Office of Integrated Waste Management (IWM) Overview

Sara Hogan, PhD
Office of Integrated Waste Management
US Department of Energy

Southern States Energy Board
December 13-14, 2023
Louisville, KY
Office of Integrated Waste Management

Mission (updated June 2023)

Construct one or more federal interim storage facilities, using a consent-based siting process, ready to receive commercial spent nuclear fuel as soon as practicable.
Integrated Waste Management System

- Storage facility(ies)
- Transportation capability
- Disposal facility(ies)
- Interfaces

INTEGRATED WASTE MANAGEMENT SYSTEM
Integrated Waste Management System.—The Department is directed to move forward under existing authority to identify a site for a Federal interim storage facility. The Department is further directed to use a consent-based approach when undertaking these activities. The Department is reminded that the Nuclear Waste Policy Act provides for a wide variety of activities that may take place prior to the limitation in that act.
IWM FY24 Planned Activity Highlights

• Effective implementation of a federal consolidated interim storage facility(ies) for the nation’s nuclear waste using a consent-based approach

• A full-scale package performance test of a rail-sized spent nuclear fuel (SNF) cask

• Engaging with State and Tribal partners to cooperatively plan for large-scale SNF transportation, including approaches to emergency response training and vehicle safety inspections

• Developing purpose-built railcars and security and safety monitoring equipment to support large-scale SNF transport

• Beginning acquisition path for transportation casks for SNF, which may require moderate lead times to update cask certificates of compliance and initiate commercial fabrication capacity

• Evaluating transportation infrastructure at nuclear power plant sites to identify options for removing SNF from the sites.
Paul Murray is the new Deputy Assistant Secretary for Spent Fuel and Waste Disposition, NE-8!

- DAS Murray comes to the Office of Nuclear Energy from Orano Federal Services where he most recently served as its Chief Technology Officer.
- He has had a long career in Nuclear Energy including working with spent fuel management, advanced reactors and accident tolerant fuel.
- Paul will begin his federal career on October 10, 2023, and will be duty stationed in the Forrestal Building in Washington DC.
THE CONSENT-BASED SITING PROCESS

- April 2023
- Prioritizes people and communities
- Centers equity and environmental justice
- Collaborative, phased, and adaptive

www.energy.gov/consentbasedsiting
4 Key Updates

1. Current focus is on one or more federal consolidated interim storage facilities for commercial SNF
2. A Greater emphasis on equity and environmental justice
3. Increase host communities' role in developing site-specific assessment criteria
4. Expand consideration of funding opportunities to support community participation
CONSENT-BASED SITING PROCESS

Stage 1: Planning and Capacity Building

Build relationships, encourage mutual learning, develop a common understanding of nuclear waste management-related topics.

Phases 1A & 1B
ANTICIPATED REMAINING DURATION 2-3 YEARS

Stage 2: Site Screening and Assessment

Share screening and assessment criteria; issue a national call for volunteers; preliminary and detailed site assessments in collaboration with volunteer communities.

Phases 2, 3, & 4
ANTICIPATED DURATION 4-7 YEARS

Stage 3: Negotiation and Implementation

Negotiate agreements with willing and informed host communities with licensing, construction, and operation activities to follow.

Phases 5, 6A, & 6B
ANTICIPATED DURATION TO INITIAL OPERATION READINESS 4-5 YEARS
CONSENT-BASED SITING CONSORTIA

June 9, 2023, Secretary Granholm announced the FOA awardees at San Onofre Nuclear Generation Station, San Clemente, CA.
The U.S. Department of Energy selects 12 awardees across the country to serve as information, engagement, and resource hubs, referred to as consent-based siting consortia. The consortia will foster community discussion and capture feedback on interim storage of spent nuclear fuel.

The locations on the map represent awardee partners and areas of engagement, not places being considered for federal consolidated interim storage facilities.

*List of geographical markers is preliminary and expected to evolve over time.
CONSENT-BASED SITING CONSORTIA CONT.

- Award recipient is a hub for community engagement and resources
- Reduce barriers for participation
- Increase outreach (multiplication factor)
- Allow for greater community engagement
- Allow for cohort development/capacity

FOA Resources
More information at: energy.gov/consentbasedsiting
**Transportation Project Updates**

**Atlas (12 axle), buffer railcar, and rail escort vehicle (REV):** Completed its final test in September – “Demonstration Run”

**Demonstration Run:** 1680 Miles from Pueblo CO- MxV Rail testing site to Scoville Siding Idaho, and back

**Fortis (8 axle):** Fabrication experiencing delays due to component supply chain issues, necessitated some design adjustments

[Visit the article](https://www.trains.com/trn/news-reviews/news-wire/atlas-railcar-designed-for-spent-nuclear-fuel-completes-1680-mile-test-run/)
Transportation Project Updates

Site Evaluations

- Nuclear Power Plant Infrastructure Evaluations for Removal of Spent Nuclear Fuel
  - Three Mile Island – Completed August 2023
  - Duane Arnold – Completed September 2023

- DOE presented at the Vermont Yankee Nuclear Decommissioning Citizens Advisory Panel’s Nuclear Waste Policy Committee at their September Meeting

- DOE presented to the Three Mile Island Unit 2 Community Advisory Panel at their September meeting

- DOE requested to present to the San Onofre Community Engagement Panel at their October meeting

- Also have 11 Initial Site-Specific de-inventory reports on CURIE.pnnl.gov and/or OSTI.gov building on this data collected
Transportation Project Updates

Cooperative Agreement Engagements: NTSF & More

• NTSF Ad Hoc Working Groups:
  • SNF Rail/Routing
  • Section 180(c)
  • SNF Management – Communications and Outreach AHWG

• NTSF Webinars
  • SCCOP Webinar Sept 28th
  • Recording available at ntsf.info

• Transportation Core Group
  • Met Sept 6-7, hosted by Prairie Island Indian Community
  • Next meeting likely March 2024 in DC
Advanced Reactor SNF Considerations

• Integrated Project Team – Back-End Management for Advanced Reactors (BEMAR)
• Multi-program team evaluating spent nuclear fuel from proposed advanced reactor designs
  • Considerations for storage, transportation, and disposal
• Providing data to inform Standard Contract negotiations
Transportation Project Updates

• Developing preliminary plans for a **full-sized rail cask package test** (actual testing will depend on funding).
  - DOE will lead, and invite NRC to participate
  - Other possible precipitants to be considered

• US has not tested a current full-sized SNF transportation cask

• Endorsed by National Academy of Sciences and the Blue Ribbon Commission

• Test will include regulatory tests (unyielding surface, puncture, fire, immersion) and DOE is also considering non-regulatory (e.g., train collision, waterbody retrieval demonstration)

• Goals include building public trust and confidence in the safety of SNF transportation casks and SNF transportation by rail and gathering technical data
Storage Facilities & Equipment

- Project management for a federal consolidated interim storage facility
  - DOE critical decision process for capital projects

- Storage Facility Design
  - Functions and requirements
  - Reference design concepts
  - Regulatory analysis

- Canister inspection and remediation concepts
  - Canister handling
  - Helium leak testing
International Cooperation

- **Memorandum of Understanding signed with Finland**
  - April 2023
  - Includes multiple Office of Nuclear Energy Program topic areas

- **Statement of Intent signed with Canada's Nuclear Waste Management Organization**
  - May 2023
  - Focused on nuclear waste management

- **Information exchange with Australian Delegation under AUKUS agreement**
  - August 2023