
*National Spent Nuclear Fuel Program Strategy Meeting
Idaho Spent Fuel Facility
August 2007*

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Agenda

- ICP Spent Nuclear Fuel (SNF) Mission
- Mission Need
 - Idaho Spent Fuel Facility Project Status
 - Regulatory Authority
 - Project Schedule (Not Baseline)
- Challenges



ICP Spent Nuclear Fuel (SNF) Mission

- Maintain all SNF inventory and facilities in a safe configuration.
- Receive and safely manage foreign and domestic research reactor fuel (F/DRR).
- Receive and safely store Advanced Test Reactor (ATR) SNF in CPP-666.
- Move all EM-owned SNF into dry storage by December 31, 2023.
- Remove SNF from Idaho and Colorado by January 1, 2035.



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ICP Spent Nuclear Fuel (SNF) Mission

- Receive and safely manage foreign and domestic research reactor fuel (F/DRR).
 - Received 17 truck cask equivalents FRR 1998-2007.
 - Received 36 truck cask equivalents DRR 1998-2007 (WV 31).
 - Texas A&M (1 cask) planned for August 2007.



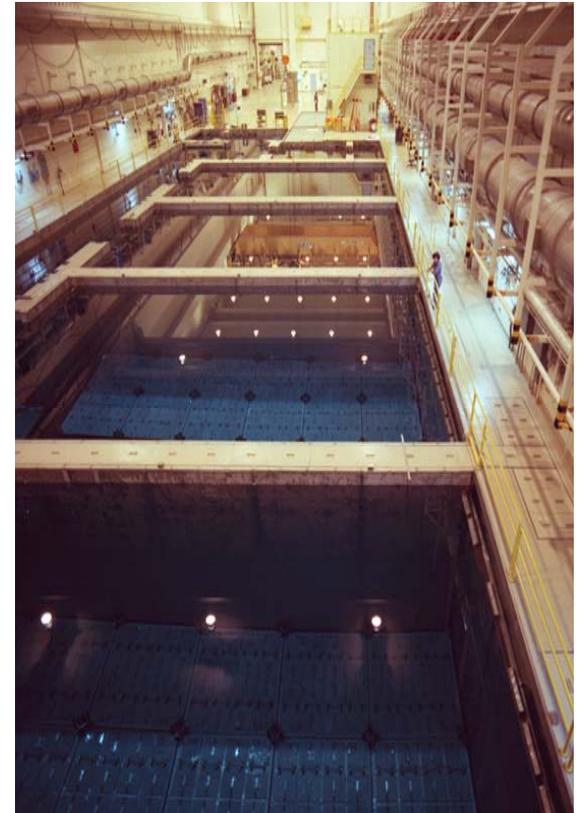
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ICP Spent Nuclear Fuel (SNF) Mission

Receive and safely store Advanced Test Reactor (ATR)
SNF in CPP-666.

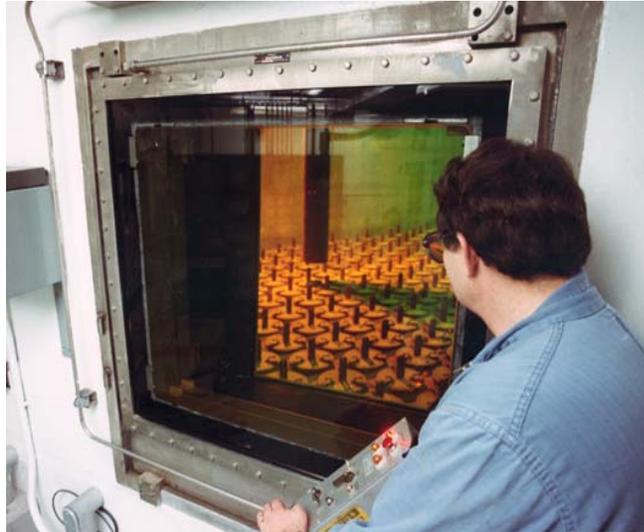
- 31 planned annually FY 06-10.
- FY 05 8/8 ATR casks.
- FY 06 31/31.
- FY 07 9/31 ATR casks.



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ICP Spent Nuclear Fuel (SNF) Mission



Move all SNF into dry storage by December 31, 2023 (Letter Commitment 2012)

- ICP Contract date September 30, 2009

- Thru July 1417 of 3278 FUs



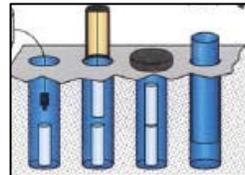
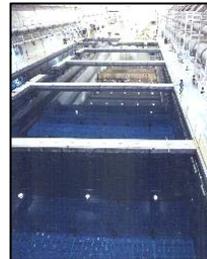
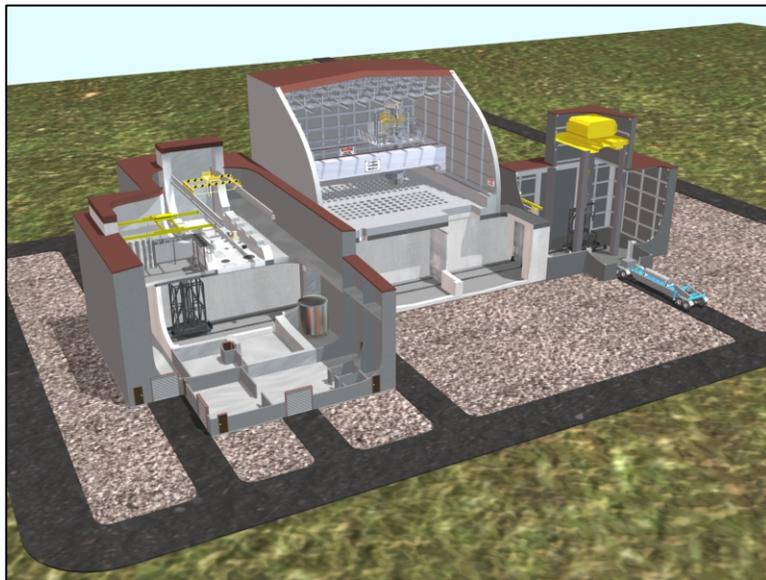
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ICP's Spent Nuclear Fuel (SNF) Mission

Remove SNF from Idaho and Colorado by January 1, 2035.

- Idaho Spent Fuel Facility or Reuse of Existing Facilities



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Mission Need – Idaho Spent Fuel Facility (ISFF)

- Capability is required to prepare a wide range in types and conditions of INL fuel for future disposition.
 - Receive nuclear fuel cask shipments.
 - Remove fuel from existing storage containers (when necessary).
 - Characterize and condition SNF.
 - Place SNF in DOE standardized canisters.
 - Add poisons when required, seal weld and back-fill with an inert gas.
 - Store standardized canisters of SNF.
 - Load canisters for transport to Yucca Mt.



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Definitions from EM/RW Memorandum of Agreement (MOA)

- Characterization of SNF and HLW – Performance of the activities (e.g., data collection, testing, inspection, document preparation, analyses) necessary to describe SNF and HLW adequately for acceptance, transportation and disposal (this includes preclosure and post closure performance in the repository).
- Conditioning – any process which prepares or treats SNF or HLW for transportation or disposal in accordance with regulatory requirements and RW acceptance criteria. This includes processing (e.g. vitrification) of HLW and passivation of SNF.



Mission Need –ISFF C/P/E Cost Analysis

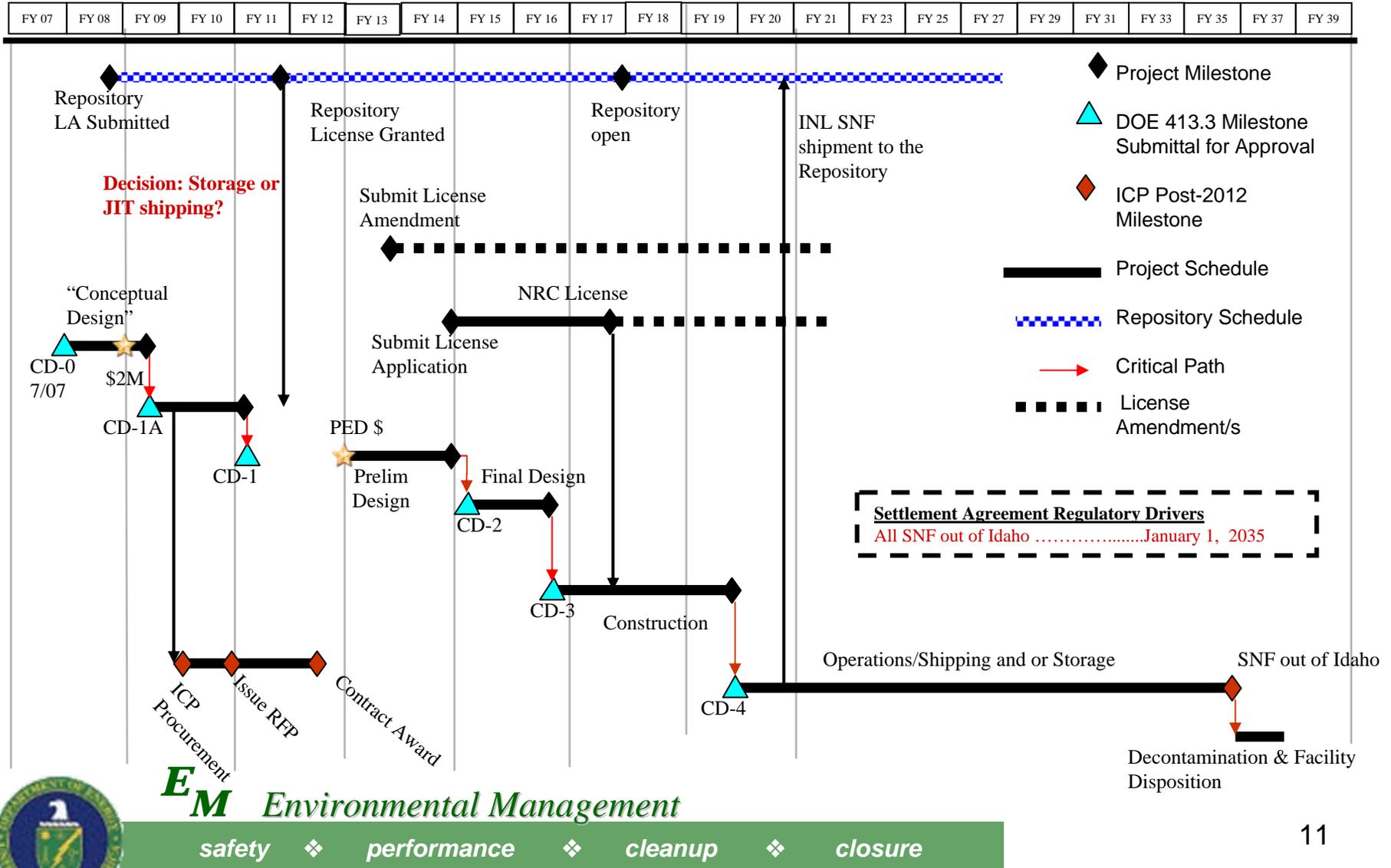
- **Scope**
 - Provide characterization and conditioning capability for EM-owned fuel.
 - Provide Dry Storage for EM owned fuel with the exception of TMI-2 and Fort St. Vrain from Colorado.
 - Each Alternative was scheduled and priced assuming DOE or NRC having Regulatory Authority (i.e. 4 scenarios evaluated).
- **Cost Range (ROM, 2008)**
 - Line Item Construction Project \$432M to \$518M.
 - Life Cycle Baseline \$1.1B to \$1.2B (not included: treatment, delivery to new facility, cost to load out).



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ISFF Mission Need – Critical Decision (CD) Schedule



ISFF Mission Need – CD Schedule

- CD-1A, *Alternative Selection*, Acquisition Strategy should be defined e.g., prime contract or incorporate into RFP for post-2012 ICP contract.
- Project decisions will continue to be influenced by repository schedule. Repository licensing schedule influences:
 - Number of storage positions for canistered SNF
 - Dry Storage System Design
 - Inclusion of rail transport



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ISFF Mission Need – CD Schedule

- *CD-2, Approve Performance Baseline Submittal 2015*
 - Project Engineering and Design funding in 2013
- *CD-3, Approve Start of Construction, 2016*
 - Duration Sensitive to:
 - Alternative selected
 - Regulatory Authority
 - Project Scope (Number of storage positions, rail line)
- *CD-4, Approve Operations, 2020*



ISFF Mission Need

- Decisions requested of EM-HQ June 20, 2007
 - Approval of Mission Need Document (CD-0), returned for re-work July 16, 2007
 - NRC license disposition, transfer approved
 - FWENC continue to maintain license.
 - Transfer license to DOE.
 - Direct FWENC to terminate the license.



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ISFF - NRC License Transfer

- ICP recommended transfer of NRC license for the ISFF from FWENC to DOE-ID
 - Licensing under 10 CFR Part 72 aligns the program with Part 71 and 63 requirements i.e. reduces risk of acceptance of sealed standardized canisters of SNF at the repository.
 - Provides maximum flexibility for fuel management (i.e. reuse of ports).
 - Supports Idaho Settlement Agreement.
 - Maintains NRC licensing as a viable option for a stand alone facility at CD-1A.



ISFF – Pretreatment Challenges

Epoxy Metallurgical Mounts will be treated, if necessary, prior to shipment to the ISFF for packaging and storage.



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NSNFP Recommendations/Assistance (Rev. 5 WASRD)

- 4.2.2 Compliance with Hazardous Waste Regulations
- 4.2.5 Pyrophoricity, Combustibility, Explosivity, and Chemical Reactivity
- 4.2.6 Organic Content in Sealed Disposable Canisters
- 4.3.7 Particulate Content in DOE SNF Disposable Canisters
- 4.3.11 Fires and Explosions Caused by DOE SNF Disposable Canister Contents



4.2.2 Compliance with Hazardous Waste Regulations

The CRWMS shall only accept HLW and/or SNF that is not subject to regulation as hazardous waste under the Resource Conservation and Recovery Act (RCRA 1976) Subtitle C for disposal in the first geologic repository licensed by NRC under the NWPA. Prior to acceptance for disposal, Federal Waste Custodians must determine and document that RCRA-regulated wastes are not present, and develop appropriate data to assure relevant state and/or U.S. Environmental Protection Agency (EPA) RCRA requirements are addressed.



SNF Challenges

- Epoxy Coated Fuel may require treatment before packaging for the repository.
 - Naval Nuclear Propulsion Program 60, 15' tall 5" diameter cans of metallurgical mounts – mechanically treated (2009 decision).
 - LOFT FP2 fuel bundle, additional Navy fuel, Argonne E/W, TMI-2 and LOFT Met. Mounts.



SNF Challenges continued

- De minimus standards for epoxy coated fuel.
- Epoxy Coated Fuel – Mechanical Removal Method (RW/NNPP discussions)
 - Procedure defining acceptance criteria for epoxy removal.
 - Record ?
- Epoxy coated fuel treatment.
 - “Generator Treatment” RCRA permit
 - Thermal treatment
 - Hot Isostatic Press



Summary

- EM - Capability required in Idaho to prepare fuel for transport to and disposal at the repository.
- NSNFP – If funding is available, define a process e.g. (define de minimus quantity) to ensure acceptance of epoxy coated fuel at the repository (i.e. level of treatment required).



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