

INL SNF PROGRAM

presented to

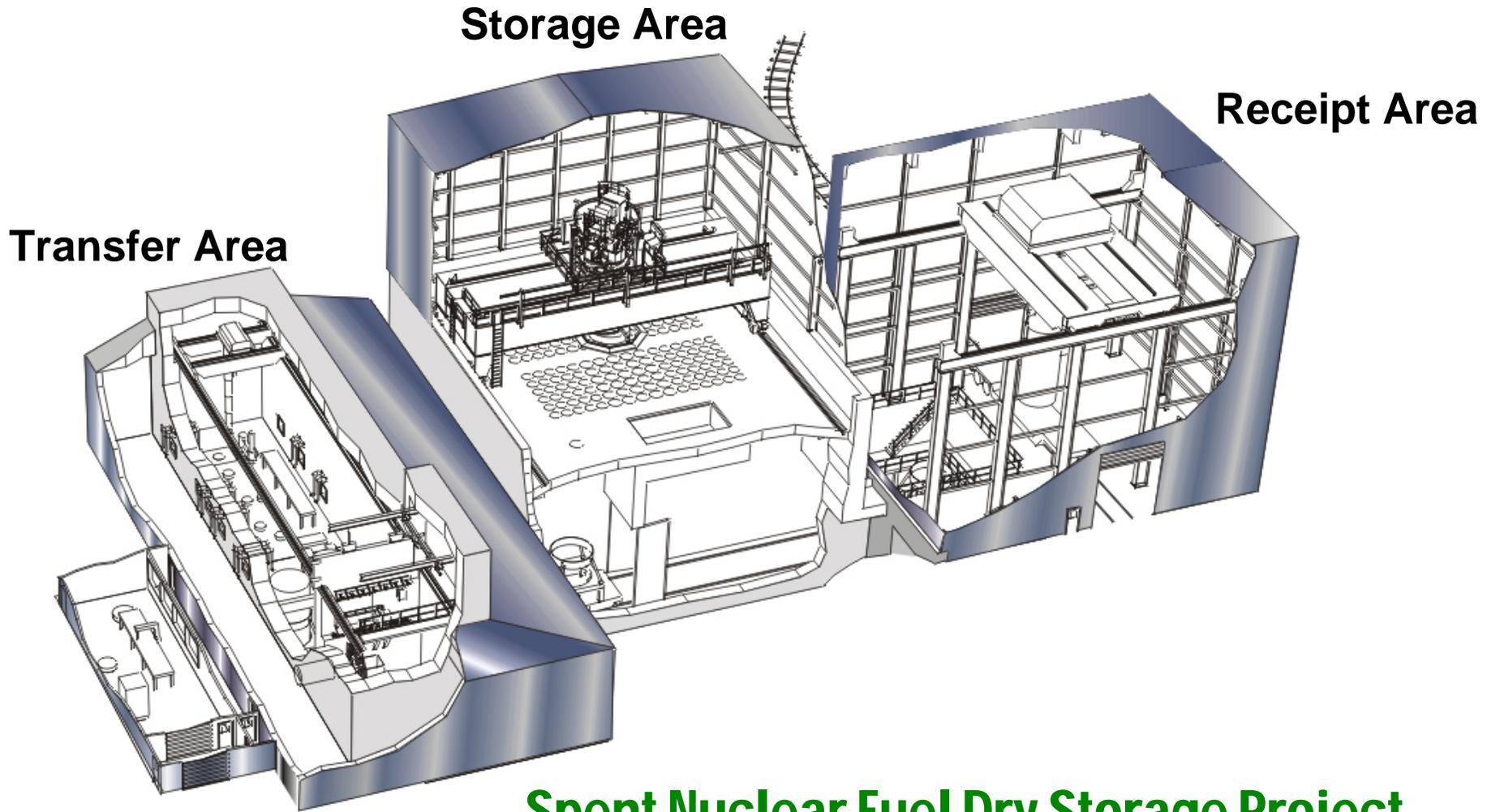
**National Spent Nuclear Fuel Program
1,432nd Strategy Meeting
July 11 - 12, 2006
Arlington, VA**

presented by

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1.0 The INL EM-Managed Spent Nuclear Fuel Program



1.1 INL's Spent Fuel Management Strategy

1. Perform national responsibilities:
 - Receive and store domestic fuels;
 - Receive and store ATR SNF; and
 - Receive and store FRR fuels.

Status and Accomplishments:

- 50 truck cask equivalents during the period FY98-FY05

FY	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
FRR	3	5	1	3	0	1	2	0	0	15
DRR	0	0	0	0	0	31	2	2	0	35
Total	3	5	1	3	0	32	4	2	0	50

**2006 Plans: DRR receipt: 1 cask from Tx A&M, 07/06;
FRR receipt: 2 casks from Japan, 11/06.**

1.1 INL's Spent Fuel Management Strategy

2. Address vulnerabilities:

- Place wet stored SNF into interim dry storage by 12/31/23.

Status and Accomplishments:

- As of 09/15/03, five of six wet storage pools containing EM-managed legacy SNF have been emptied.
- The sixth must be emptied by 12/31/2023¹ → 09/30/2012².

SNF Wet Storage Facility	Date Emptied
TRA-660, ARMF/CFRMF Canal	10/28/1997
CPP-603, Basins	04/28/2000
TRA-603, MTR Canal & Plug Storage	09/24/2002
TAN-607, Basin	09/29/2002
PBF-620, Pool	09/15/2003
CPP-666, Basins	09/30/2012 (planned)

1 - Idaho Settlement Agreement; 2 - Planning commitment

1.1 INL's Spent Fuel Management Strategy

3. Consolidate spent fuel storage areas:

- Relocate all SNF into a single management area at INTEC.

Status and Accomplishments:

- As of 10/26/04, all SNF facilities throughout the site containing EM-managed legacy SNF have been consolidated at INTEC.

SNF Storage Facility	Date Emptied
TRA-660, ARMF/CFRMF Canal	10/28/1997
TRA-603, MTR Canal & Plug Storage	09/24/2002
TAN-607, Basin	09/29/2002
PBF-620, Pool	09/15/2003
TAN-791, Dry Storage Pad	10/26/2004
New NE Scope (TRA SNF)	10/18/2005

1.1 INL's Spent Fuel Management Strategy

4. Make DOE-owned legacy SNF road-ready:

- Support removal from Idaho and Colorado by 01/01/35.**

Status and Accomplishments:

- DOE determines to design, NRC-license, build and operate the SNFDSP.**

12/92 Initial Feasibility Studies published.

06/96 Project validated as a 1998 LICP.

01/97 DOE redefines acquisition strategy from standard LICP to a privatization procurement.

01/99 DOE releases RFP.

05/00 DOE awards contract to Foster Wheeler Environmental Corp (FWENC).

11/04 NRC grants license.

02/06 Terminated contract with FWENC, paid FWENC \$82M for services rendered.

04/06 Resubmitted CD-0 to HQ.

07/06 Submit request for license transfer to NRC.

1.2 FY2006 Accomplishments for the INL SNF Program

- 10/18/05 – Received the last of the planned three casks (100%) from TRA to INTEC for storage at CPP-749. This activity completes the consolidation of NE-managed SNF to EM space resulting from the exchange as planned within the two contracts.**
- 07/05/06 – Completed 89 of 109 shipments of the 2nd of 15 planned transfer campaigns to empty CPP-666 of EM-managed SNF.**
- 07/05/06 – Completed 20 of 31 planned ATR SNF receipts**

1.3 The Future

1 The ICP Contract

Effective 05/01/05, the INL EM-managed SNF programs has expanded scope.

The program will receive and manage certain materials from the NE program. The contractor shall:

Transfer approximately 5kg of SNF (listed in Table C.7 of the RFP) from TRA to safe storage at INTEC by September 30, 2009.

[13 separate items/categories of material; ~ 4.5 kg U.]

Complete – 10/18/05

1.3 The Future

2 Projected Accomplishments

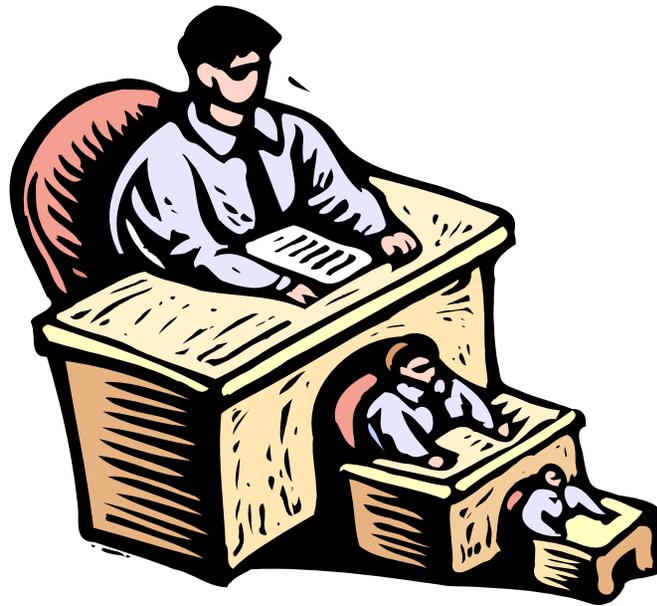
- **Complete by 07/28/2006 MOA with NR to establish roles and responsibilities, cost, scope and schedule to achieve return of NR SNF to NRF by 09/30/12.**
- **Select SNF management option in CD-1 by 12/31/06.**
- **The last wet storage facility will be emptied with the transfer of SNF managed at CPP-666 to several dry storage facilities located at INTEC, ANL-W (MFC) and NRF by 09/30/2012. [EM-owned SNF out by 09/30/09.]**

1.3 The Future

3 Needs

- **EM/HQ to determine if sodium-bonded SNF should be treated.**
- **EM/HQ to negotiate ownership of EBR-II SNF managed at INTEC/ CPP-666.**
- **EM/HQ to determine if epoxied SNF should be treated.**
- **EM/HQ to determine if the baseline plan to execute the SRS/INL SNF swap should proceed.**
- **EM/HQ to determine new INL SNF program path forward.**

2.0 The New Frontier: Spent Nuclear Fuel Packaging and Storage



2.1 Revise Project from Privatized Structure to DOE Project

Project will follow DOE O 413.3 process

04/06 – DOE-ID submitted the CD-0 package to HQ

12/06 – DOE-ID to submitted the CD-1 package to HQ

2.2 DOE Order 413.3 Decision Process

DOE Project Management Structure requires 5 Critical Decisions

CD-0 Approve Mission Need

- Original Mission Need signed in 1996 and is being reconfirmed.

CD-1 Approve Alternative Selection and Cost Range

- Target 1st Qtr. FY 2007

CD-2 Approve Performance Baseline including completion of the NEPA process

- Target FY 2008

CD-3 Approve Start of Construction (cost and schedule dependent on outcome of CD-1)

CD-4 Approve Start of Operations (cost and schedule dependent on outcome of CD-1)

2.3 Requirements Remain the Same

- Wet-to-dry transfers in addition to foreign and domestic research reactor fuel receipts drive timing and need for additional dry storage space (depending on scenario: 2009 – 2012).
- Settlement Agreement requires all SNF in dry storage by 2023
- The Idaho Settlement Agreement and the Colorado Agreement require all SNF out of Idaho and Colorado by 2035.
- Subsequent DOE Plan requires all EM-owned SNF will be in dry storage by 9/30/12.
- Subsequent planning requires all EM-owned SNF will be in dry storage at INTEC by 9/30/09.
- Subsequent planning requires all Naval SNF will be returned to Naval Reactor Facility by 9/30/2012.

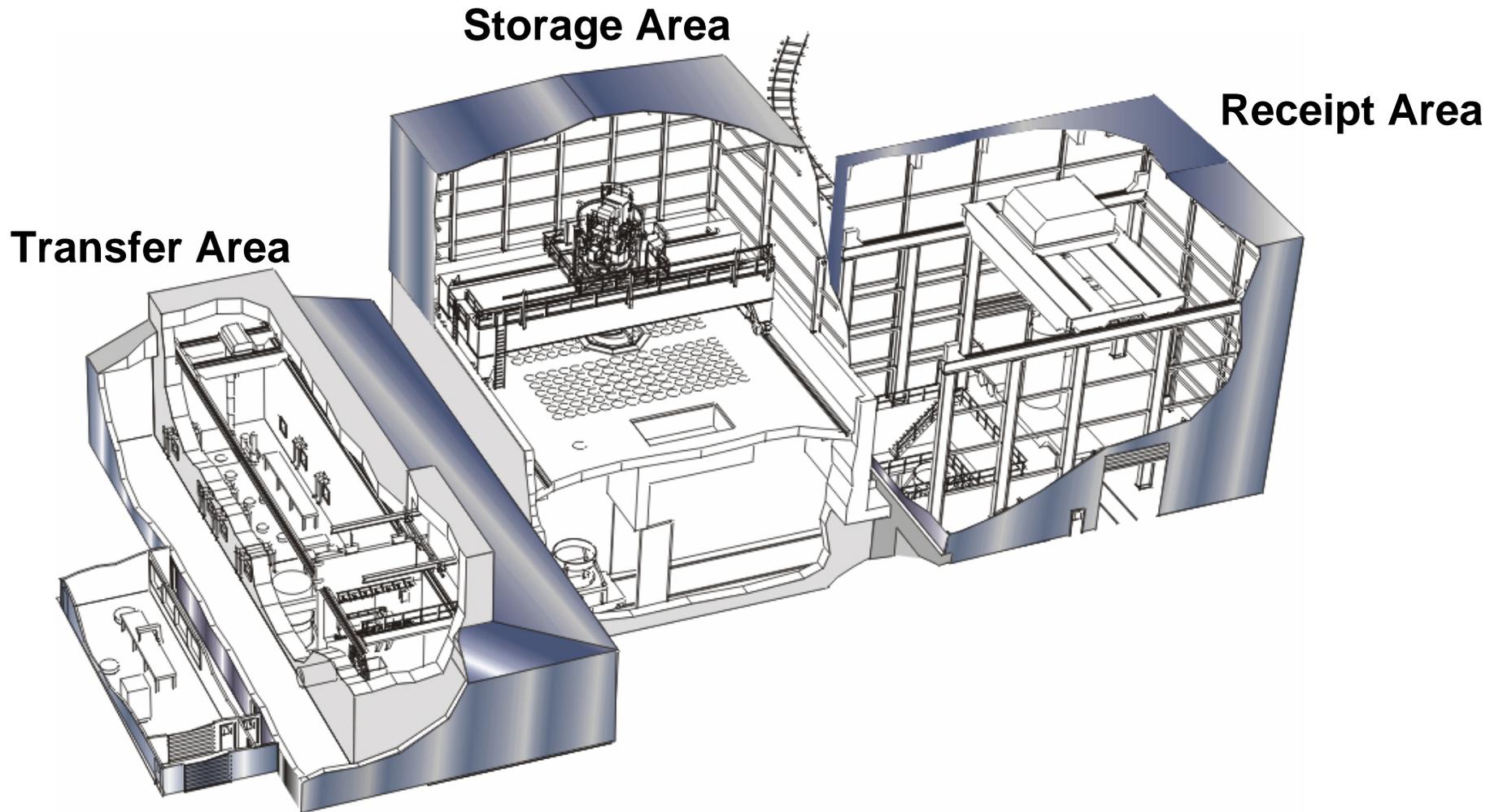
2.4 Two Options Presented

Approach 1 – Stand Alone Facility

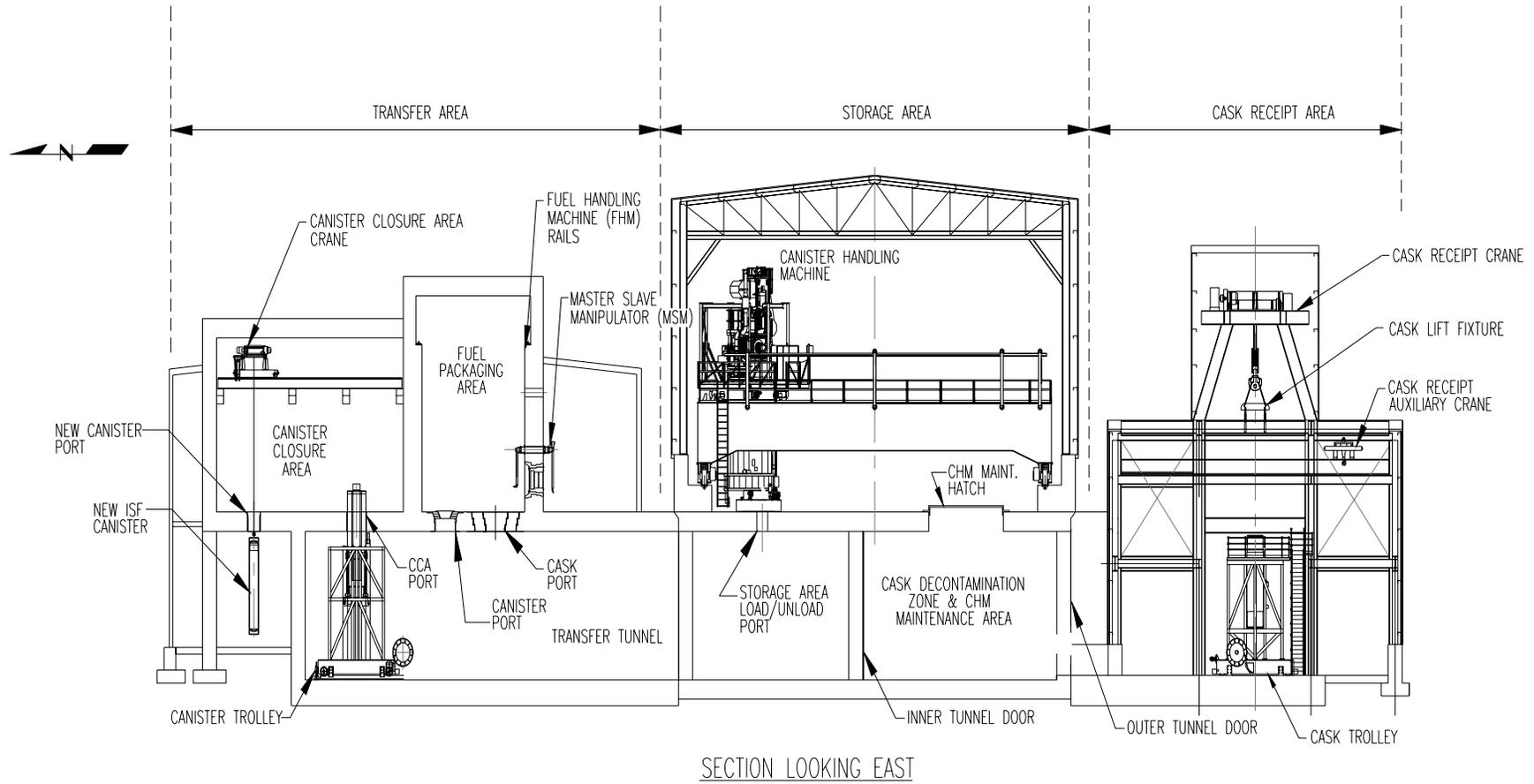
Idaho Spent Fuel Facility expansion of Foster Wheeler contract for all fuel.

- DOE owns the Foster Wheeler Design.
- Design would be modified to include all ICP SNF (full crane to replace static hoist, additional storage positions, rail load-out).
- NRC license will be transferred from Foster Wheeler to DOE.

FWENC Schematic



SNFDSP Facility Section View



2.4 Two Options Presented

Approach 2 – Reconfiguration of Existing Facilities

Modify:

- CPP-666 wet storage basins
- CPP-603/IFSF dry storage facility

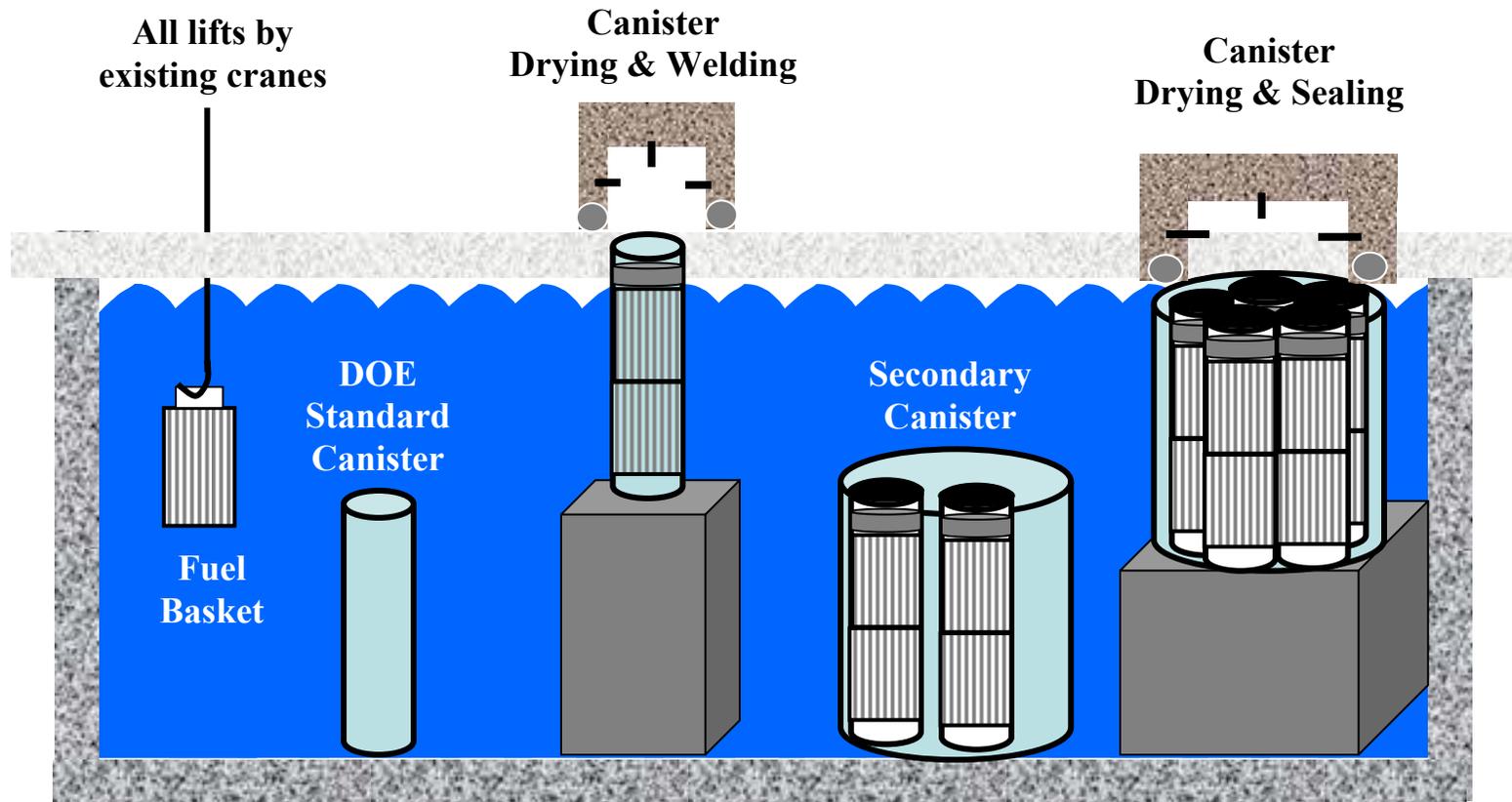
Add capability for packaging of SNF in standard canisters, and shipping cask load-out capability.

Construct:

A commercially available modular dry storage system.

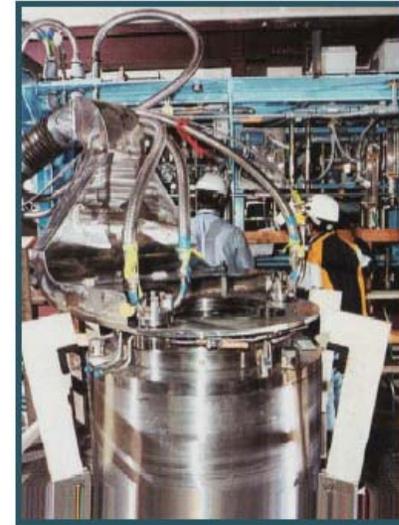


Direct Canister in CPP-666



Engineered Equipment Involved

- Transfer systems
 - **Similar to commercial, TMI ISFSI, SRS**
- Fuel drying / conditioning
 - **Proven System - Similar to TMI drying, commercial drying systems**
- Canister Sealing
 - **Double containment**
 - **Primary Sealing adapts commercial to DOE Std. canister**
 - **Secondary Sealing in dry storage canister**
- Dry Storage
 - **Quick to production - Commercially available ISFSI system**



HI-TRAC to Refuel Floor

