

U.S. DEPARTMENT OF
ENERGY

Office of
NUCLEAR ENERGY

Office of Integrated Waste Management (IWM) Overview

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Office of Integrated Waste Management

US Department of Energy

Midwest Radioactive Materials
Transportation Committee Fall Meeting

October 11-12, 2023

Carlsbad, NM

Office of Integrated Waste Management

Mission (updated June 2023)

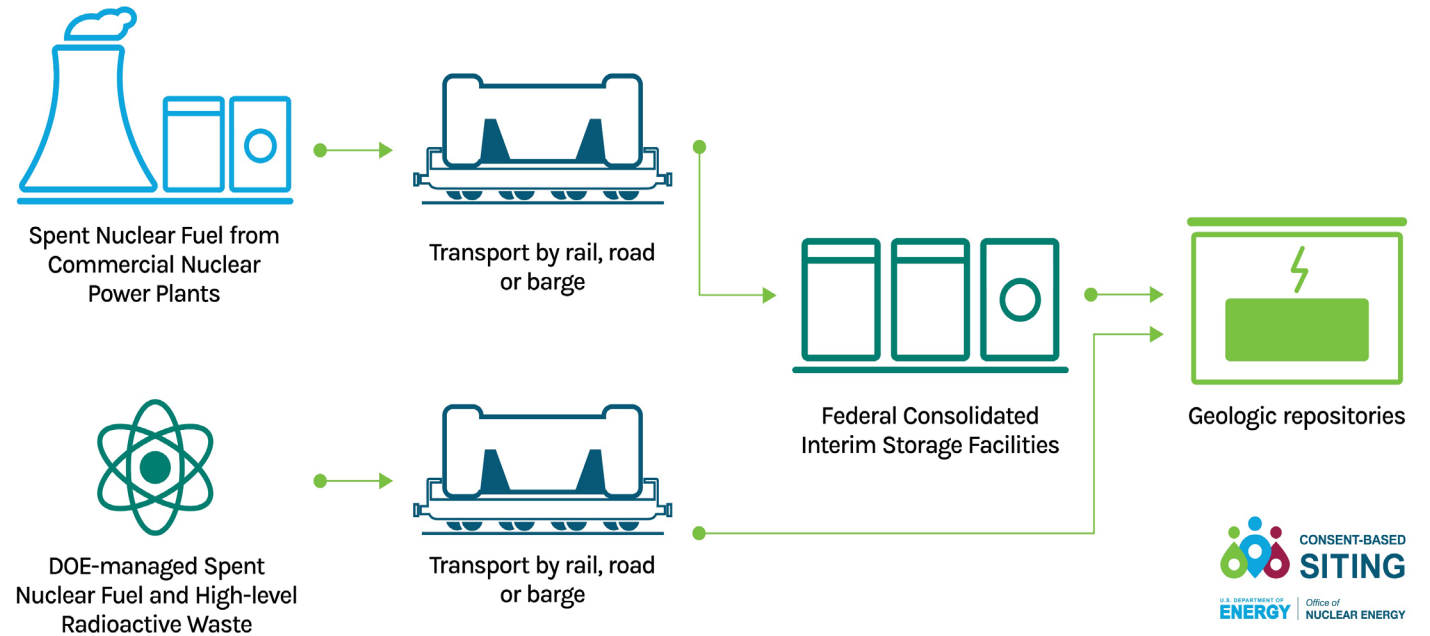
Construct one or more federal interim storage facilities, using a consent-based siting process, ready to receive commercial spent nuclear fuel as soon as practicable.



Integrated Waste Management System

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

INTEGRATED WASTE MANAGEMENT SYSTEM



FY24 IWM Appropriations Status

Draft House Mark

- **\$18 million**

Draft Senate Mark

- **\$53 million**

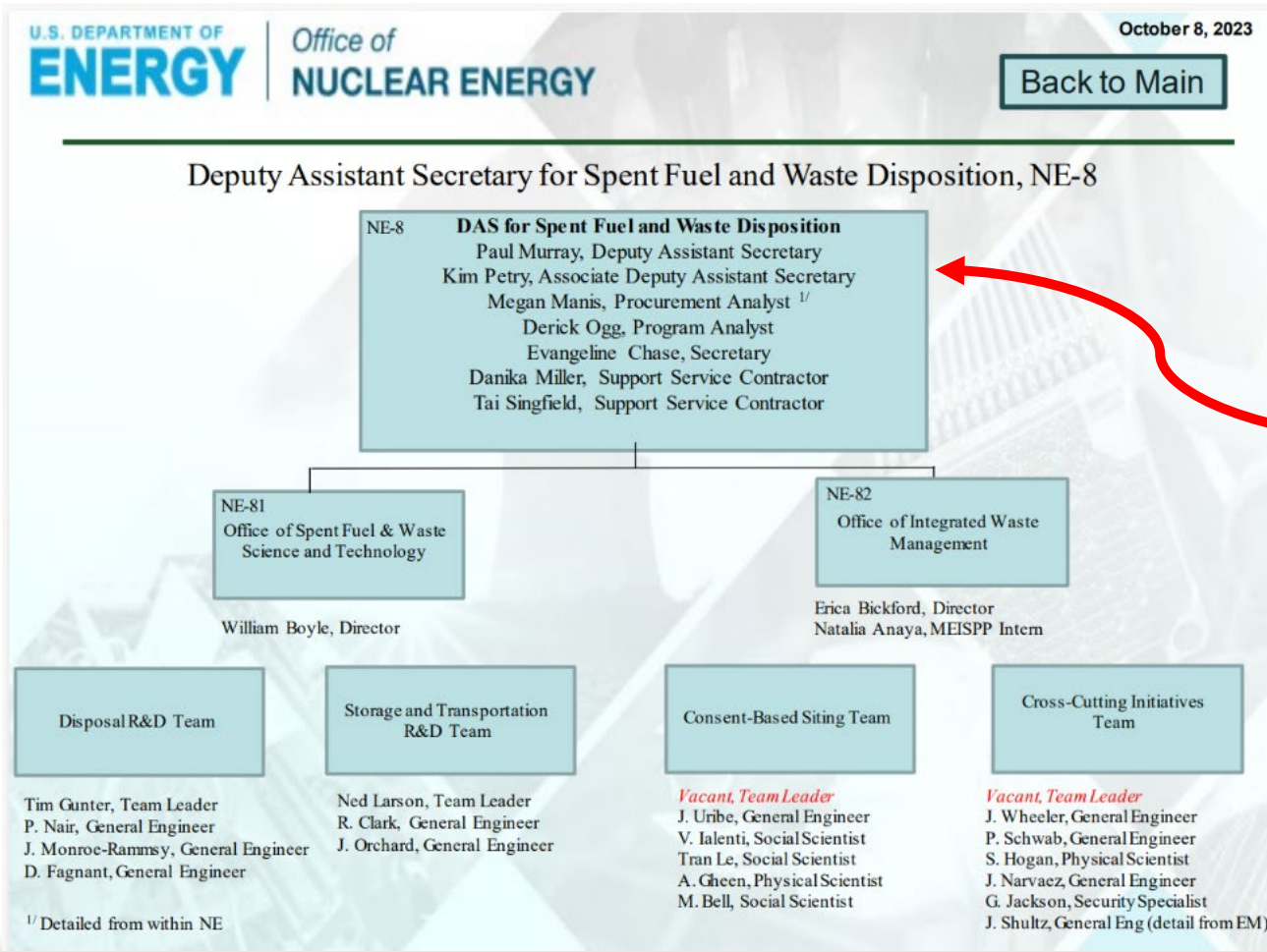
Integrated Waste Management System.—The Department is directed to move forward under existing authority to identify a site for a Federal interim storage facility. The Department is further directed to use a consent-based approach when undertaking these activities. The Department is reminded that the 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.

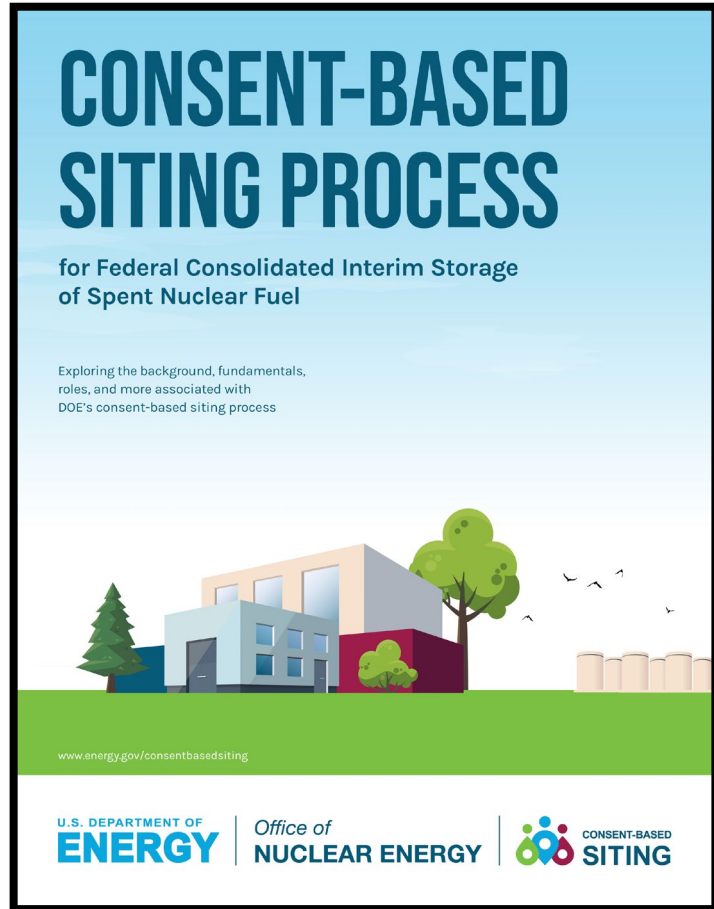
Office of Integrated Waste Management

Organization Chart



- 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

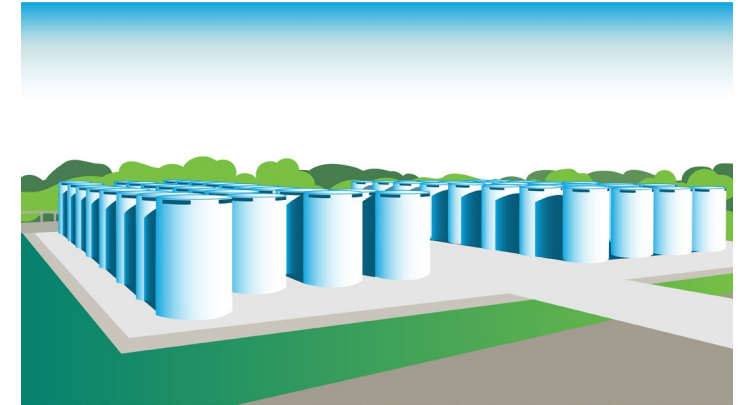


Stage 2: Site Screening and Assessment

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.

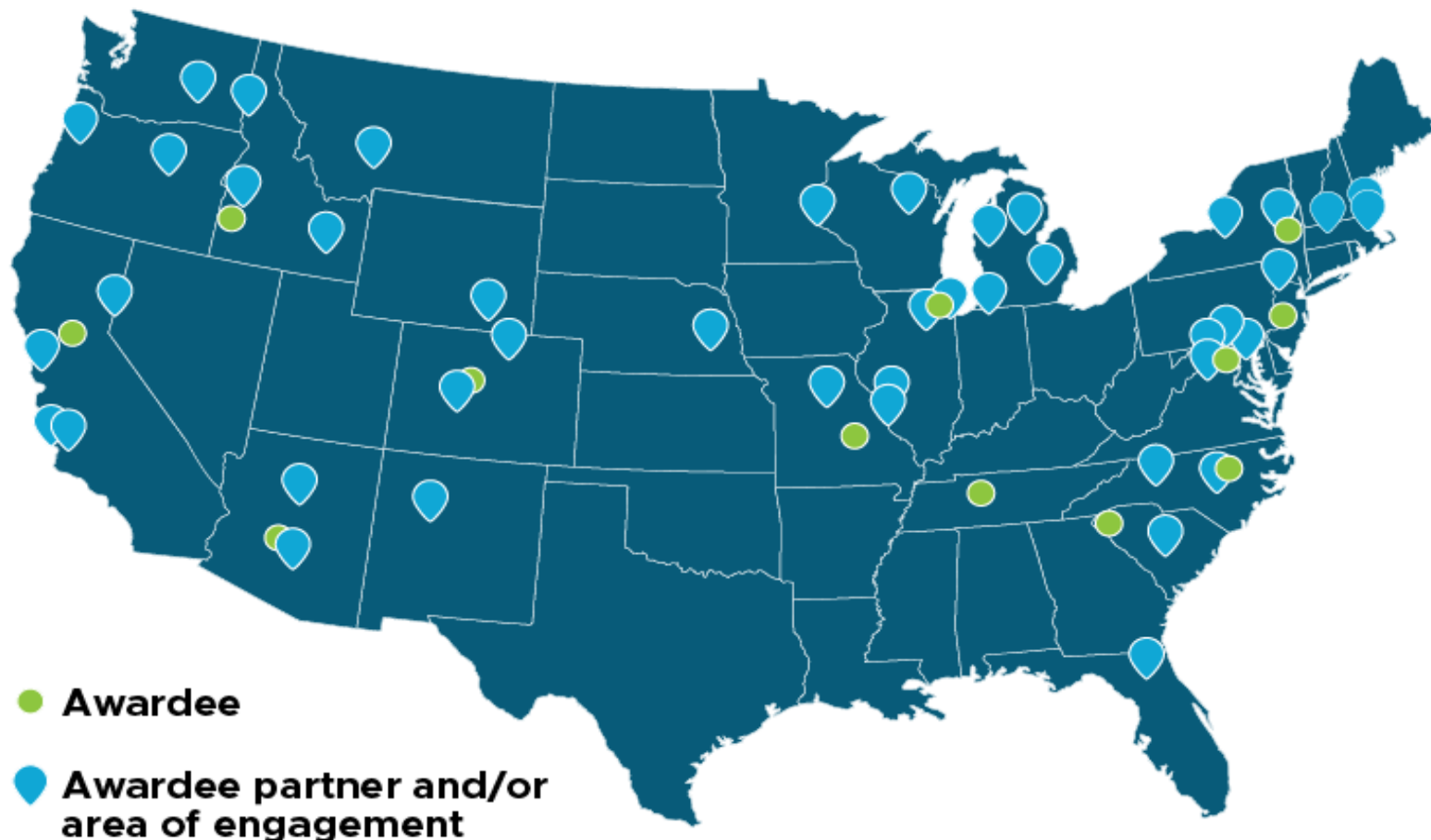


CONSENT-BASED SITING CONSORTIA

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.

energy.gov/consent-based-siting



- Awardee
- Awardee partner and/or area of engagement

*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





Subscribe for Updates

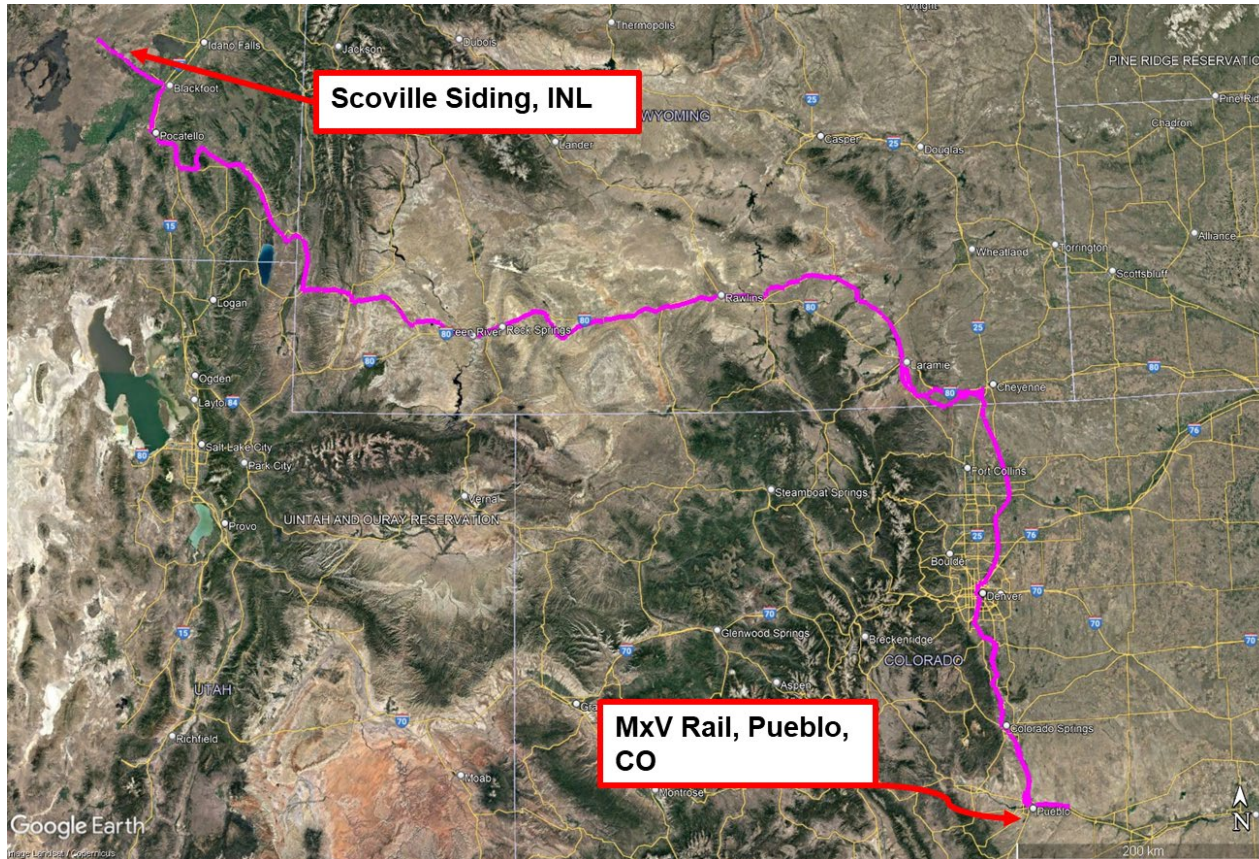
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More information at:
energy.gov/consentbasedsiting

Transportation Project Updates

Railcar Development



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

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](https://www.curie.pnnl.gov) and/or [OSTI.gov](https://www.osti.gov) building on this data collected**





- **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 ntsfi.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

X-energy
Xe-100



TerraPower
Natrium



Transportation Project Updates

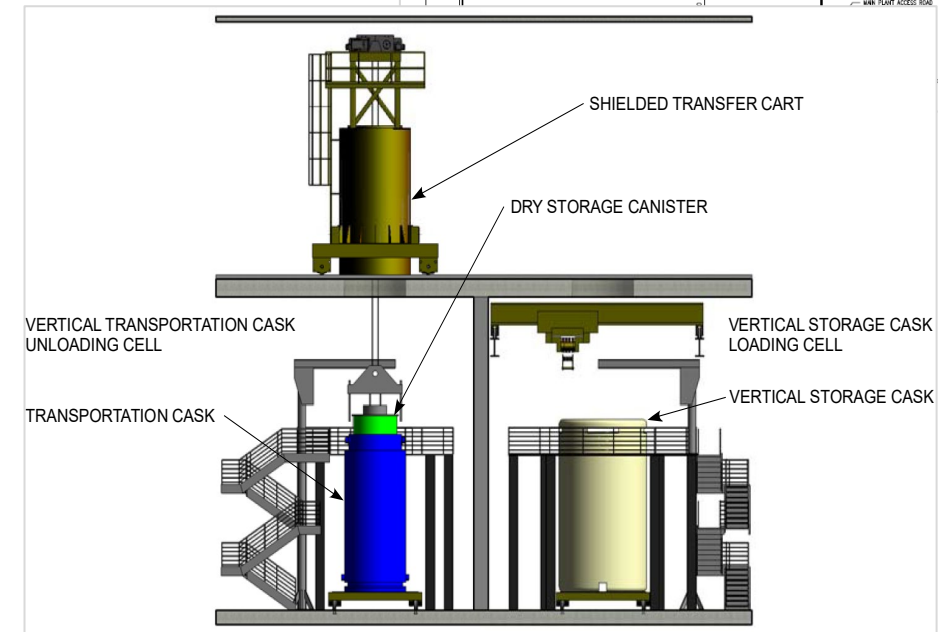
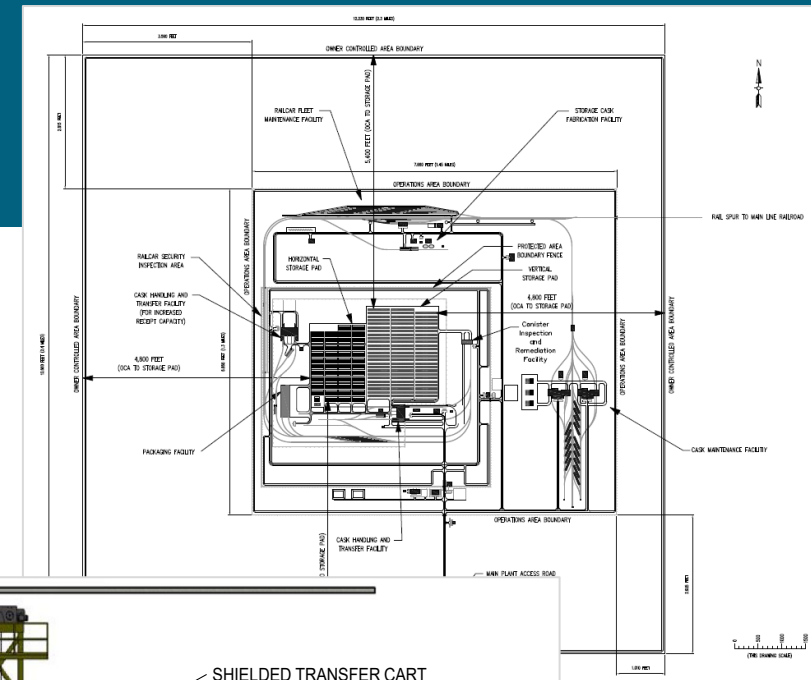
Package Performance Study

- 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



The U.S. and Finland agreed to strengthen their cooperation in civil nuclear energy

- **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



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