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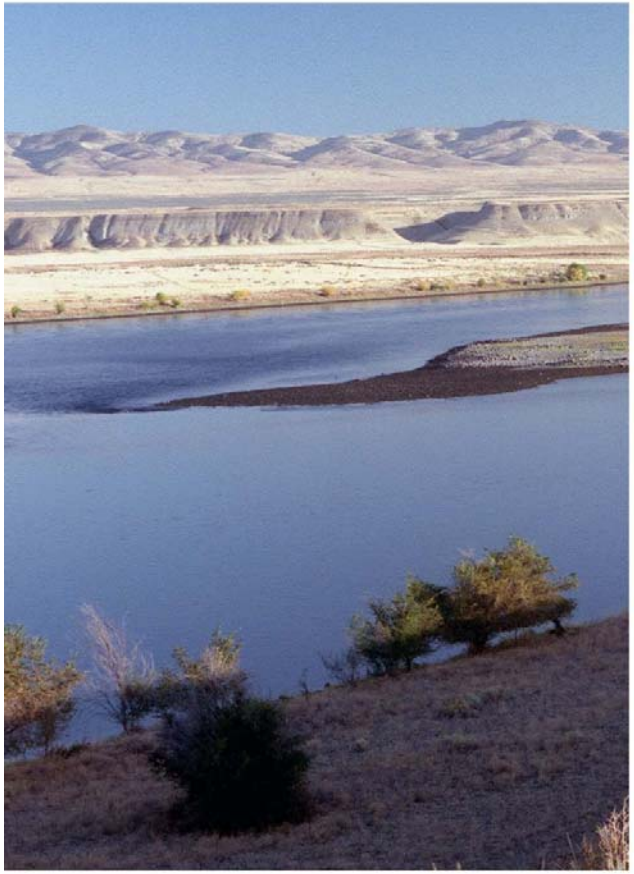

Hanford Spent Nuclear Fuel Overview

Presented to: National Spent Nuclear Fuel Program

Presented by: Roger L. McCormack

Idaho Falls, Idaho
March 24, 2010

One Team. One Culture.

Agenda

- **Hanford Spent Nuclear Fuel (SNF) Current Status**
  - Fuel Inventories
  - Disposition Path
- **Current Storage Facilities**
  - Canister Storage Building
  - 200 Area Interim Storage Area (ISA)
- **Planned Activities**
- **Technology Needs**

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Fuel Inventories

- **Defense Production Reactor Fuel**
  - N Reactor Fuel
  - Single-Pass Reactor (SPR) Fuel
- **Shippingport Naval Reactor Core 2 Fuel**
- **Fast Flux Test Facility (FFTF) Fuel**
- **Commercial Origin Light Water Reactor (LWR) Fuel**
- **TRIGA® Fuel**
- **Miscellaneous Fuel**

® TRIGA is a registered trademark of General Atomics

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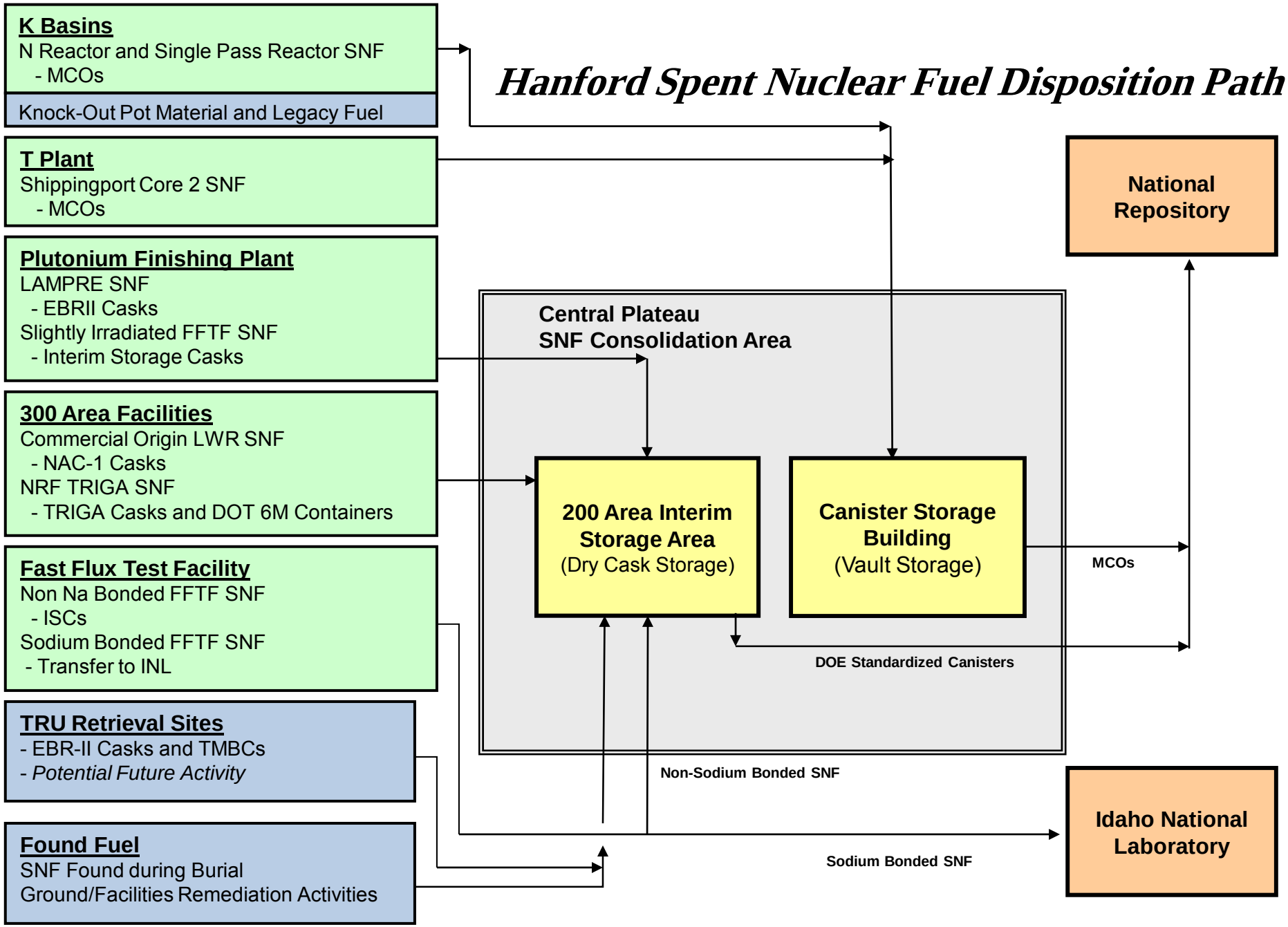
Hanford Spent Nuclear Fuel Disposition Path



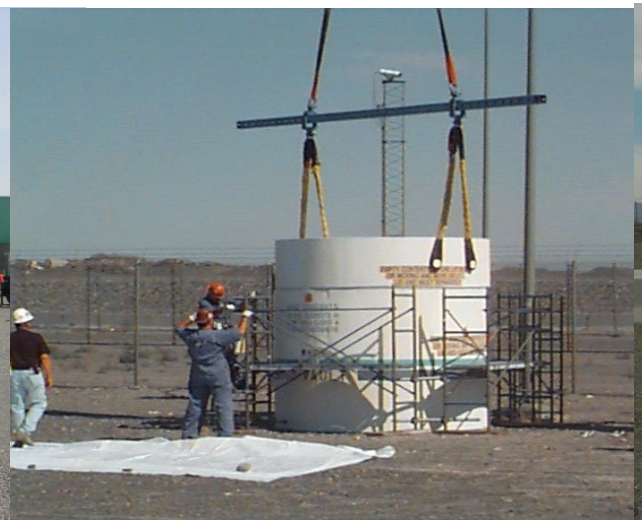
Canister Storage Building

- **Provides vault storage of SNF in Multi-Canister Overpacks (MCOs)**
- **Initiated operations in 2000**
- **CSB and MCOs have a 75-year design life.**
  - Authorization basis developed for 40 year storage
  - Active MCO monitoring/sampling program.

Far Left: CSB exterior. Center: CSB deck with MCO Handling Machine. Far Right: CSB vault during construction.

200 Area Interim Storage Area

- **Provides interim storage of SNF in dry storage casks**
- **Initiated operations in 2002**
- **Dry storage casks have design life of 40-50 years**
  - Authorization basis developed for 40 years
  - Repackaging required for off-site disposition.



Far Left: ISC placement at ISA. Center: TRIGA Rad-Vault lid installation;. Far Right: NAC-1 Casks in ISO Containers

Planned Activities

- **Consolidation of Found Fuel at 200 Area ISA**
  - Includes material discovered during remediation activities
  - First three containers fabricated
  - Earliest projected receipts at ISA in Fiscal Year 2012
- **Consolidation of Knock-Out Pot Material at CSB**
  - Recover high density material greater than 600 microns
  - Package in MCOs, using specially designed basket insert
  - Processing and shipment to CSB scheduled to complete in Fiscal Year 2012.

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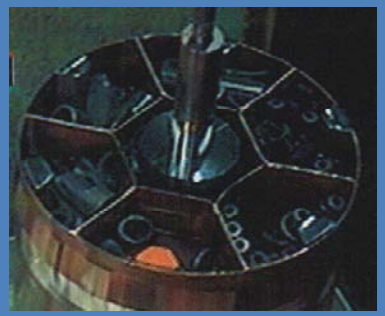
Expanding the MCO Envelope for KOP Material

2100 Metric Tons of SNF

Loaded into 2066 baskets and 388 MCOs

Accomplished

Including →

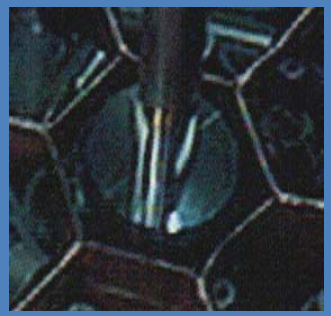


32 Metric Tons of Scrap

Required specially designed basket to facilitate heat removal

Loaded in 71 baskets, no more than 2 per MCO

Including →



4 Metric Tons of Fine Scrap

Separations process to remove fines from coarse scrap

Special basket sector to facilitate heat removal

<1 Metric Ton of KOP Material

Will require separations process to obtain coarse fraction to load into MCO

Requires special basket insert to retain mat'l and facilitate heat removal

Proposed

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Technology Needs

- **Current Interim Storage Baseline**
  - Supplemental technology not needed for 40 year storage (note: Knock-Out Pot material not within SNF program)
- **Extended Interim Storage or Final Disposition**
  - Technology needs dependent on timing and final disposition requirements
  - If DOE standard canister used for final disposition, remote welding technology will be required
  - Extended storage may necessitate need to better identify and predict End of Life for credited packaging and facility components.

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