Governor’s Nuclear Advisory Council

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

Patrick McGuire
Assistant Manager
Nuclear Material Stabilization Project
Savannah River Operations Office

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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
Plutonium Consolidation

3013 Container
(~30 lbs.)

9975 Shipping Container
(~400 lbs.)
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)
  - 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
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 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.
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 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