

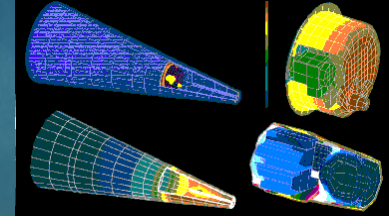


Nuclear Weapon Complex Transformation

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Defense Programs



The Defense Programs Mission



To strengthen and support United States' security through nuclear deterrence by the capability to:

- **Maintain a safe, secure, reliable, and effective nuclear weapons stockpile** to help ensure the security of the United States and its allies, deter aggression, and support international stability;
- **Maintain a flexible, responsive, robust nuclear weapons complex infrastructure with integrated design to manufacturing capabilities, to maintain a credible deterrent and address new challenges;**
- **Execute research, development, and test activities that support U.S. leadership in science and technology; and**
- **Work with the Department of Defense (DoD) to transform the Cold War stockpile by transitioning to more cost-effective and versatile design and production technologies and processes, to meet the needs of the 21st century.**





Complex Transformation

Vision:

A smaller, safer, more secure and less expensive enterprise that leverages the scientific and technical capabilities of our workforce, and meets national security requirements.

Strategies:

1. In partnership with DoD, transform the nuclear stockpile.
2. Transform to a modernized, cost-effective nuclear weapons complex
 - Reduce footprint of buildings and structures supporting weapons missions
 - Consolidate special nuclear materials (SNM)
 - Restructure SNM, research and development (R&D), and testing facilities
 - Modernize nuclear and non-nuclear production facilities.
3. Create a fully integrated and interdependent complex
 - Change business practices, site contracting, supply chain, indirect costs.
4. Drive science and technology (S&T) base essential for national security
 - Maintain robust S&T in partnership with multiple agencies.



The Need For Transformation

While we are meeting our requirements today,

- A cold-war infrastructure and reliance on hazardous, toxic and exotic materials in our products cause increasing concerns for our workers and capability to sustain the stockpile.
- Mission, capability and facility redundancies required for a Cold War stockpile are no longer necessary or affordable.
- Nuclear materials are present at all our sites except the Kansas City Plant.
- An ever increasing budget will be required without transformation due to escalating costs for landlord and security functions and greater demands of maintaining an aging stockpile.



Future Complex



Over the next 10 years, the NNSA Future Complex will:

- Meet current Department of Defense requirements and national security needs.
- Eliminate redundancies and improve efficiencies by consolidating missions and capabilities at 8 sites beginning in 2008 by:
 - Consolidating special nuclear materials to 5 sites by the end of 2012, with a smaller footprint within those sites by 2017;
 - Closing or transferring from weapons activities about 600 buildings or structures, many by 2010;
 - Ceasing weapons account activities at two major testing sites supporting our laboratories by 2015;
 - Reducing footprint of buildings and structures supporting weapons missions by as much as 1/3, going from greater than 35 million to less than 26 million square feet.
- Over a decade or so, up to 20-30% fewer staff will directly support nuclear weapons activities. These reductions are expected through natural attrition and transfer of personnel to other positions supporting essential national security needs.
- Dismantle weapons at a faster pace.

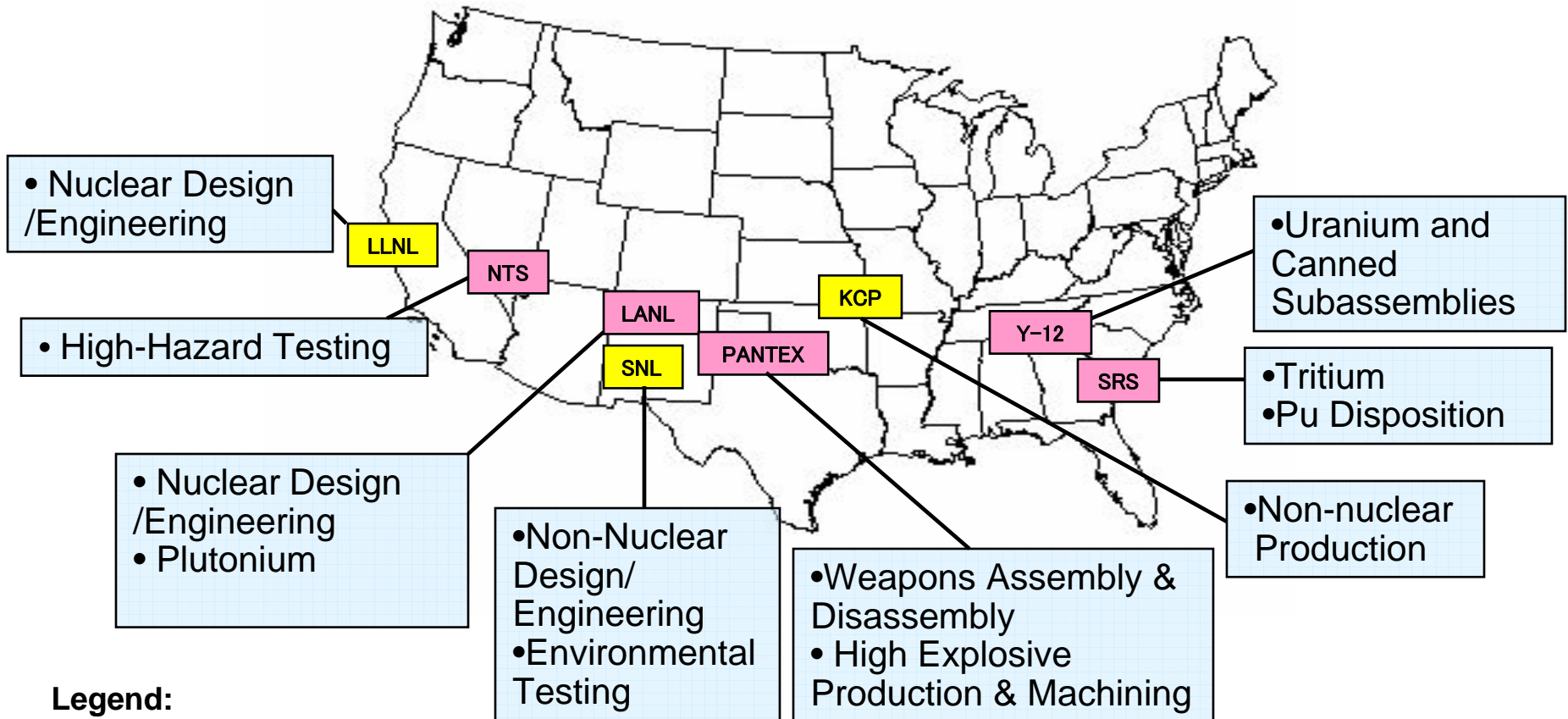


Complex Transformation Supplemental Programmatic Environmental Impact Statement (SPEIS) Proposed Actions:

- Restructuring Special Nuclear Material Facilities
 - Plutonium
 - Uranium
 - Weapon Assembly/Disassembly/Surveillance
 - Material Consolidation
- Restructuring R&D and Testing Facilities
 - Flight Testing
 - Major Environmental Testing
 - Tritium Supply Management and R&D
 - Hydro-testing
 - High Explosive Production and R&D



Nuclear Weapons Complex Distributed Centers of Excellence



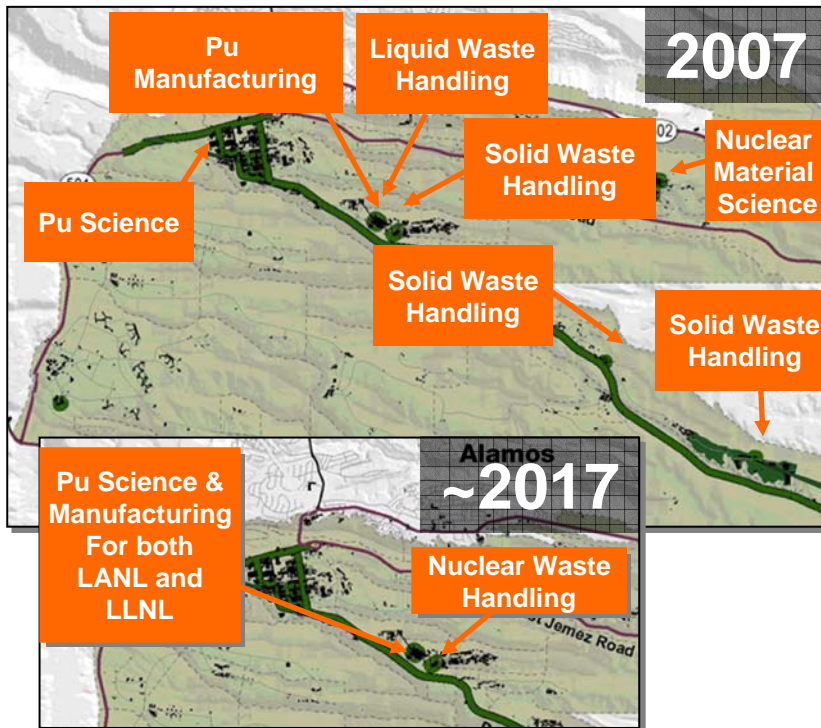
Legend:

Category I/II SNM

No Category I/II SNM



Los Alamos National Laboratory



Center of Excellence for Nuclear Design and Engineering; Plutonium

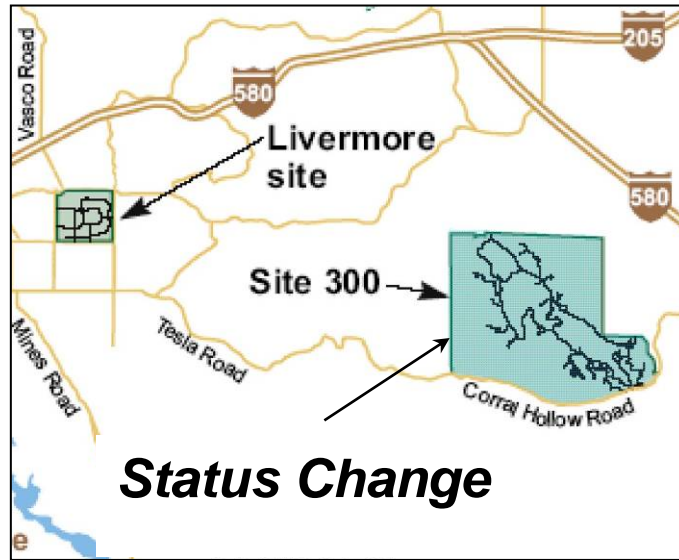
- Supercomputing platform host site
- Plutonium pit production and R&D with TA-55 including a Chemistry & Metallurgy Research Replacement (CMRR), Nuclear Facility
- Detonator production and contained high explosives (HE) R&D
- Materials research with Matter-Radiation Interaction in Extremes facility as potential science magnet

Transformational Changes

- Special nuclear material consolidated to 2 sites, with only one requiring CAT I/II levels of security
- 50% *reduction*: nuclear operations footprint
- 20% *reduction*: total building footprint (~2 million GSF reduction *including* CMR 570K GSF; Technology Complex 380K GSF; and Main Admin Bldg 309K GSF)
- Over next decade, up to 20% *reduction* of staff directly supporting nuclear weapons activities



Lawrence Livermore National Laboratory



Center of Excellence for Nuclear Design and Engineering; High Explosive R&D Center

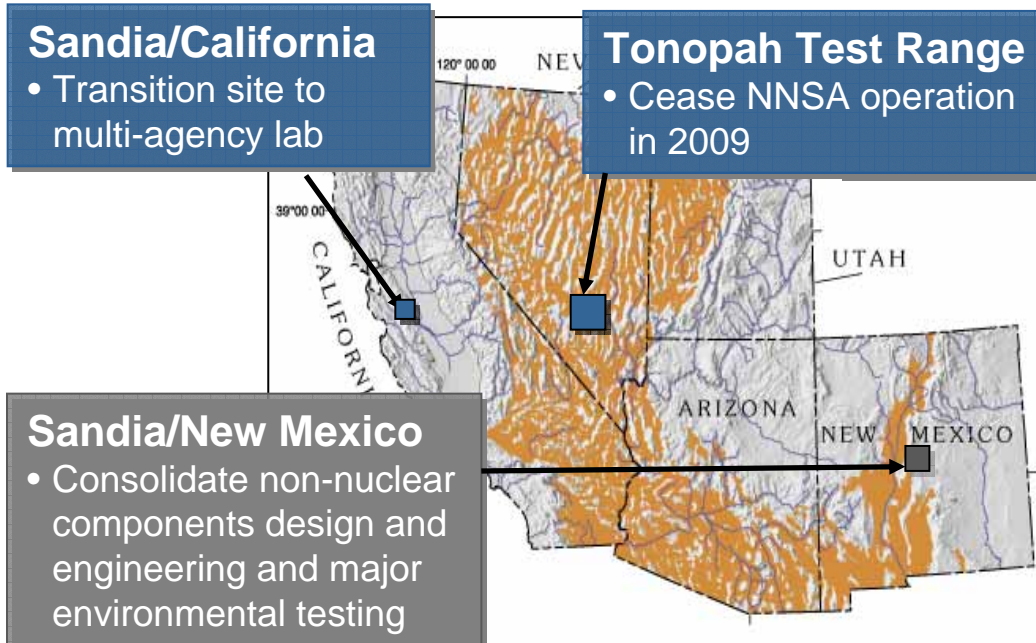
- Supercomputing platform host site
- HE R&D with High Explosive Applications Facility as Center for formulation, processing, and confined testing (<10kg)
- High Energy Density Physics with National Ignition Facility as science magnet

Transformational Changes

- CAT I/II quantities of special nuclear material removed from site by end of 2012 and down-grading of “Superblock” buildings 332 & 334
- 90% *reduction*: in acreage supported by Weapons Account with status change for Site 300
- 30% *reduction*: buildings and structures supported by Weapons Account
- Over next decade, up to 20% *reduction* of staff directly supporting nuclear weapons activities



Sandia National Laboratories



Center of Excellence for Non-Nuclear Design and Engineering; Major Environmental Testing

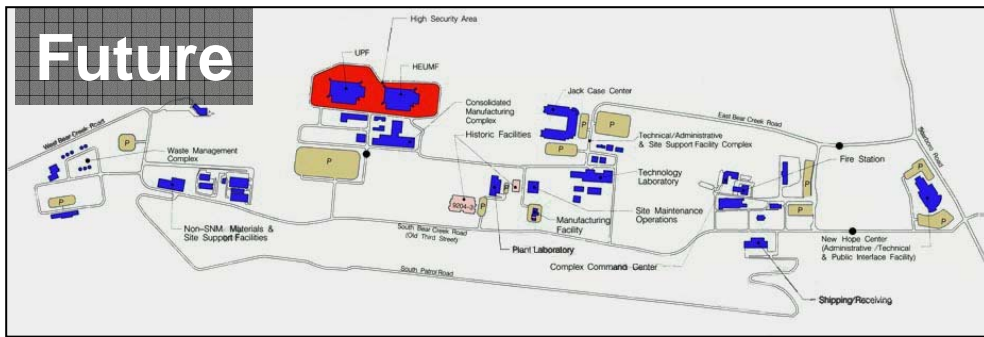
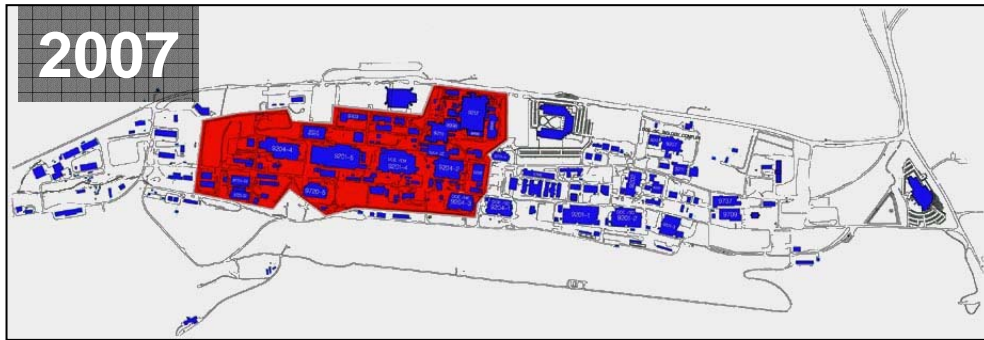
- Microelectronics & Engineering Science Applications (MESA) complex as engineering magnet
- Weapons environmental testing with TA-3 and other NM facilities
- Energetic Devices R&D with Explosives Test Facility
- Neutron generator design and manufacturing facilities

Transformational Changes

- CAT I/II special nuclear material removed in 2008
- Transition SNL/CA (410 acres) to multi-agency lab to reduce NNSA landlord costs
- Revised flight testing strategy for gravity weapons that opens Tonopah Test Range (179,000 acres) for other uses
- Over next decade, up to *20% reduction* of staff directly supporting nuclear weapons activities



Y-12



Center of Excellence for Uranium and Canned Subassemblies

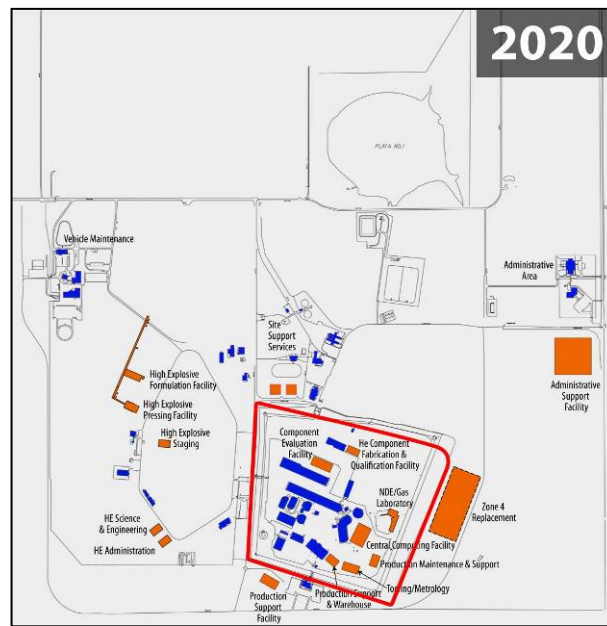
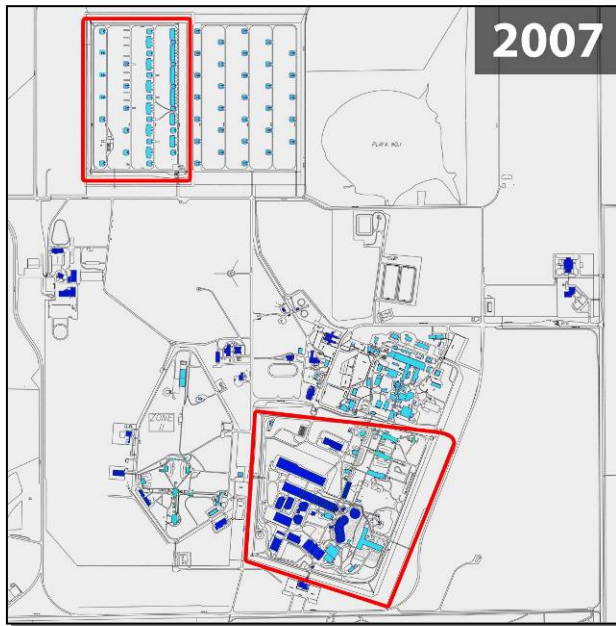
- Highly-Enriched Uranium (HEU) storage with HEU Materials Facility (HEUMF)
- HEU Production and R&D with Uranium Processing Facility (UPF)
- Production of remaining non-HEU components with consolidated manufacturing complex (CMC)

Transformational Changes

- Special nuclear material consolidated
- 90% *reduction*: high security area
- 60% *reduction*: nuclear operations footprint
- 50% *reduction*: total building footprint (~3.1 million GSF gone including Production Bldg 9201-05 613K GSF; Production Bldg 9212 440K GSF; Production Bldg 9204-04 313K GSF)
- Over next decade, up to 30% *reduction* of staff directly supporting nuclear weapons activities



Pantex



Center of Excellence for Assembly/ Disassembly; High Explosives (HE) Production & Machining

▪ Non-destructive weapon/ pit surveillance with existing Weapons Engineering and Testing Lab (WETL) and new Weapons Surveillance Facility (WSF)

- Updated HE machining and production facilities
- Weapon and pit storage with new underground Zone 12 storage facility

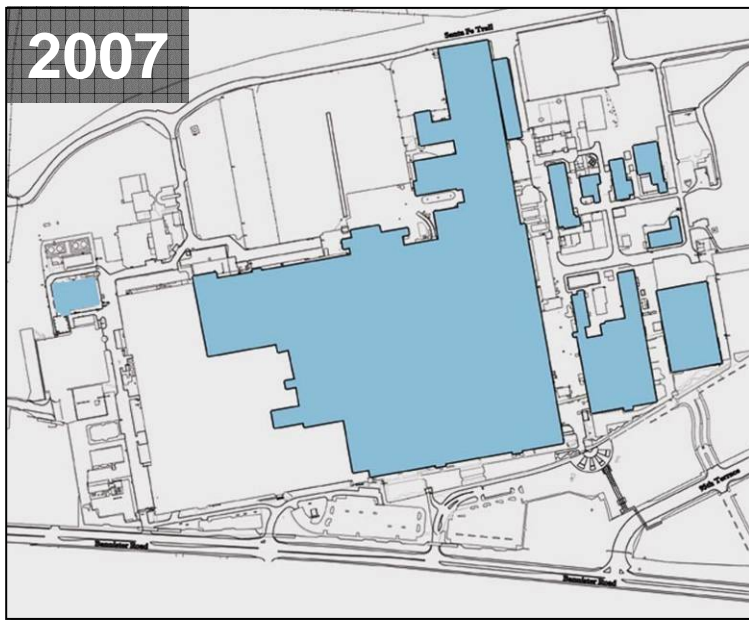
■ Existing now; gone in future ■ Existing now and in future ■ New in future

Transformational Changes

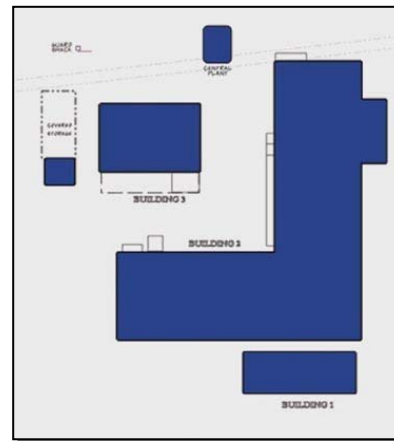
- Special nuclear material consolidated, *enabled by Zone 4 closure*
- 45% *reduction*: high security perimeter
- 25% *reduction*: total building footprint
- Over next decade, from 5% to 10% *reduction of staff* directly supporting nuclear weapons activities



Kansas City Plant*



2012



NOTIONAL



Center of Excellence for Non-nuclear Production and Sourcing

- New GSA-leased facility to support ~40 major product lines (e.g., radars, reservoirs, fire-sets)
- NNSA supply chain management center and increased component out-sourcing
- Improved business practices and application of industry standards

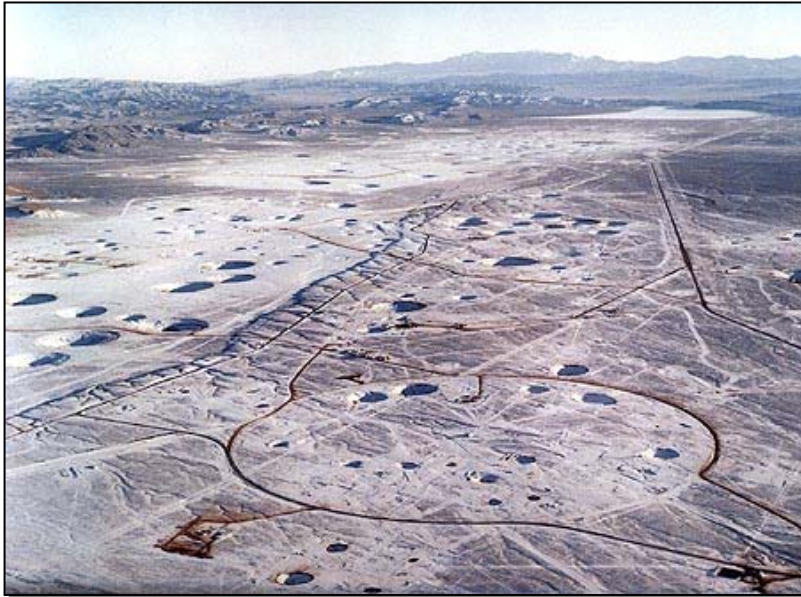
Transformational Changes

- 67% *reduction*: Weapons Account footprint by moving from 3.1M GSF Bannister Road facility to ~1M GSF new GSA-leased facility
- 15% *increase*: component outsourcing percentage
- Over next decade, up to 30% *reduction* of staff directly supporting nuclear weapons activities

* Non-nuclear production is not included as a Complex Transformation (CT) SPEIS preferred alternative. The CT SPEIS addresses restructuring of SNM facilities and major R&D and testing facilities.



Nevada Test Site (NTS)



Center of Excellence for High-hazard testing

- Large-scale, (confined and open-air) high-explosive testing (>10 kg) with BEEF
- Hydrodynamic testing
 - Subcritical and plutonium experiments with U1A and JASPER
 - Criticality experiments and special nuclear material operations at the Device Assembly Facility

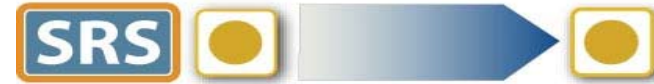
Transformational Changes

Few changes to site infrastructure as currently planned, however:

- Control Point 1 decommissioned and demolished
- Facility operations transferred to NSTEC
- Over next decade, up to 20% *reduction* of staff directly supporting nuclear weapons activities as indirect & overhead efficiencies are achieved and work-for-others expanded.



Savannah River Site (SRS)



Center of Excellence for Operations involving large quantities of Tritium

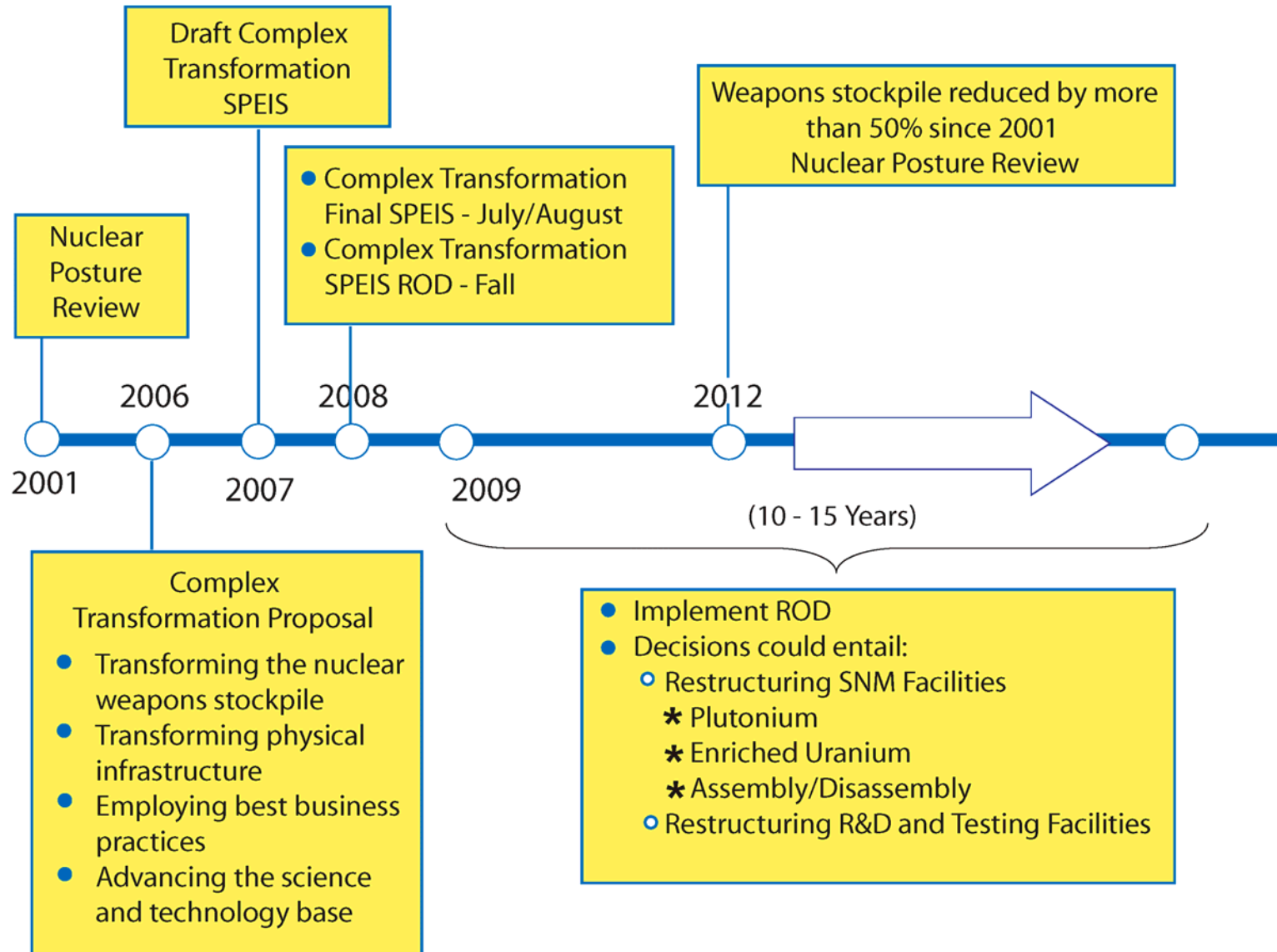
- Tritium production R&D and supply management facilities
- R&D to support gas transfer system design

Transformational Changes

- Few immediate changes to site infrastructure as currently planned
- Over next decade, up to 5% *reduction* of staff directly supporting nuclear weapons activities as indirect and overhead efficiencies are achieved

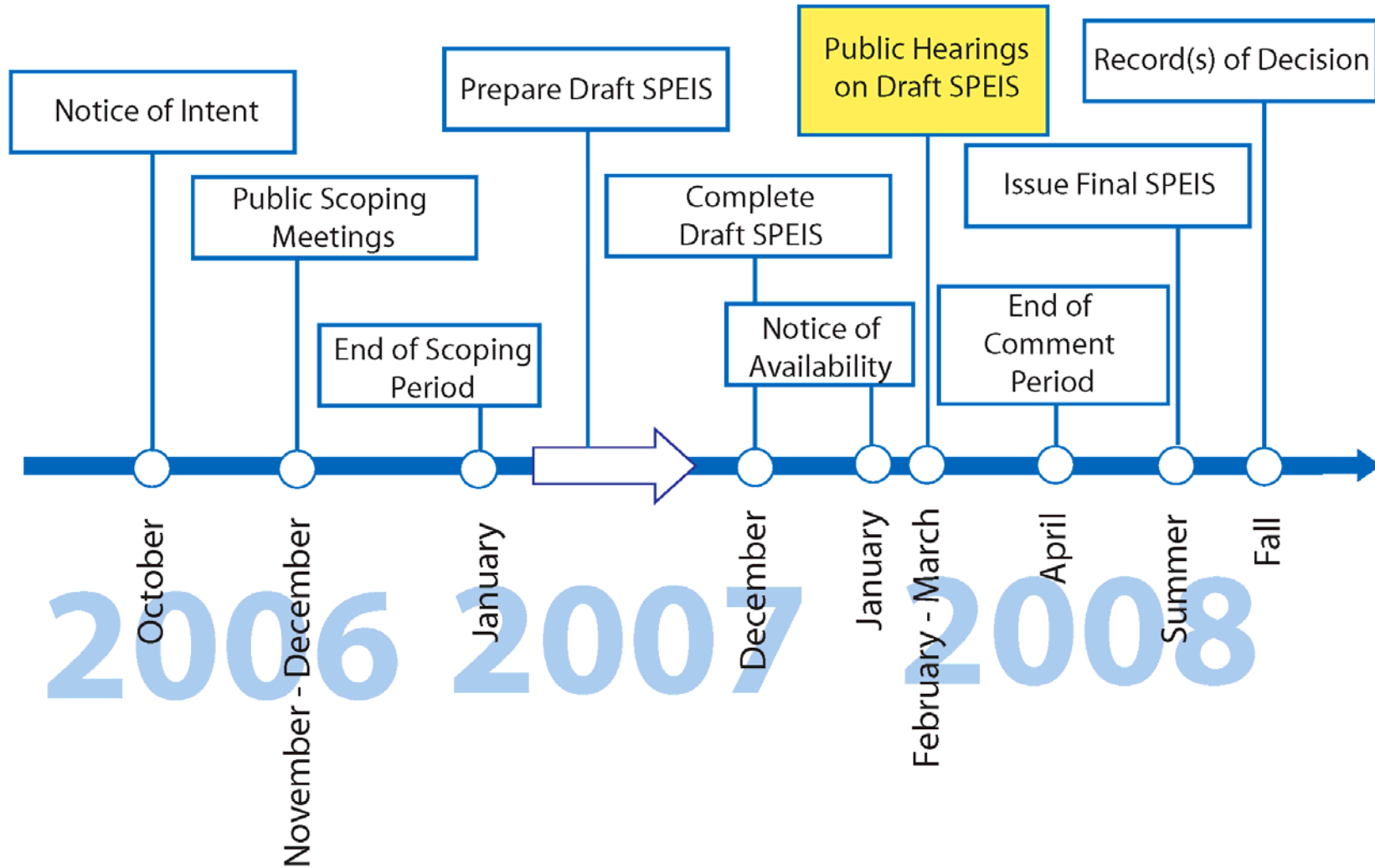


Complex Transformation Proposal





SPEIS Schedule





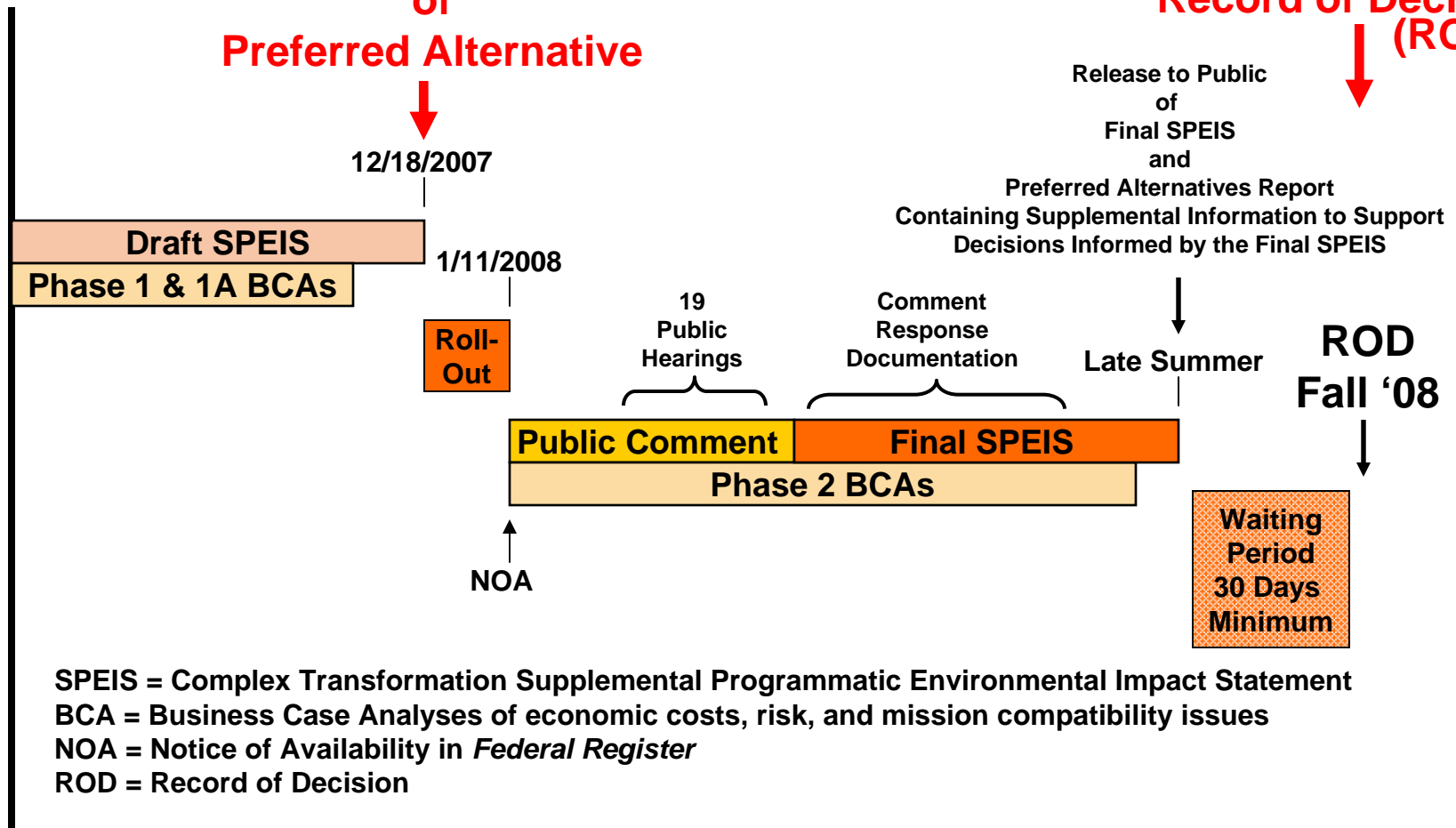
Backup



Assessments Underway to Support Major Facility Decisions

Advanced Notice
of
Preferred Alternative

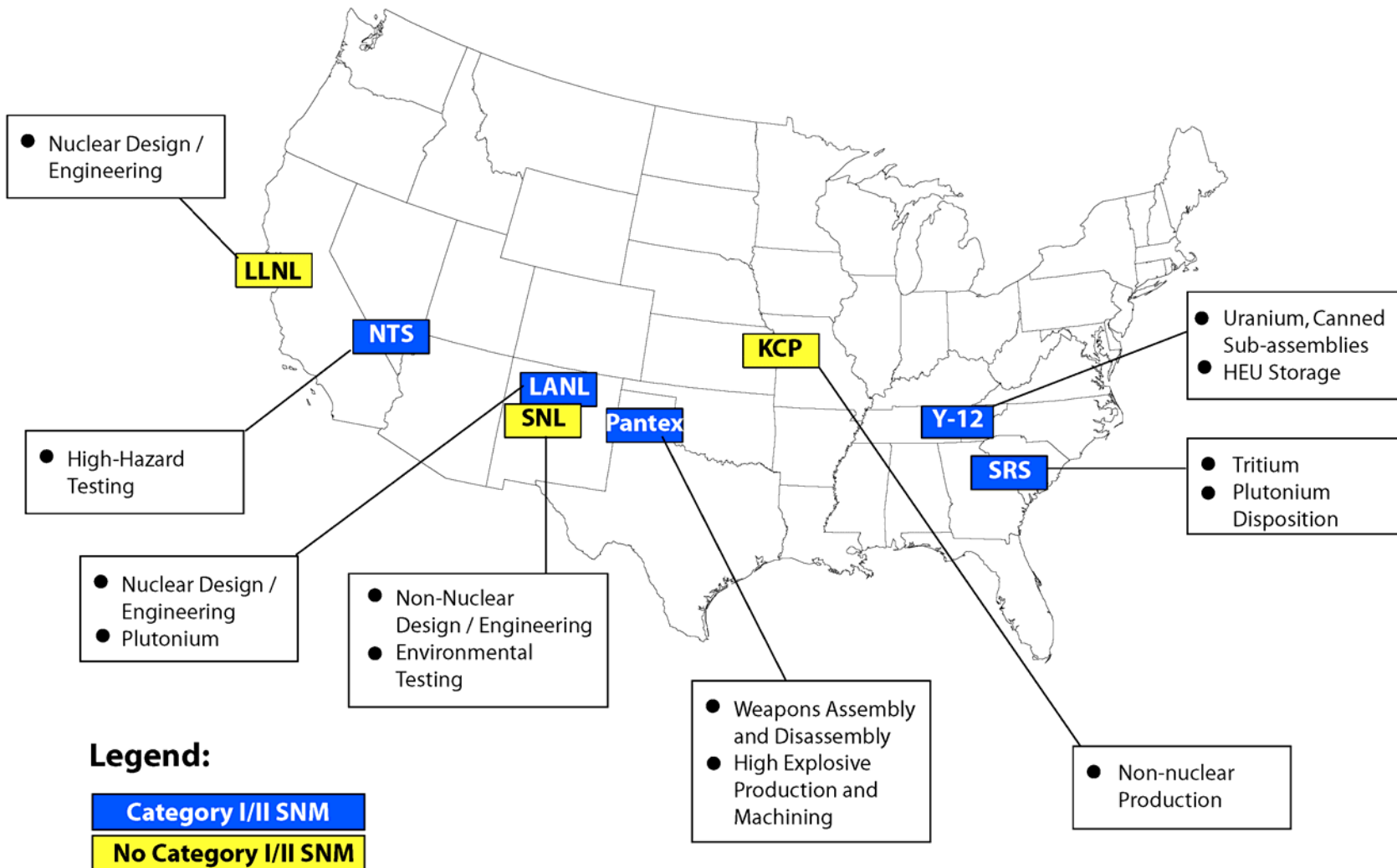
Record of Decision
(ROD)



SPEIS = Complex Transformation Supplemental Programmatic Environmental Impact Statement
 BCA = Business Case Analyses of economic costs, risk, and mission compatibility issues
 NOA = Notice of Availability in *Federal Register*
 ROD = Record of Decision



Nuclear Weapons Complex Distributed Centers of Excellence





Draft SPEIS Restructure R&D and Testing Alternatives

