Spent Nuclear Fuel (SNF) Transfer between SRS and INL

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Background

- ✓ "If a danger exists in the world, it is a danger shared by all; and equally, that if hope exists in the mind of one nation, that hope should be shared by all"

  (*President Eisenhower, speaking to the United Nations General Assembly in New York City on December 8, 1953)*

- ✓ The United States launched an "Atoms for Peace" program that supplied equipment and information to schools, hospitals, and research institutions within the U.S. and throughout the world

- ✓ The SNF Transfer Project will complete this mission at SRS which began over 50 years ago

SNF Decisions

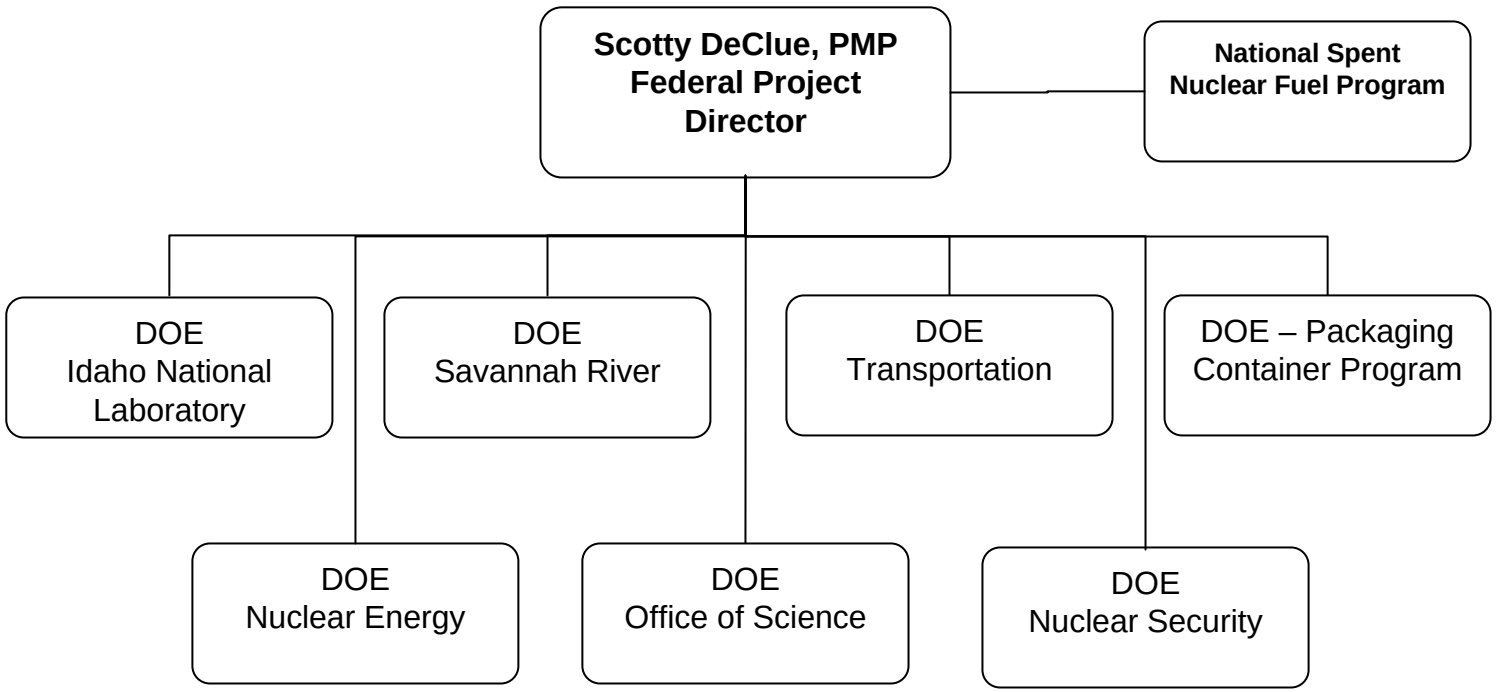
- ✓ 1995 SNF Environmental Impact Statement Record of Decision stating that aluminum clad SNF will be managed at SRS and non-aluminum clad SNF will be managed at INL
- ✓ 1995 Idaho Settlement agreement which permits the SNF transfer between SRS and INL
- ✓ 2000 SRS SNF EIS ROD
  - Develop a Melt and Dilute process for 60% of aluminum clad SNF
  - H-Canyon processing for 40% of aluminum clad SNF
  - Ship non-aluminum SNF to INL
- ✓ 2006 DOE approved the Enriched Uranium Disposition Project stating that the H-Canyon facility at the Savannah River Site will be used to process aluminum clad SNF
- ✓ A Supplement Analysis and Amended Record of Decision is being developed to designate H-Canyon processing as the preferred option

Successful End State

Completion of the Enriched Disposition Project together with the SNF Transfer will result in:

1. Elimination of the need for SRS to build and operate a SNF packaging and dry storage facility (estimated life cycle savings over $1Billion)
2. Elimination of the entire SNF inventory at SRS
3. Completion of the SRS SNF mission by closing all SNF facilities (annual savings of over $35Million)
4. Reduction of the number of shipments of SNF from DOE Sites to the repository
5. Recovery of a valuable national resource, useful fissile materials, for energy use

SNF Transfer Integrated Project Team



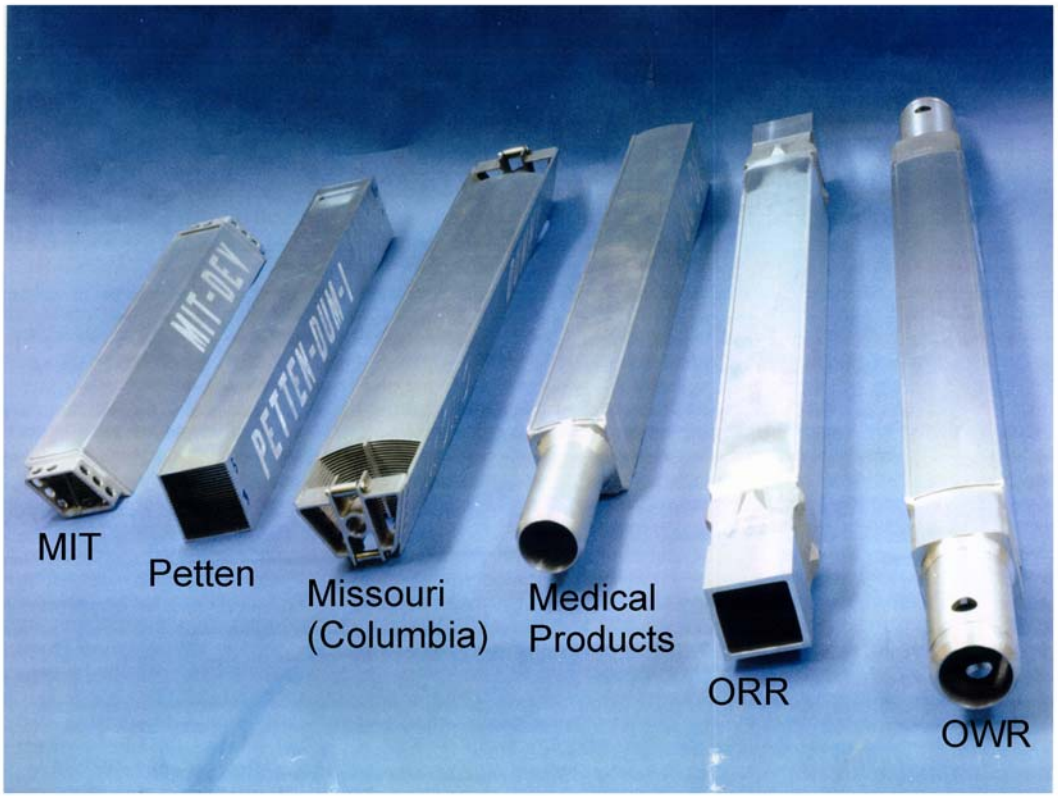
Scope of Transportation

- ✓ EM proposes to ship SNF between the Savannah River Site (SRS) and the Idaho National Laboratory (INL) beginning late 2009 through 2019
- ✓ Approximately 30 shipments per year for 10 years are being planned (20 shipments from INL to SRS and 10 shipments from SRS to INL each year)
- ✓ FRR and DRR shipments will be coordinated

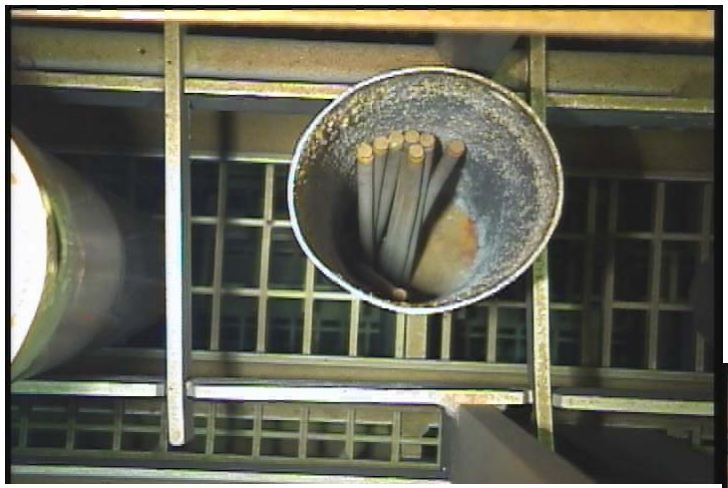
Projected Shipment Planning Information

	Assemblies/Pieces	Estimated Shipments	MTHM	Estimated Curies
SRS to INL	~2000	50 – 150	~20	2.2 E7
INL to SRS	~4000	150 – 250	~3.8	1.8 E7

Typical aluminum Material Test Reactor Equivalent (MTRE) Assemblies



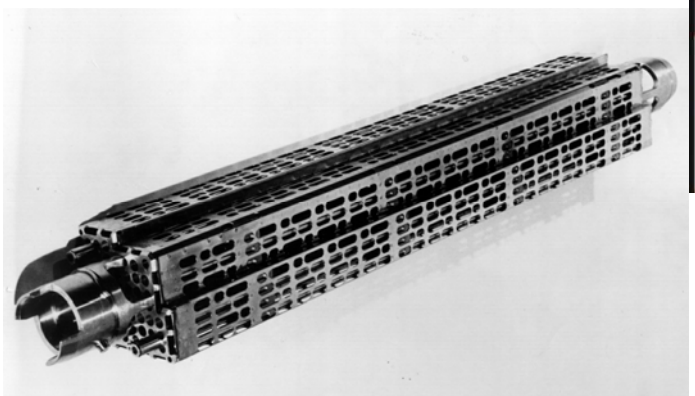
SRS Non-aluminum SNF



Loose
Pins/Rods

GCRE Pin Bundle

Gas Cooled Reactor Experiment



Saxton (intact)

Fuel Assemblies

- ✓ Each fuel assembly will be reviewed for safe shipping and disposition options. Preliminary review of the SNF characteristics indicate:
  - All the INL SNF will physically fit in the DOE owned GE-2000
  - ~40%of the SRS inventory could physically fit in the GE-2000
  - The SRS inventory includes some fuel which will need to be repackaged for shipment to INL

SNF Transportation Cask

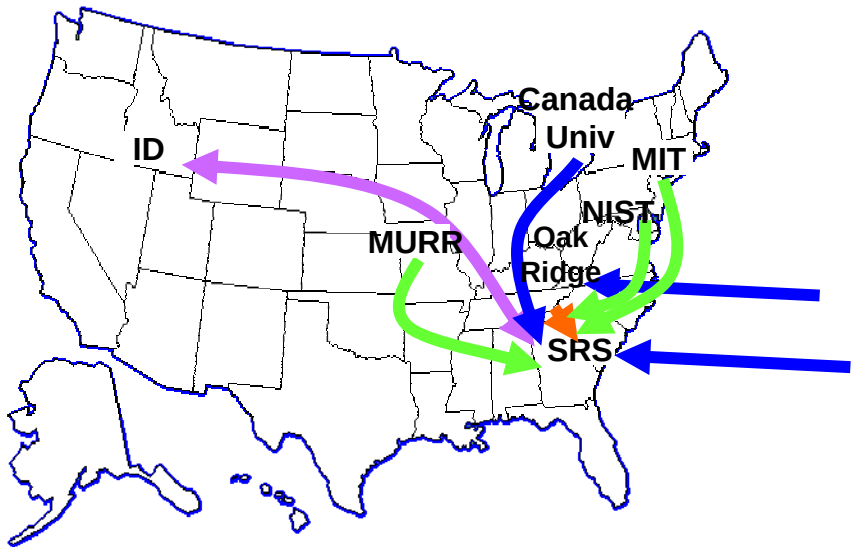
- ✓ SNF Shipping Cask Selection process has begun
- ✓ After reviewing the SNF characteristics and the L-Area basin physical characteristics, two casks are currently being studied:
  - GE 2000
  - NAC LWT
- ✓ EM is coordinating with NE and SC for Cask Procurement to maximize shared use opportunities

Strategy

- ✓ Lessons Learned from the DOE complex in shipping SNF will be reviewed to assist in planning process
- ✓ DOE Manual 460.2-1 will be followed
- ✓ Planning activities will follow the FRR cross-country and other EM SNF shipments
- ✓ The SNF Transfer IPT will coordinate the shipment schedule with other planned SNF shipments to avoid issues along the route

Planned SNF Shipments

- SNF Transfer Project – EM
- FRR – NNSA
- DRR – NE
- HFIR – SC



EM → NNSA → NE → OS

Schedule

SNF Transfer Schedule	Date
Preliminary Project Planning Began	**1/2/2007 (A)**
General Briefing to Stakeholders on Project	07/2007
Publish SNF Transfer Project Plan	9/2007
Publish Draft Transportation Plan for Review	10/2007
Publish Supplement Analysis/Amended Record of Decision	12/2007
Enriched Uranium Critical Decision 2/3 Approved	12/2007
Begin SRS SNF deinventory shipments to H-Canyon	4/2009
Begin SNF exchange between SRS and INL	10/2009
Complete SNF Transfer	5/2019
Complete FRR receipt program	5/2019
Complete SRS DRR receipt program	5/2019

Mode of Transportation

- ✓ All transportation routes and systems will be evaluated for safety, security, and cost effectiveness
- ✓ DOE proposes to begin these shipments in late 2009 using motor carrier transport
- ✓ Carriers will be selected from the approved Motor Carrier Evaluation Program list

Tracking

- ✓ The DOE TRANSCOM system will be used to track the shipments between SRS and INL

- ✓ The Savannah River Site Operations Center (SRSOC) will provide each corridor State and Tribe and DOE Regional Coordinating Office 24-hour emergency response point of contact notification that the shipment has departed and then a 2-hour “prior to entry” notification

Stakeholder Interaction

- ✓ SNF Transfer Draft Transportation plan available October 2007
- ✓ SR offers to host a meeting early 2008
- ✓ Include representatives from the 4 Regional Groups
- ✓ Purpose is to discuss the draft Transportation Plan
- ✓ Tour of SRS H-Canyon and L-Area facilities

SNF Transfer Summary

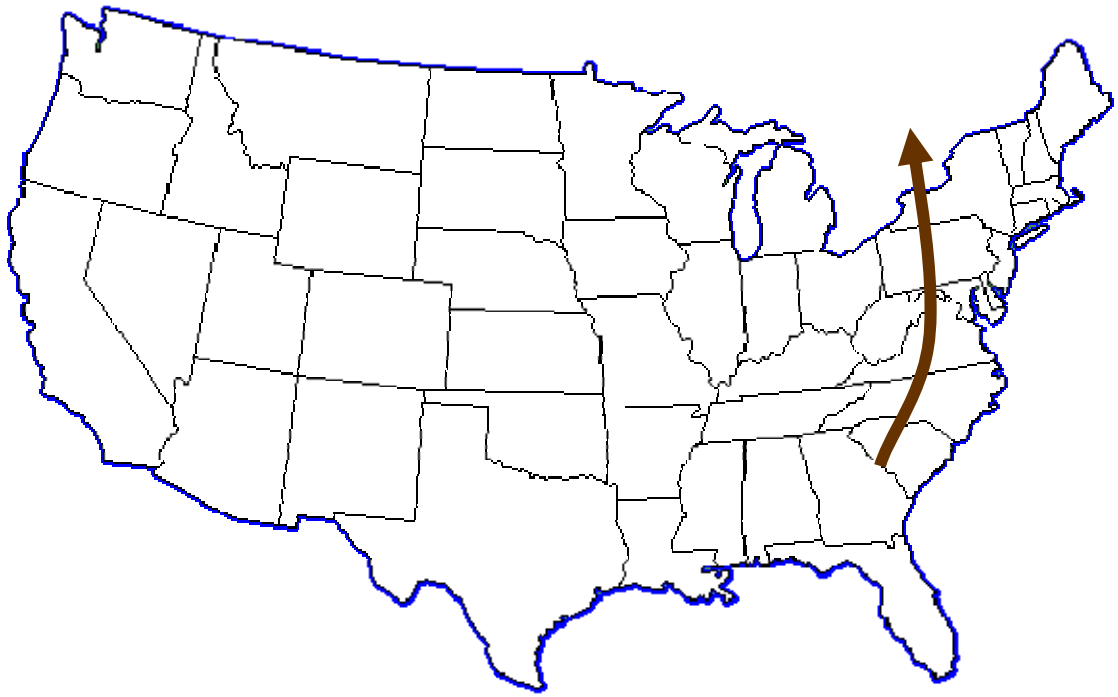
- ✓ SRS and INL are strong Safety and Radcon performers
- ✓ Shipping SNF is a validated capability
- ✓ SNF Transfer IPT is actively planning shipment
- ✓ DOE will coordinate SNF Transportation Plan with Corridor States and Tribes
- ✓ Effective Communications is imperative to the success of this project and will be actively managed

Heavy Water
Potential Shipment

Heavy Water Potential Shipment

- ✓ Heavy Water is water with extra Neutrons in the Hydrogen atom
- ✓ Heavy Water was used in SRS reactors as a moderator
- ✓ ~ 535,000 gallons Heavy Water has been declared Excess
- ✓ Atomic Energy of Canada Limited (AECL) has expressed interest in the Heavy Water for nuclear power reactors
- ✓ DOE is exploring the concept to ship ~10,000 drums to Canada, possibly beginning in late 2008.

Heavy Water Routing



Heavy Water →