



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

TMI-2 ISFSI License Renewal Application

Scott Ferrara
NRC Programs, Facility Director
DOE-Idaho

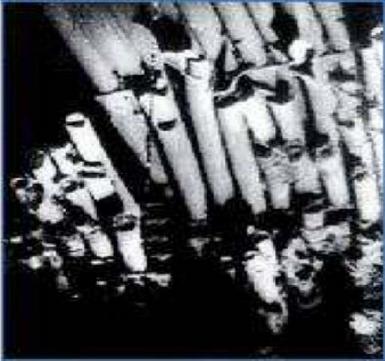
June 22, 2017

- *Context of the Waste*
- *TMI Unit -2 Background*
- *TMI-2 Current Status*
- *License Renewal Objectives / Information*
- *LRA Development Process Overview*
- *Key Aspects of Renewal And Extended Operations*
- *Path Forward and Closing*



*Three Mile Island Unit 2 (TMI-2)
reactor, near Middletown, Pa.*

Context: Stored Waste Disposition



Damaged fuel within the TMI-2 reactor core.

- **What is the Waste:** Spent nuclear fuel and associated radioactive materials: reactor core debris, rubble bed debris, and partially intact fuel assemblies.
- **Potential Risks:** Waste contains long lived transuranic isotopes which pose a risk to the workers and the environment. Safe interim storage and retrieval of the waste for shipment and disposal in a deep geologic repository (i.e., Yucca Mountain) ensures that humans and the environment are protected from the waste for the thousands of years that it remains harmful.
- **How treated/disposed:** Repackaged “road ready,” and shipped to a licensed deep geologic repository.
- **Settlement Agreement:** Requires removal of all spent fuel from the state of Idaho by Jan.1, 2035.

TMI Unit -2 Background Information

- **Three Mile Island accident: March 28, 1979, in Middletown Pennsylvania.**
- **Idaho National Laboratory helped with initial response and disposition of damaged core materials and fuel.**
- **From 1986 – 1990 materials from TMI-2 transported to storage pools at Test Area North.**
 - **Research was conducted to enhance the body of knowledge regarding commercial nuclear fuel design and reactor safety.**
- **The Settlement Agreement required transfer all TMI-2 spent nuclear fuel from wet storage to dry by June 1, 2001.**
- **DOE built NRC-licensed TMI-2 dry storage facility and transferred all TMI-2 material by April 20, 2001.**

A DSC in transit from Test Area North to the TMI-2 Independent Spent Fuel Storage Installation (right).



TMI-2 Facility Current Status

- **Safe and Secure Storage of TMI-Unit 2 Materials**
 - **Passive storage within an NRC-licensed horizontal cask system.**
 - **Surveillance and monitoring of systems and materials.**
 - **Preventative and corrective maintenance of components and systems.**



TMI-2 Independent Spent Fuel Storage Installation at DOE's Idaho Site.

License Renewal Objective

- **Mission: Prepare a high-quality, thorough, and accurate License Renewal Application to the NRC that:**
 - **Clearly demonstrates continued protection of the public and the environment.**
 - **Complies with all applicable NRC requirements in 10 CFR Part 72.**



Loading a DSC into a
Horizontal Storage Module
at the TMI-2 ISFSI

- **Follows NRC and industry guidance, is technically sound, and written for efficient review by NRC staff.**
- **Considers applicable TMI-2 and industry ISFSI operating experience.**

License Renewal Information

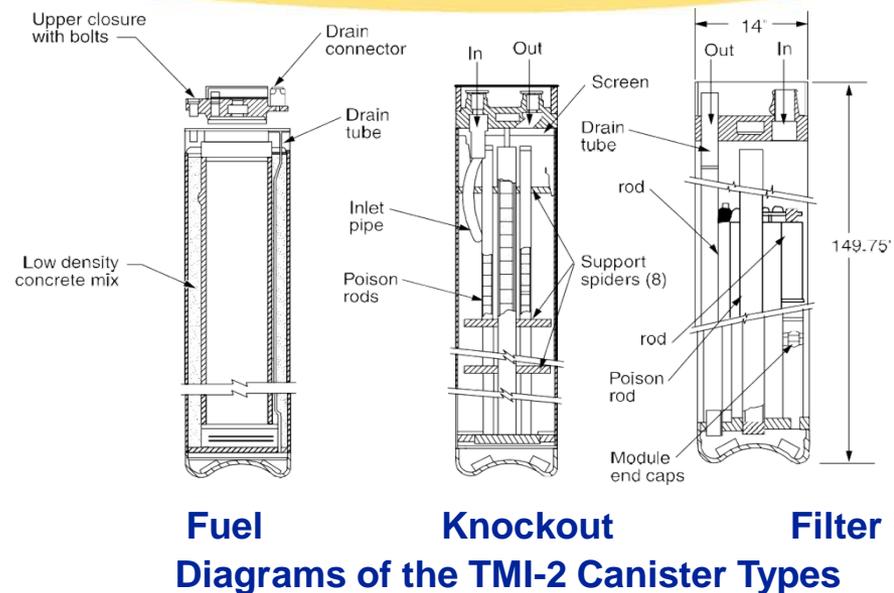
- **ISFSI NRC license expires March 19, 2019.**
- **License must be renewed to continue safe and secure storage of TMI-2 spent fuel and materials.**
- **Renewal application was submitted on March 6, 2017, two years before license expiration.**
- **Timely Renewal -- DOE has met the requirements of 10 C.F.R. § 72.42(c).**
 - **Ensures existing license will not expire until a final decision concerning application for renewal has been made by NRC.**
 - **NRC Staff accepted the DOE License Renewal Application for technical review on May 5, 2017.**



Entrance view into the TMI-2 spent fuel storage facility.

LRA Process Overview

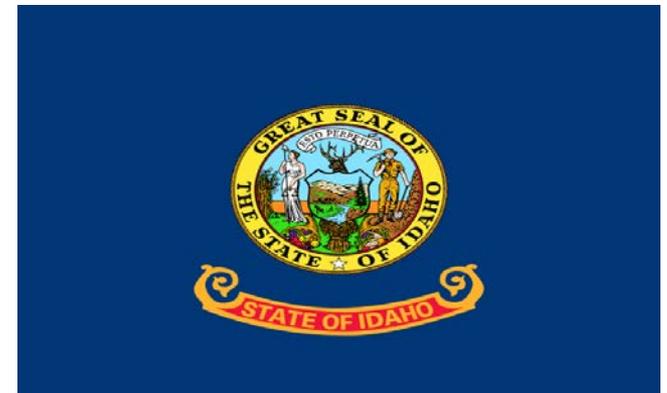
- Review Structures Systems and Components (SSCs) to determine which are in scope for aging management.
- Evaluate SSC's materials / service environments and perform aging management reviews for in-scope SSCs.



- Develop TMI-2 ISFSI Updated Environmental Report Supplement.
- Develop Aging Management Programs for in-scope SSCs.
- Manage aging processes to provide assurance that SSCs can and will perform required functions throughout the Period of Extended Operation (PEO).

Key Aspects of Renewal, Extended Ops

- **Continues the safe storage of TMI-2 materials under existing license.**
- **No new materials or fuel will be stored in facility as part of current or future renewed license.**
- **Requested license period extends facility to 40 years of total operation (1999-2039); design life of facility is 50 years.**
- **Period of extended operation provides for continued safe storage of the core debris, completion of shipping, and D&D of TMI-2 ISFSI facility.**
- **Renewal of this license does not change or modify DOE's commitments to the State of Idaho as identified in the 1995 Idaho Settlement Agreement to remove all spent fuel from the State by 2035.**



Path Forward and Closing

- **Over next two years, NRC will perform detailed review of technical information to ensure safe storage of the material for the 20-year period.**
- **NRC may submit written requests for additional information to DOE during process.**
- **NRC may contact interested parties (i.e. DEQ, affected Tribes, or others) to further inform them or obtain additional information.**
- **DOE will publicly announce the final determination made by the NRC.**

