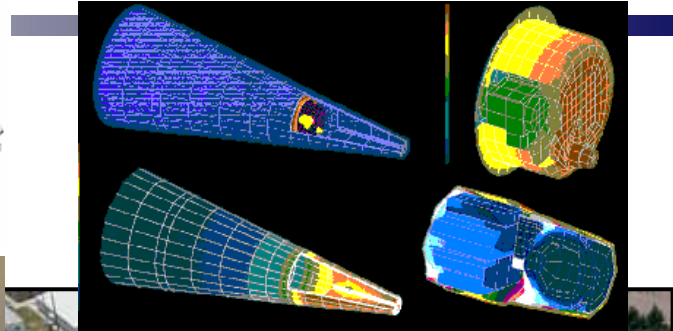


**The mission of Defense Programs is to ensure the safety, reliability, and performance of nuclear weapons without underground nuclear testing.**





# The Nuclear Weapons Complex



# National Nuclear Security Administration Nuclear Weapons Complex

Lawrence Livermore  
National Laboratory  
*Livermore, CA*



Los Alamos  
National Laboratory  
*Los Alamos, NM*



Nevada  
Test Site



Sandia  
National Laboratory  
*Albuquerque, NM*

Kansas City Plant  
*Kansas City, MO*



Pantex Plant  
*Amarillo, TX*



Y-12 National  
Security Complex  
*Oak Ridge, TN*

Savannah River  
*Aiken, SC*

NNSA  
Headquarters



Production



Weapons Test Site



Design Laboratory



Washington  
Savannah River  
Company



# Complex 2030 Transformation



What is the Defense Programs' *Complex 2030* and what do we mean by *Transformation* ?



# Complex 2030 Transformation



## *“Complex 2030”*

... is the Nuclear Weapons Complex proposed for the year 2030 ... to be more integrated and interdependent, with the portion required to perform the nuclear deterrence mission being much **smaller, more efficient, and more responsive.**

While the **current eight sites** are still proposed to exist in 2030, the Complex as a whole, and each site individually, will **look much different than today.** The nuclear weapons stockpile supported will be the **lowest possible number** consistent with our national security needs.



# Complex 2030 Transformation



## ***“Transformation”***

... refers to **the process which NNSA undertook in 2006** to achieve this smaller, more efficient, more responsive, and fully integrated Nuclear Weapons Complex, supporting a weapons stockpile which would be at its lowest number since the Eisenhower administration.



# Complex 2030 Transformation



- Transformation is a Strategy, not a Program.
- Complex 2030 will be funded using savings from cost reductions in operations and through re-direction of existing programs.
- Transformation actions and funding are being implemented through existing NNSA program elements and line organizations.



# Complex 2030 Transformation



## *Ongoing Transformation Actions*

- Reducing number of sites with Special Nuclear Material
  - ✓ Initial plutonium shipment made from LLNL to LANL
- Accelerating dismantlement of retired weapons
  - ✓ Increased throughput at Pantex and Y-12
- Reviving ability to extract tritium
  - ✓ New Tritium Extraction Facility is operational at SRS
- Streamlining and improving business practices
  - ✓ Multi-site incentives in place to drive improvement



# Complex 2030 Transformation



- Transformation is a Strategy, not a Program.
- Complex 2030 will be funded using savings from cost reductions in NWC operations and through re-direction of existing programs.
- Transformation actions and funding are being implemented through existing NNSA program elements and line organizations.
- **Four** over-arching, long-term **strategies** have been implemented to drive transformation.



# Complex 2030 Transformation



## ***THE FOUR STRATEGIES***

1. In partnership with the DoD, transform the nuclear stockpile through development of Reliable Replacement Warheads (RRW), refurbishment of limited numbers of legacy designs, and accelerated dismantlement of the Cold War stockpile.
2. Transform to a modernized, cost-effective nuclear weapons complex.
3. Create a fully integrated and interdependent nuclear weapons complex.
4. Drive the science and technology base essential for long-term national security.



# Complex 2030 Transformation



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# Complex 2030 Transformation



## ***STRATEGY #1***

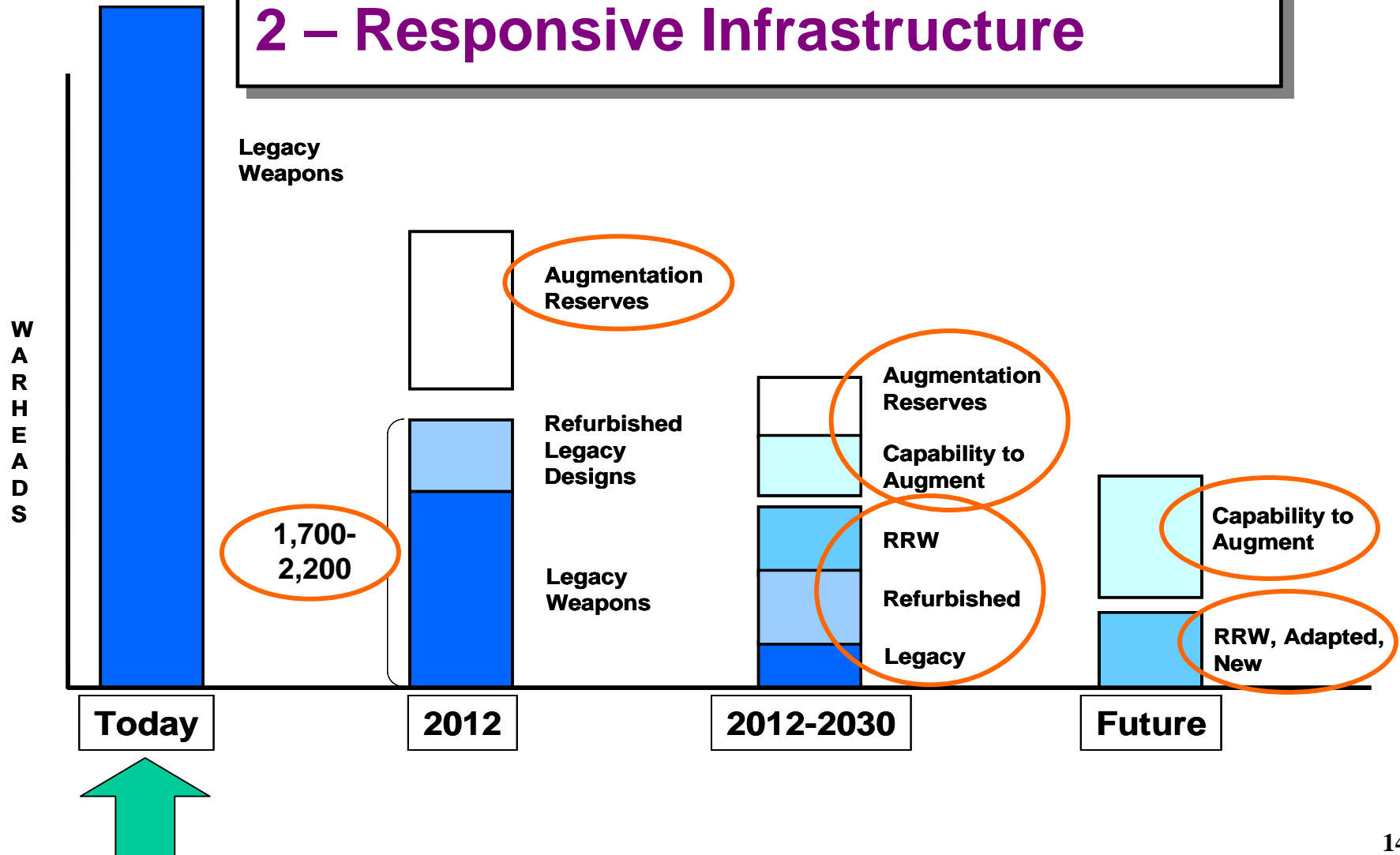
In partnership with the DoD, **transform the nuclear stockpile** through development of Reliable Replacement Warheads (RRW), refurbishment of limited numbers of legacy designs, and accelerated dismantlement of the Cold War stockpile.

- Assure the viability of legacy weapons until replaced
- Transform to an **RRW-stockpile** in future decades
- Accelerate dismantlements
- Implement changes in surveillance evaluation methods



# Enablers of Transformation

**1 – Reliable Replacement Warhead**  
**2 – Responsive Infrastructure**





# Complex 2030 Transformation



## ***STRATEGY #2***

Transform to a **modernized, cost-effective** nuclear weapons **complex**.

- Reduce the number of locations with large quantities of Special Nuclear Materials
- Consolidate production to smaller, modern facilities
- Consolidate R&D functions that result in operational efficiencies
- Complete NEPA Process (Programmatic Environmental Impact Statement) and Business Case evaluations to support decisions



# Complex 2030 Transformation



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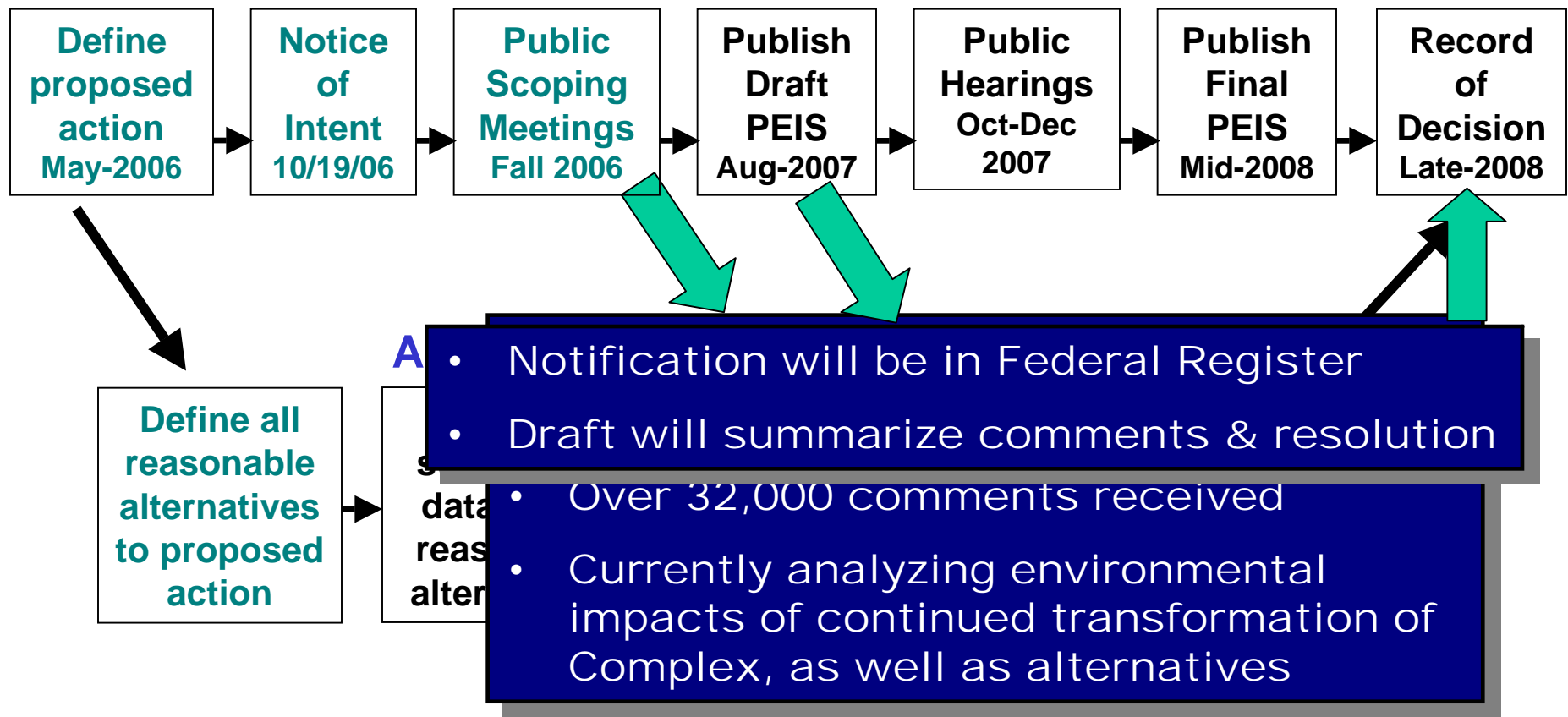


# NEPA Process Schedule



**Complex 2030 NEPA Objective:** Support decisions required to continue nuclear weapons infrastructure transformation.

## NEPA Process:





# Complex 2030 Transformation

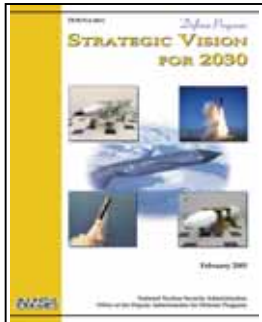


## For the Savannah River Site ...

- Existing missions for tritium supply and recycle **are not proposed to change.**
- Evaluate reductions in Tritium Operations for the “Capability-Based” alternative.
- Evaluate as potential receiver site for:
  - ❑ Consolidated Plutonium Center (CPC)
  - ❑ Consolidated Nuclear Production Center (CNPC)
  - ❑ Consolidated Weapons Program SNM Storage
  - ❑ Consolidated Tritium R&D



# Transformation Goals



- Enable credible future deterrent with appropriate balance between stockpile and infrastructure.
- Sustained long-term confidence in stockpile reliability.
- Enhanced safety and security of the stockpile and infrastructure.
- Responsive, fully capable, warhead manufacturing facilities.
- Exercise key nuclear design and manufacture capabilities to ensure responsiveness.
- Ensure capability to respond on appropriate timescales to geopolitical change, to technical problems in the stockpile, and to guard against technological surprise.
- Enable smallest possible stockpile consistent with national security.
- Reduced likelihood of future underground nuclear tests to certify warheads or address a safety or reliability concern.
- Reduced long-term DOE and DoD ownership costs for nuclear forces.



# Complex 2030 Transformation



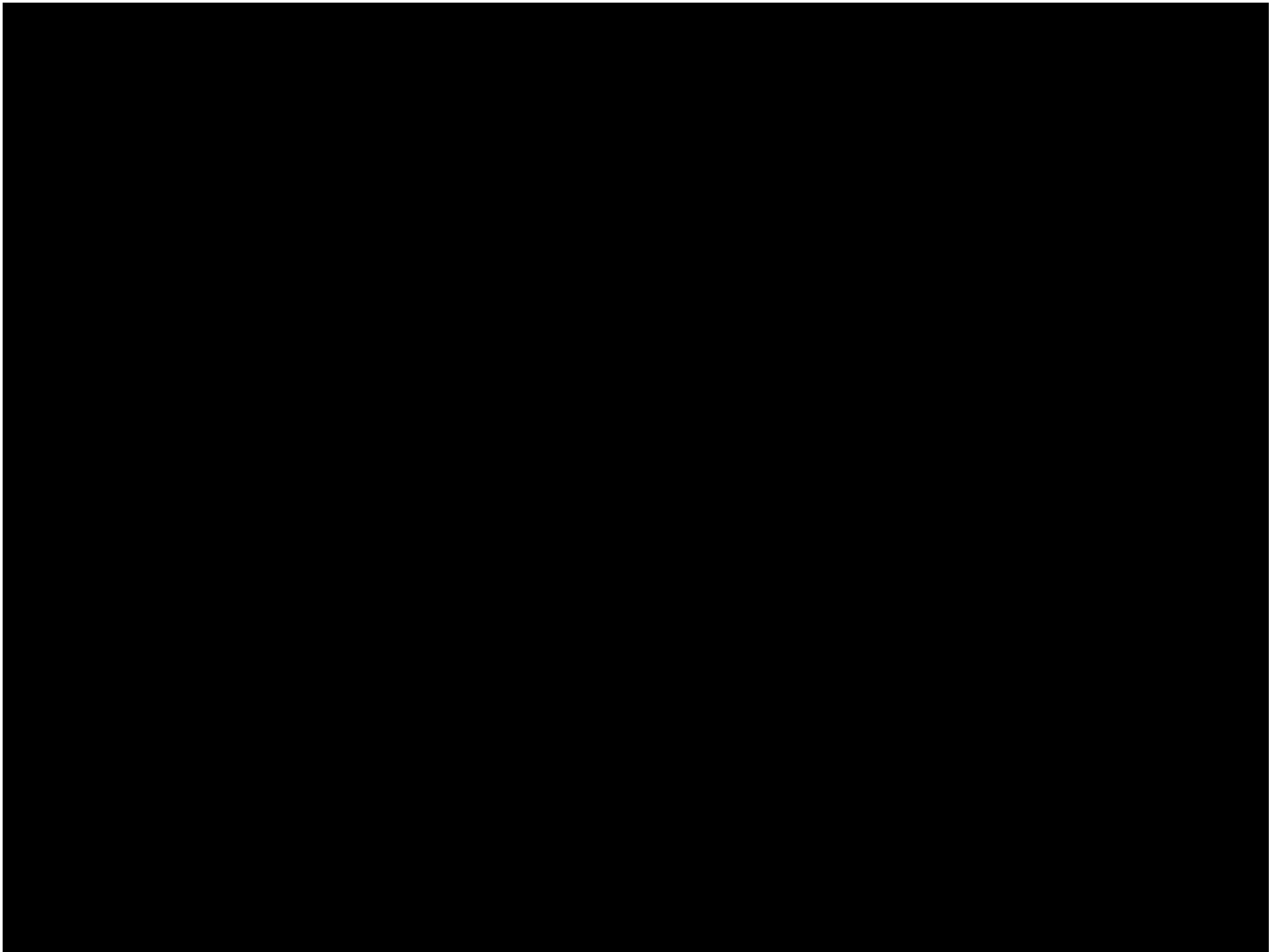
## References

Notice of Intent – *to Prepare a “Supplement to the Stockpile Stewardship and Management Programmatic Environmental Impact Statement - Complex 2030”* **October 19, 2006**

The Strategy – *“Complex 2030, An Infrastructure Planning Scenario for a Nuclear Weapons Complex Able to Meet the Threats of the 21st Century”*, DOE/NA-0013 **October 23, 2006**

Report to Congress – *“Report on the Plan for Transformation of the National Nuclear Security Administration Nuclear Weapons Complex”* **January 31, 2007**

**<http://www.complex2030peis.com/>**





# Complex 2030

## Supplemental Programmatic EIS

### PURPOSE & NEED

**Maintain Safety, Security, and Reliability of U.S. Nuclear Weapons Stockpile**

**Transform Nuclear Weapons Complex**

- Smaller
- More responsive
- More efficient

### ALTERNATIVES

**No Action Alternative**

Post 1996-SSM PEIS Weapons Complex as modified by SWEISs, Tritium PBS, and other NEPA decisions

**Distributed Centers of Excellence Alternative**

Category I/II SNM Consolidation to Fewer Sites  
Consolidated Plutonium Center (CPC) - candidate sites include one of the following five sites

- Savannah River Site
- Y-12
- Pantex
- Nevada Test Site
- Los Alamos

Uranium Center - Y-12  
Tritium Center - Savannah River Site  
Assembly/Disassembly - Pantex

**Consolidated Nuclear Production Centers Transformation Alternative**

**Consolidated Nuclear Production Center (CNPC)**

Consolidate Category I/II SNM to a Single Production/R&D Site (NTS would retain SNM to maintain test capability)

**CNPC:** Consolidate nuclear component manufacturing missions (plutonium, uranium, and storage to support process material and strategic reserve) and weapons assembly and disassembly at one of the following five sites:

- Savannah River Site
- Y-12
- Pantex
- Nevada Test Site
- Los Alamos

**Consolidated Nuclear Centers (CNC)**

Consolidate nuclear component manufacturing missions at one of the following three sites:

- Savannah River Site
- Y-12
- Los Alamos

Consolidate weapons assembly and disassembly mission at the Nevada Test Site or retain mission at Pantex

Consolidate I/II SNM to the the locations identified above (NTS would retain SNM to maintain test capability)

**Capability-Based Alternative**

**Capability-Based Capacity and SNM Consolidation**

- Reduce Y-12 operations
- Reduce SRS Tritium operations
- Reduce Pantex operations
- Consolidate Category I/II SNM to fewer sites and fewer locations within sites

**Consolidate/Eliminate Excess/Duplicative Facilities**

**Tritium R+D**

- No Action (SRS, LANL, LLNL)
- Downsize-in-place
- Consolidate at fewer sites

**High Explosives R+D**

- No Action (LANL, Pantex, SNL, LLNL)
- Downsize-in-place
- Consolidate at fewer sites

**Large Scale Hydrodynamic Facilities**

- No Action (LLNL, LANL, NTS)
- Downsize-in-place
- Consolidate at fewer sites

**NNSA Flight Testing**

- No Action (Tonopah Test Range)
- Tonopah Test Range Upgrades
- Move to Nevada Test Site
- Move to DOD test range (White Sands Missile Range)

**Major Environmental Testing Facilities**

- No Action (LLNL, LANL, SNL, NTS)
- Downsize-in-place
- Consolidate at fewer sites

### Non-Nuclear Production

The Complex 2030 planning scenario proposes to consolidate non-nuclear production activities currently performed at the Kansas City Plant. Similar to the 1996 SSM PEIS, non-nuclear consolidation will be evaluated in a separate NEPA analysis

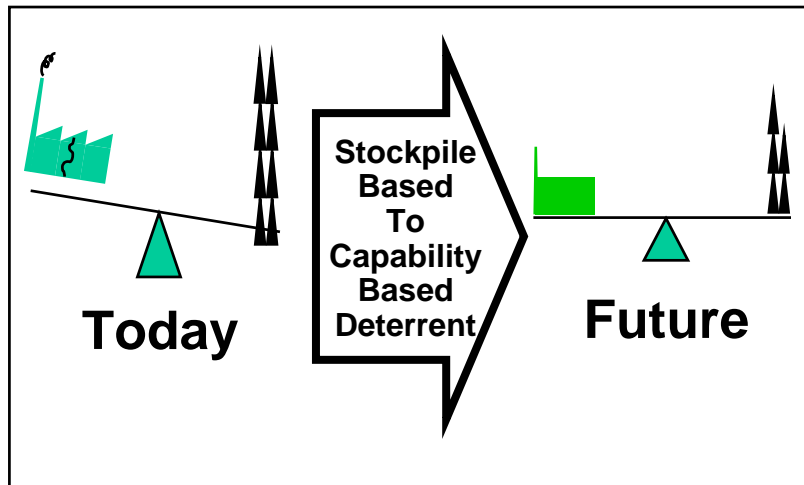
### Stockpile Reductions

A qualitative discussion of consolidating nuclear component manufacturing missions and the assembly/disassembly mission will be included in the PEIS for further stockpile reductions, below the levels in the Capability-Based Alternative.

**March 8, 2007 Working Copy**



# Complex 2030 Strategies



## 1. In partnership with DoD, transform the nuclear stockpile.

- Assure the viability of legacy weapons until replaced.
- Transform to an RRW-stockpile in future decades.
- Accelerate dismantlements.
- Implement changes in surveillance evaluation methods.

## 2. Transform to a modernized, cost-effective nuclear weapons complex.

- Reduce number of locations with large quantities of special nuclear materials which require maximum security.
- Consolidate production to smaller, modern centers.
- Consolidate R&D functions that result in operational efficiencies.
- Complete a programmatic environmental impact statement and business case evaluations to support decisions.





# Complex 2030 Strategies



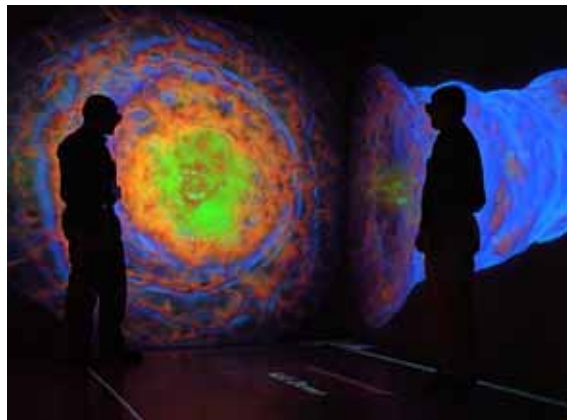
## 3. Create a fully integrated and interdependent complex

- Strengthen line management structures that enhance accountability and balance among program deliverables, risk management, and site operations.
- Create standard contracts with multi-site incentives.
- Streamline technical processes and increase business practice uniformity.
- Enhance systems integration.



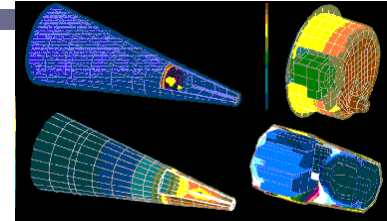
## 4. Drive the science and technology base essential for national security

- Maintain technological edge through a robust science and technology base which underpins U.S. nuclear security.
- Use road-mapping to focus R&D and technical capabilities on essential national security functions.
- Integrate with DOE Office of Science and enhance work-for-others.
- Operate major science assets as shared, national user facilities





# The Defense Programs Mission



**Provide the ability to reconstitute underground nuclear testing and nuclear weapons production capabilities as required to meet future national security requirements.**





# **“Getting the Job Done”**

## ***Building Confidence in the Transformation Process***

- **Continue to deliver products to DoD.**
- **Eliminate backlog of surveillance units in FY 2007.**
- **Accelerate dismantlement of retired weapons by 49% from FY06 to FY 07.**
- **Deliver B61-ALT357 First Production Unit (FPU) in FY 2006. ✓**
- **Deliver W76 FPU in FY 2007.**
- **Certify the W88 with a new pit and manufacture 10 pits in FY 2007.**
- **Extract Tritium in FY2007. ✓**
- **Support the science base by completing: pit lifetime estimates (2006), ✓ ASC Purple machine (2006), ✓ MESA (2008), DARHT (2008), and NIF (2010).**
- **Support an RRW decision by the Nuclear Weapons Council in Nov 2006. ✓**
- **Implement starting actions to achieve Complex 2030 infrastructure vision. ✓**