Governor's Nuclear Advisory Council

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

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Agenda

- Plutonium Consolidation Status
- Plutonium Disposition Strategy
- Summary

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)
  - Stored in DOE Approved Containers (50 yr. storage)
- Storage Location
  - K-Area
  - Existing Reactor Building and Vault-Type Room
  - Meets 2005 Design Basis Threat Guidance
  - Continuous Surveillance to Ensure Safe Storage

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Plutonium Consolidation

3013 Container
(~30 lbs.)

9975 Shipping Container
(~400 lbs.)

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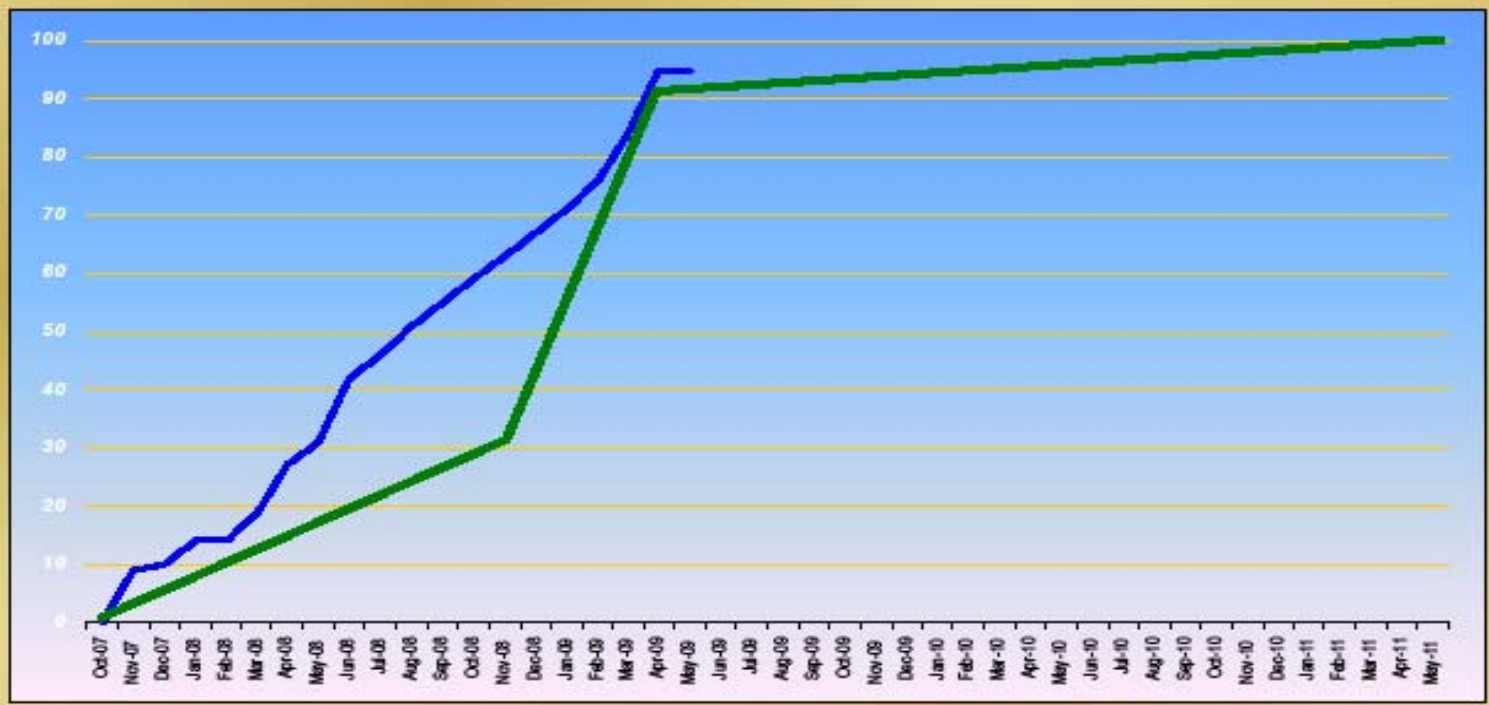
Cross Sectional View of 9975 Shipping Container

Hanford Unirradiated Fuel Package

Plutonium Consolidation

- Status – 95% Complete
- Shipping Sites
  - Savannah River – 910 containers (Complete)
  - Rocky Flats – 1889 containers (Complete)
  - Hanford – 2257 containers (Complete)
  - Hanford Unirradiated (HU) Fast Flux Test Facility Fuel – 13 HU Fuel Packages (ECD: 2009)
  - Lawrence Livermore National Laboratory – 115 containers (ECD: 2011)
  - Los Alamos National Laboratory – 96 containers (ECD: 2011)

EM Non-Pit Pu Consolidation Receipts



Note: Reflects campaign extension due to proposed LANL shipment schedule

Data Date 5/31/09

Plutonium Consolidation

- Potential Future Surplus, Non-Pit Plutonium Consolidation and Storage
  - LLNL and LANL – ~500 Containers
  - Part of the 12.8 MTs material
  - Pre-Conceptual Design for new Vault in K-Area (ECD: 2009)
  - Complete Future Consolidation, if approved (ECD: 2013)

Plutonium Disposition

- Disposition Pathways (2-Prong Approach)
  - 5 MTs to H-Canyon/Defense Waste Processing Facility (DWPF)
  - 7.8 MTs to Mixed Oxide Fuel Fabrication Facility (MFFF)
- H-Canyon/DWPF Pathway
  - SRS has existing, proven plutonium disposition capability (H-Canyon and DWPF) – Trained/qualified workforce
  - Plutonium in Glass Waste Canisters is robust
  - Concern: Yucca Mountain – Secretary convening Blue Ribbon Panel to identify disposition path for High Level Waste
- MFFF Pathway
  - High confidence in constructing and operating MFFF
  - Concern: Contract for Fuel – Sufficient time to establish contract for MFFF fuel

Plutonium Disposition

- Plutonium Disposition Optimization Studies
  - Pre-Conceptual Study evaluating alternatives to optimize 2-Prong Disposition Strategy (ECD: 2009)
    - Disposition all the non-MOXable Pu thru H-Canyon/DWPF
    - Disposition all the non-MOXable Pu to Waste Isolation Pilot Plant (WIPP)
    - Combination of utilizing H-Canyon/DWPF, WIPP and additional Pu to MOX
- The Department remains committed to H-Canyon/DWPF and MFFF for plutonium disposition unless more optimal alternatives are identified

Summary

- Plutonium Consolidation is 95% complete with a Completion Date of FY2011/2013
- All plutonium is safely and securely stored in K-Area
- The Department has a pathway for dispositioning plutonium (H-Canyon/DWPF and MFFF)
- Evaluating alternatives to optimize Plutonium Disposition
- Will support the Blue Ribbon Panel to identify long term disposition path for High Level Waste

Back-up

Plutonium Consolidation

- Plutonium Consolidation Rationale
  - Consolidating surplus nuclear materials at a single location:
    - Reduces Environmental Footprint – Eliminates multiple material storage locations across the complex
    - Avoids Costly Capital Projects – Eliminates need to build new storage vaults to replace outdated facilities
    - Improves Homeland Security - Eliminates safeguarding multiple security vaults across the complex
  - SRS has proven capability to safely and securely store nuclear material
  - Eliminate Multiple Material Movements - Store material at location where there is a high confidence in disposition capabilities

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