Surplus, Non-Pit Plutonium Consolidation at the Savannah River Site

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Purpose

- To update the SRS CAB on the status of the Plutonium Consolidation
Acronyms

- Pu  Plutonium
- DOE  Department of Energy
- MT  Metric Tons
- STD  Standard
- DNFSB  Defense Nuclear Facilities Safety Board
- NDE  Non-destructive Examination
- DE  Destructive Examination
- DWPF  Defense Waste Processing Facility
- MFFF  Mixed Oxide Fuel Fabrication Facility
Plutonium Consolidation

Scope
- Quantity: 12.8 Metric Tons (MTs)
- Material: Surplus, Non-Pit Plutonium-239
- Form: Solid form (metal, oxide powder, scrap, and unirradiated fuel)

Shipping and Storage
- DOE Standard 3013 Storage Container, except unirradiated fuel
- DOE 9975 Shipping Package (also storage)
- Safe, Secure Transport Trailers

Storage Location
- K-Area
- Existing Reactor Building
- Meets 2005 Design Basis Threat Guidance
- Continuous Surveillance to Ensure Safe Storage
3013 Containers

- PU Metal Button
- Bagless Transfer Can
- Sectioned Outer 3013 Can with One Bagless Transfer Can
- Outer 3013 Can
Exterior View of 9975 Shipping Container
Cross Sectional View of 9975 Shipping Container
KAMS in 2000
KAMS in 2009
Plutonium Consolidation

- Shipping Sites
  - Savannah River – 910 containers (completed)
  - Rocky Flats – 1889 containers (completed)
  - Hanford – 2257 containers
  - Hanford Unirradiated Fast Flux Test Reactor Fuel – 13 casks
  - Lawrence Liver National Laboratory – 115 containers
  - Los Alamos National Laboratory – 96 containers
  - Potential Future Surplus Material Receipts
    » LLNL and LANL – 500 containers

- Future Storage Capability
  - Pre-Conceptual Design for new Vault (ECD: Sept. 2009)
  - Within existing K-Area Reactor Building
  - 500 -900 additional storage locations (3013 containers)
Plutonium Consolidation Rationale

- Reduces risk to public and environment by consolidating to a single location
- Improves Homeland Security
  - Reduces the number of facilities to protect
- Allow sites to deinventory to meet regulatory commitments
- Significant cost avoidance (billions of dollars) to consolidate surplus nuclear materials at a single location
  - Eliminates multiple (existing) storage vaults across the complex
  - Avoid building new storage vaults to replace outdated facilities
  - Eliminates multiple security projects across the complex
- Allow facilities to close reducing the DOE national nuclear footprint (and avoid operating costs)
EM Non-Pit Pu
Consolidation Receipts

Note: Reflects campaign extension due to proposed LANL shipment schedule

Data Date 3/31/09
Plutonium Consolidation is 75% complete with a Completion Date of FY2013.

New Vault may be installed to receive all non-pit plutonium.

All plutonium is safely and securely stored in K-Area.

The Department has a pathway for dispositioning plutonium out of South Carolina (H-Canyon/DWPF and MFFF).

Evaluating alternatives to optimize Plutonium Disposition, forecast completion summer of 2009.