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Wi-Fi Network: Hyatt  
Conference

Password: Midwestern2021

# Spent Nuclear Fuel Transportation Tabletop

**Midwestern Radioactive Materials  
Transportation Committee**

December 1, 2021

# Purpose of a Tabletop Exercise

*According to NUREG – 1514:*

A tabletop exercise is a structured discussion, which is based on a scenario or set of conditions for potential situations, among stakeholders in a low-stress environment. Tabletops are not intended to solve all problems or make policy; they may simply identify areas which need resolution. They are a teaching/training aid as well as an opportunity to talk through plans and procedures or discuss new systems. Their objective is both educational and developmental in that disconnects, perceptions, and procedures can be identified easily and then corrected.



# Purpose of Today's Exercise

- Structured discussion will help us all to identify issues that need resolution.
- Talking through plans and procedures can be a powerful teaching/training aid. Disconnects, perceptions, and procedures can be identified and adjusted, if needed.
- Sharing institutional knowledge can help everyone understand the history and evolution of transportation planning.
- MRMTC's mission is to identify, prioritize, and work with DOE to resolve regional issues related to transport of spent nuclear fuel.



# Important Disclaimer

- Today's discussion is for learning purposes only.
- Although the discussion draws from real, live documents, we are not talking about a real, live shipping campaign or even a future shipping campaign that may be real and/or live.
- Nothing in today's discussion is intended to influence DOE policies or procedures, nor is anything intended to imply that DOE had, has, or will have any policies or procedures that bear any resemblance to the ones we're using for the purposes of this learning experience for the Midwestern states and other participants.



# Important Disclaimer

- This material is based upon work supported by the Department of Energy under Award Numbers DE-NE0008604, DE-EM0004869, and DE-EM0005168.
- This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



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# Ground Rules

- Be respectful
  - Turn off or silence cell phones and laptops.
  - When you're in the room, be in the room.
- Be engaged
  - Participants may ask a question or make a comment by turning their name tent onto the short side and waiting to be called on.
  - Please ask your question or make your comment into a wireless mic so Zoom attendees can hear you.
- Be brief
  - With only 4 hours to complete the tabletop, we all need to get to the point and stay on point.



# Important Background Information

- Midwestern Radioactive Materials Transportation Committee

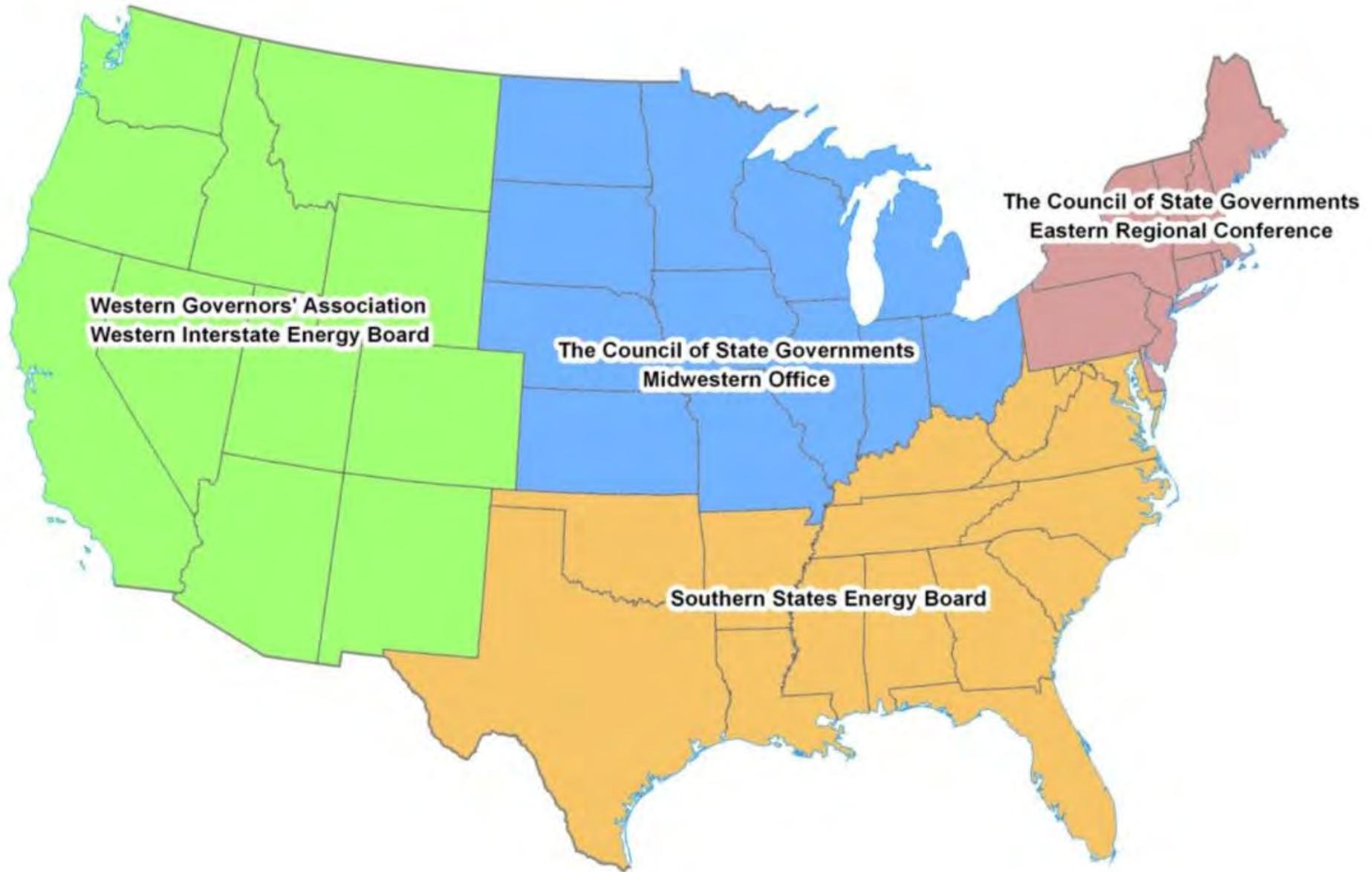


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# The Unpronounceable MRMTC

- Organized in 1989
- 12 states, 12 gubernatorial appointees, up to 12 state legislators
- Mission: to identify, prioritize, and work with the U.S. Department of Energy to resolve regional issues related to the department's transport of radioactive waste and materials, including spent nuclear fuel
- One of the State Regional Groups (SRGs)





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# Important Background Information

- Midwestern Radioactive Materials Transportation Committee
- 10 Things to Know about Nuclear Waste



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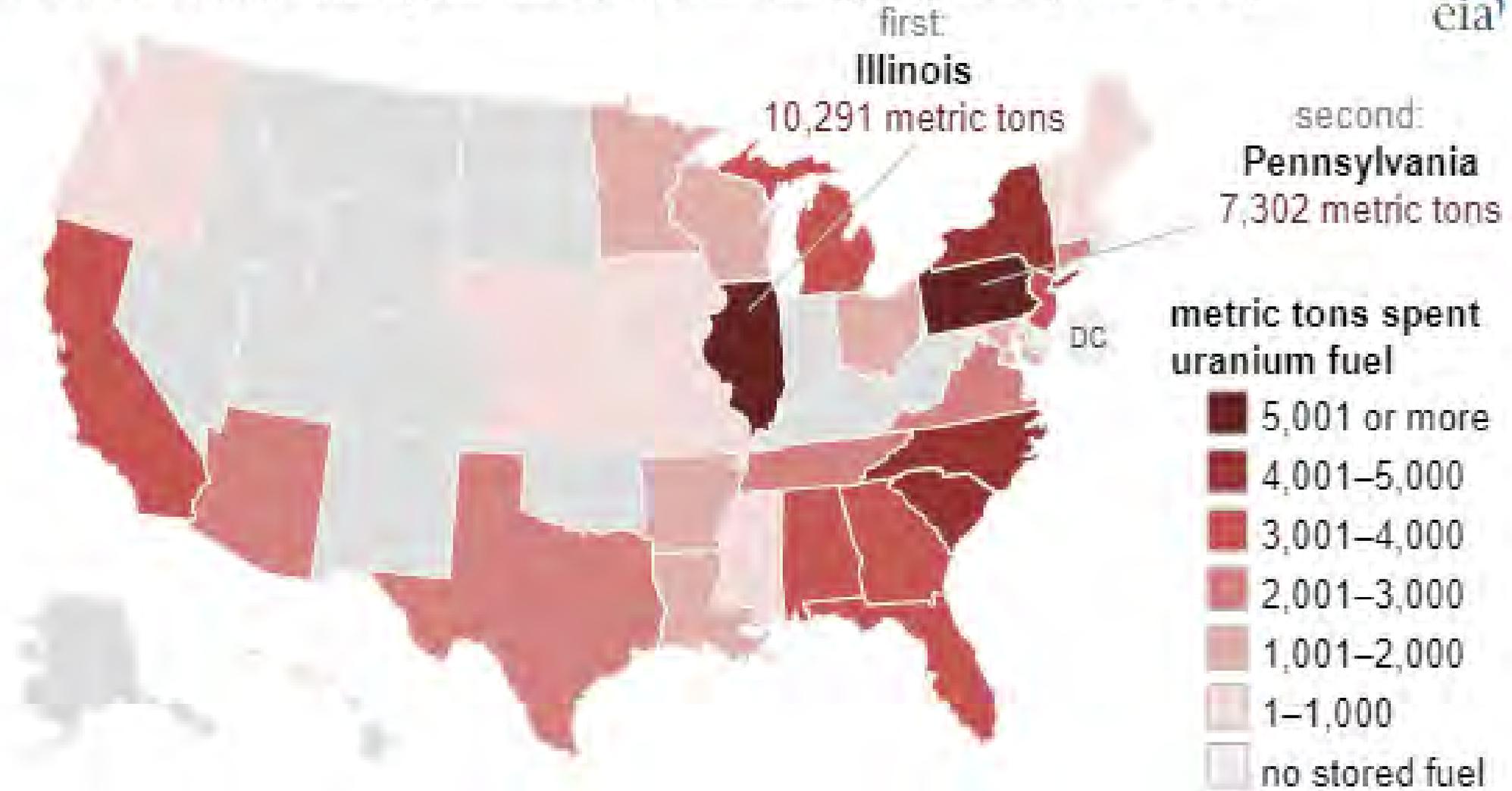
# 10 Things to Know

1. Nuclear Waste Policy Act (NWPA) made the federal government responsible for spent nuclear fuel (SNF) disposal
2. Yucca Mountain in Nevada was chosen from among 3 sites
3. 1998 was the original date (more than 23 years ago!)
4. Ratepayers, taxpayers – we all pay!
5. Project was terminated in 2010 – no repository was built
6. The State of Nevada was, is, and will be opposed
7. Current balance of Nuclear Waste Fund is \$42.655 billion and there is currently over 34 thousand metric tons of initial uranium in the Midwest





# Cumulative commercial spent nuclear fuel in storage by state (1968–2017)

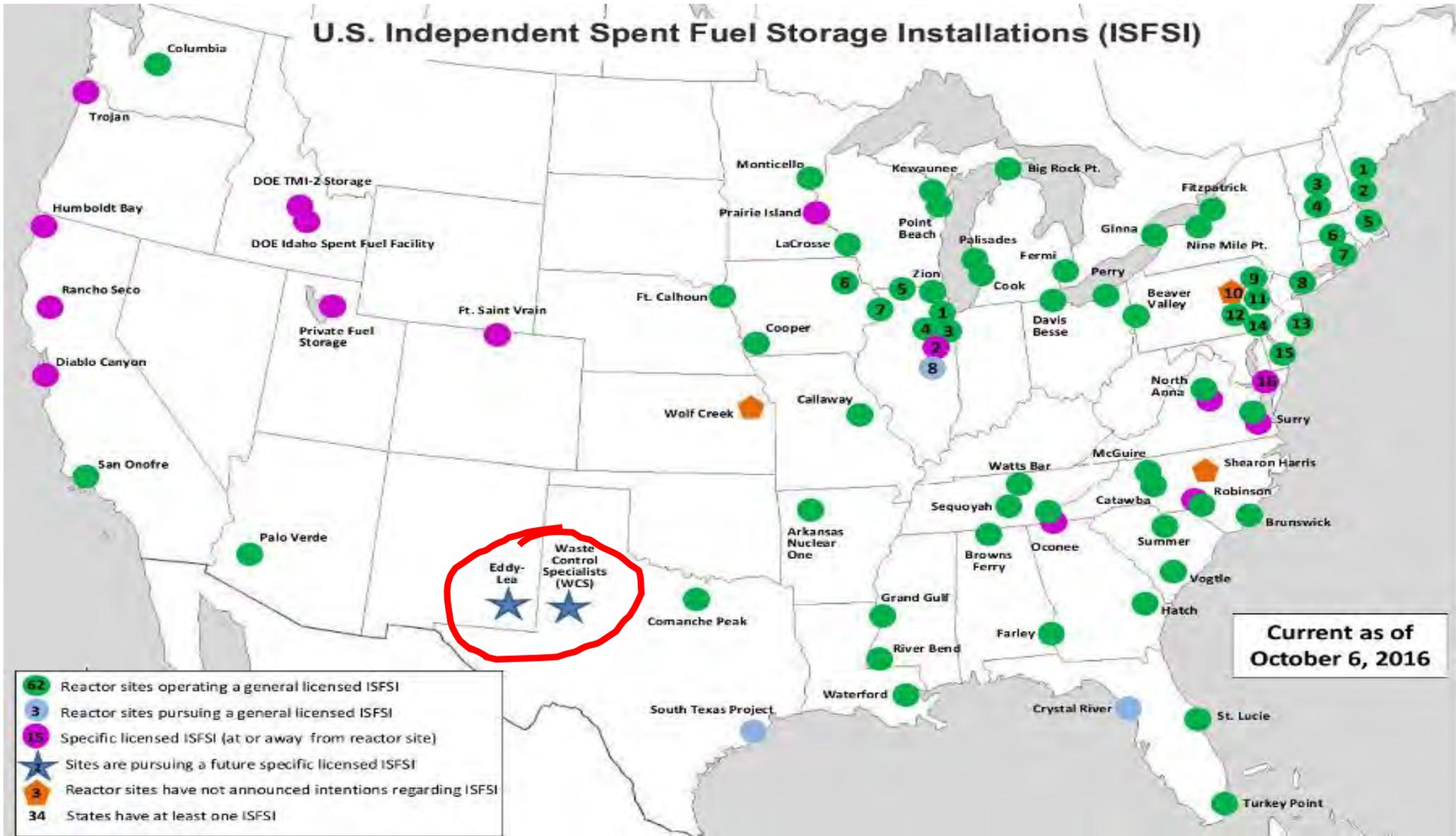


# 10 Things to Know

8. Storage is temporary...but it doesn't seem that way to communities hosting shutdown sites
9. Heavy weight of spent fuel storage casks → transport by train or barge
10. Two private companies are seeking licensing to build independent spent fuel storage installations (ISFSI)



# U.S. Independent Spent Fuel Storage Installations (ISFSI)



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# Objectives

- States
  - Identify ability to integrate into a DOE SNF shipment
  - Identify strengths and areas for improvement in transportation programs
  - Demonstrate ability to perform state-specific activities
- Transportation Planning
  - Identify strengths and weaknesses of a collaborative SNF shipment planning process
  - Understand what the Standard Contract is, who sets the routes, what activities are happening right now, and how they will inform eventual shipments



# Tabletop Overview

- Standard Contract Explanation and Discussion – 45 minutes
  - Cyrus Nezhad (DOE Office of General Counsel)
- Shutdown and Operating Site Evaluations – 45 minutes
  - Steve Maheras (Pacific Northwest National Laboratory (PNNL))
- Carrier Route Selection Process and the Rail Corridor Risk Management System (RCRMS) – 45 minutes
  - Patrick Brady (BNSF Railway)
- How DOE Prepares for Shipment After Route Selection – 30 minutes
  - DOE Employees
- Transportation Infrastructure Discussion – 30 minutes
  - Matt Feldman (PNNL)
- State Preparation Activities – 30 minutes
  - MRMTC State Members



# Tabletop Assumptions

- This is not a tabletop exercise of a particular hypothetical shipment
- There is no particular origin site or destination site
- This tabletop is to help us understand the leadup to eventual SNF shipments
- Learn what DOE is doing to prepare, what the railways will do, and how the states fit into this preparation
- We can build off this exercise and hypothesize particular shipments at future meetings



# Tabletop Reference Materials

- <https://online.flippingbook.com/view/473251/>
- Primary reference materials will include:
  - NRC's "Physical Protection of Shipments of Irradiated Reactor Fuel" (NUREG – 0561)
  - CSG Midwest's "Planning Guide for Shipments of Radioactive Material through the Midwestern States"
  - DOE's "Radioactive Materials Transportation Practices Manual" (460.2-1A)



# Tabletop Reference Materials

- Other reference materials will include:
  - Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (10 CFR 961)
  - FRA's Safety Compliance Oversight Plan (1998 version)
  - DOE's 2005 Dedicated Train Decision and 2004 "mostly rail" Record of Decision
  - Orano's De-Inventory Report for BRP
  - Principles of Agreement 2015
  - Shutdown Sites Report
  - CSG Midwest's "NEI TTX Reference Guide for Midwestern States"



# Standard Contract Explanation and Discussion

DK

U.S. Department of Energy  
Contract No. \_\_\_\_\_

*Contract for Disposal of Spent Nuclear Fuel and/or High-level  
Radioactive Waste*

THIS CONTRACT, entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between the UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), represented by the UNITED STATES DEPARTMENT OF ENERGY (hereafter referred to as "DOE") and \_\_\_\_\_ (hereinafter referred to as the "Purchaser"), a corporation organized and existing under the laws of the State of \_\_\_\_\_ (add as applicable: "acting on behalf of itself and - - -").

Witnesseth that:

Whereas, the DOE has the responsibility for the disposal of spent nuclear fuel and high-level radioactive waste of domestic origin from civilian nuclear power reactors in order to protect the public health and safety, and the environment; and

Whereas, the DOE has the responsibility, following commencement of operation of a repository, to take title to the spent nuclear fuel or high-level radioactive waste involved as expeditiously as practicable upon the request of the generator or owner of such waste or spent nuclear fuel; and

Whereas, all costs associated with the preparation, transportation, and the disposal of spent nuclear fuel and high-level radioactive waste from civilian nuclear power reactors shall be borne by the owners and generators of such fuel and waste; and

Whereas, the DOE is required to collect a full cost recovery fee from owners and generators delivering to the DOE such spent nuclear fuel and/or high level radioactive waste; and

Whereas, the DOE is authorized to enter into contracts for the permanent disposal of spent nuclear fuel and/or high-level radioactive waste of domestic origin in DOE facilities; and

Whereas, the Purchaser desires to obtain disposal services from DOE; and

Whereas, DOE is obligated and willing to provide such disposal services, under the terms and conditions hereinafter set forth; and

Whereas, this contract is made and entered into under the authority of the DOE Organization Act (Pub. L. 95-91, 42 U.S.C. 7101 *et seq.*) and the Nuclear Waste Policy Act of 1982 (Pub. L. 97-425, 42 U.S.C. 10101 *et seq.*)

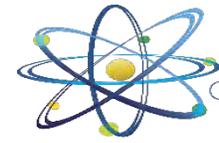
Now, therefore, the parties hereto do hereby agree as follows:



U.S. DEPARTMENT OF  
**ENERGY**



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# Nuclear Power Plant Site Evaluations Overview and Status Report

**Steven Maheras, PhD**  
**Pacific Northwest National Laboratory**

**Midwestern Radioactive Materials Transportation  
Committee Fall Meeting**  
**Transportation Tabletop Workshop**  
**December 1, 2021**  
**Chicago, Illinois**

# Disclaimer

- This is a technical presentation that does not take into account contractual limitations or obligations under the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (Standard Contract) (10 CFR Part 961). For example, under the provisions of the Standard Contract, spent nuclear fuel in multi-assembly canisters is not an acceptable waste form, absent a mutually agreed to contract amendment.
- To the extent discussions or recommendations in this presentation conflict with the provisions of the Standard Contract, the Standard Contract governs the obligations of the parties, and this presentation in no manner supersedes, overrides, or amends the Standard Contract.
- This presentation reflects technical work which could support future decision making by the U.S. Department of Energy (DOE or Department). No inferences should be drawn from this presentation regarding future actions by DOE, which are limited both by the terms of the Standard Contract and Congressional appropriations for the Department to fulfill its obligations under the Nuclear Waste Policy Act including licensing and construction of a spent nuclear fuel repository.

# Nuclear Power Plant Site Evaluations

- The purpose of nuclear power plant (NPP) site evaluations is to:
  - Confirm, gather, and identify gaps in information related to the inventory of spent nuclear fuel (SNF) and greater-than-Class C (GTCC) waste at the NPP sites
  - Document conditions at the NPP sites at time of evaluation
  - Evaluate site transportation experience and near-site transportation infrastructure at the NPP sites
- Identify gaps in information needed to ship SNF and GTCC waste from the NPP sites
- Based on the available information, identify options for transporting SNF and GTCC waste from the NPP sites

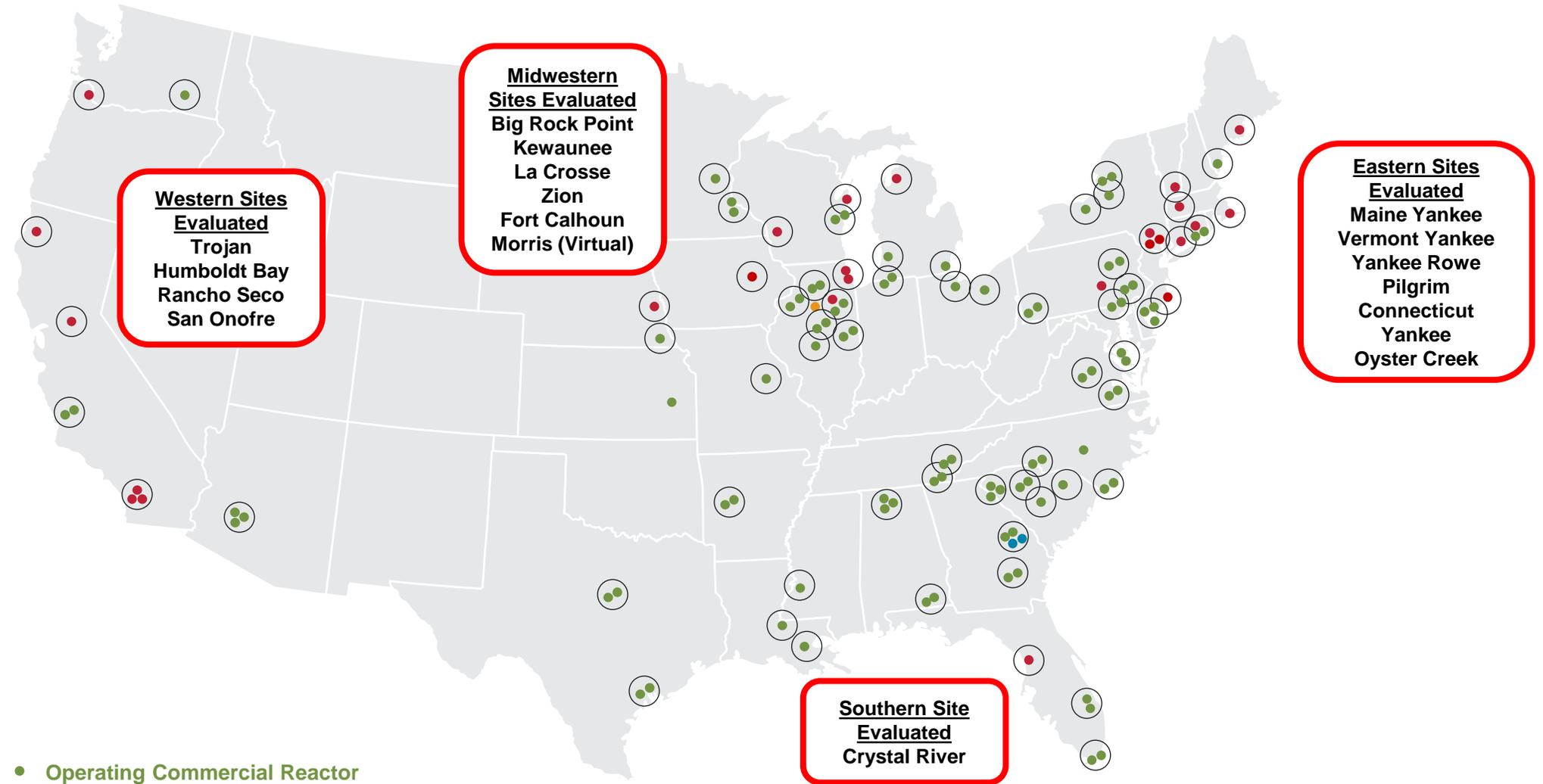
## ***Nuclear Power Plant Infrastructure Evaluations for Removal of Spent Nuclear Fuel***

### **Spent Fuel and Waste Disposition**

*Prepared for  
U.S. Department of Energy  
Office of Integrated  
Waste Management  
Steven J. Maheras (PNNL)  
Lauren S. Rodman (PNNL)  
Ralph E. Best (Independent Consultant)  
Adam H. Levin (AHL Consulting)  
Steven B. Ross (PNNL)  
Lawrence M. Massaro (FRA)  
Philip J. Jensen (PNNL)*

**April 30, 2021  
M3SF-20PN0203020412  
PNNL-30429**

# Locations of Commercial SNF



**Western Sites Evaluated**  
Trojan  
Humboldt Bay  
Rancho Seco  
San Onofre

**Midwestern Sites Evaluated**  
Big Rock Point  
Kewaunee  
La Crosse  
Zion  
Fort Calhoun  
Morris (Virtual)

**Eastern Sites Evaluated**  
Maine Yankee  
Vermont Yankee  
Yankee Rowe  
Pilgrim  
Connecticut Yankee  
Oyster Creek

**Southern Site Evaluated**  
Crystal River

- Operating Commercial Reactor
- Shutdown Commercial Reactor
- "New Build" Reactor (Under Construction)
- Commercial SNF Pool Storage (Away-From-Reactor)
- Commercial SNF Dry Storage

SNF – Spent Nuclear Fuel  
Updated June 2021

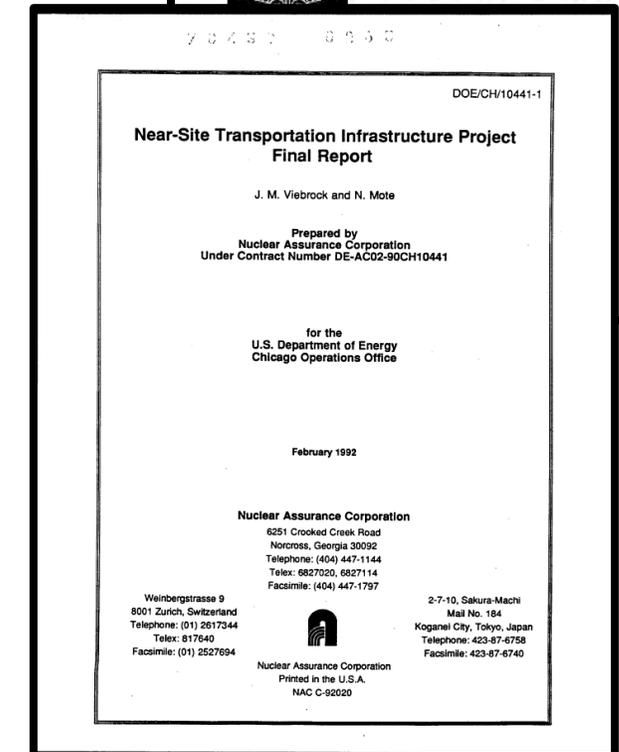
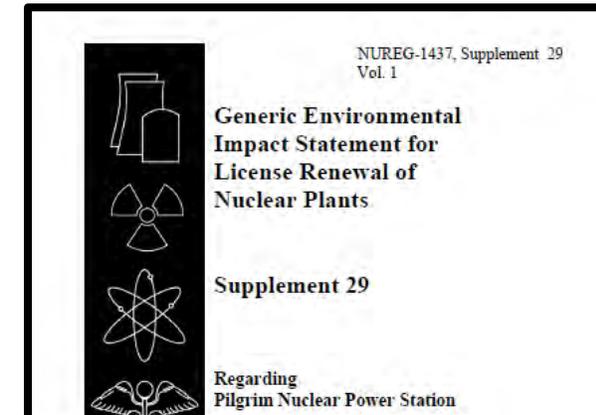
Note: Symbols do not reflect precise locations

# NPP Site Evaluation Process

- Extensive NPP site research
- Planning with NPP Site
  - List of questions submitted to NPP site about two months before site evaluation
  - Coordinate regarding security access requirements and logistics
- Planning with nearby railroads
  - Federal Railroad Administration (FRA) leads this activity
  - Identify potential transload locations
- Planning with Federal, Tribal, State, and State Regional Group partners
  - US Army Corps of Engineers and US Coast Guard if barging transport mode possible
  - Variety of State agencies will typically participate in a site evaluation
- Planning with community engagement or advisory panels
- Logistics planning
- These activities will typically take 6 months

# NPP Site Research

- Documents and Data Bases – Public Documents, DOE Documents, Data Bases, Nuclear Industry Sources
  - Energy Information Administration (EIA) GC-859 Nuclear Fuel Data Survey
    - Detailed characteristics of SNF discharged from commercial NPPs in the United States through 31 December 2017
  - Facility Interface Data Sheets (FIDS), Services Planning Documents (SPDs), Facility Interface Capability Assessment reports (FICAs), and Near-Site Transportation Infrastructure reports (NSTIs)
  - Original Environmental Impact Statements (EISs), License Renewal EISs
  - Post-Shutdown Decommissioning Activities Reports (PSDARs), Decommissioning Cost Estimates (DCEs), and Irradiated Fuel Management Plan (IFMPs)
  - SNF storage cask registration letters
- Independent Spent Fuel Storage Installation (ISFSI) Site Managers
  - Confirmed information obtained from other sources
  - Clarified current conditions at the NPP sites
  - Provided photos and other detailed information
- Heavy Equipment Lifting, Rigging, and Transporting Companies



# NPP Site Research (continued)

- NPP Site Evaluations

- Sixteen in-person NPP site evaluations conducted from August 2012 through November 2019
- Virtual site evaluation conducted in June 2020
  - Morris ISFSI
- Confirmed aspects of inventories at the sites, obtained detailed inventory data by canister, and canister load maps
- Observed transportation infrastructure at and near sites
- Detailed photos taken at sites
- Tribal, FRA, State, and State Regional Group (SRG) representatives have participated in 14 site evaluations

- Google Earth

- Understand layout of NPP sites
- Used to provide detailed maps of NPP sites and ISFSIs
- Portray transload locations, and rail and heavy haul routes



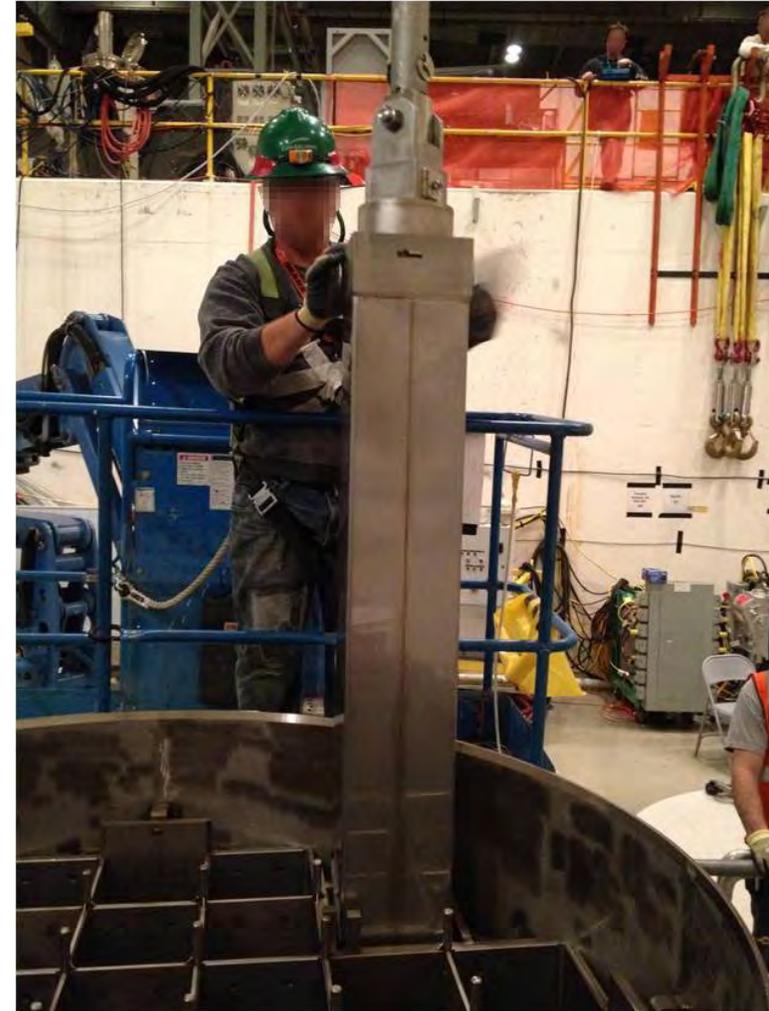
Condition of Onsite Rails at Maine Yankee



Maine Yankee Site

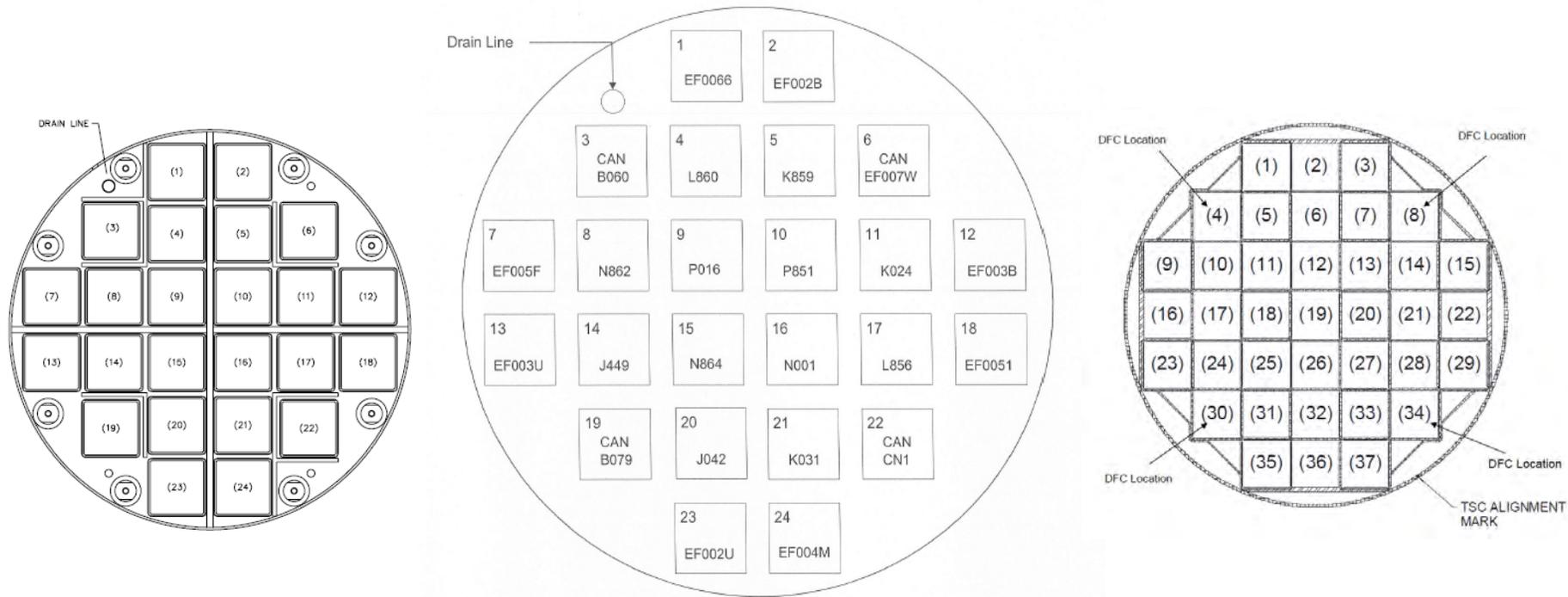
# NPP Site Inventories

- NPP SNF site inventories based on the GC-859 Nuclear Fuel Data Survey
  - Most recent data through December 31, 2017
  - Number of spent nuclear fuel assemblies
  - Metric tons heavy metal (MTHM)
  - Discharge date, burnup, enrichment of spent nuclear fuel assemblies
  - Many other SNF related parameters
- Type and number of SNF storage systems (vendor and model) used at each site's ISFSI
  - Canisters containing SNF
  - Canisters containing GTCC waste
  - Loading maps, logs, etc.
- Storage features/conditions
  - Number of damaged fuel assemblies
  - Number of high burnup fuel assemblies
  - Canned/Not canned



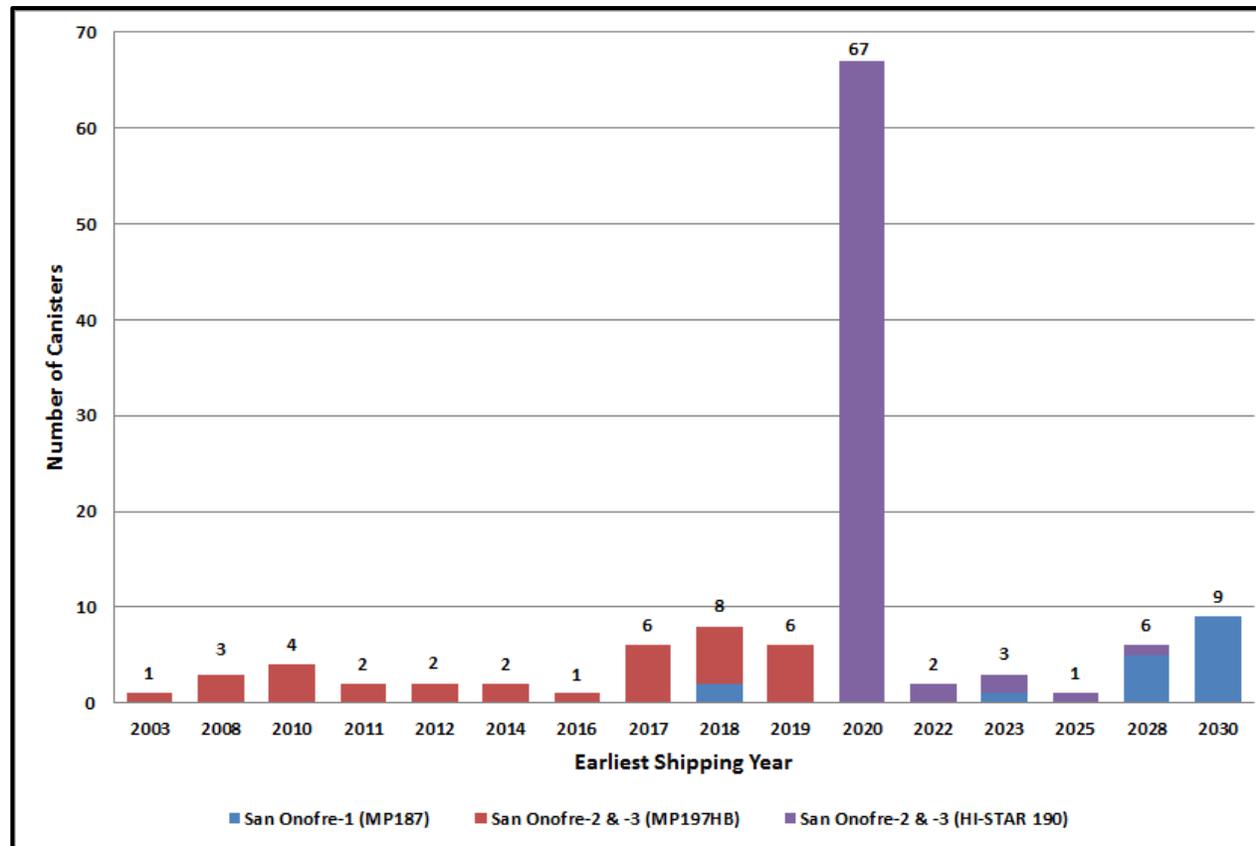
# Loading Maps

- Loading maps show the specific locations of SNF assemblies in canisters
- Used to determine realistic temperatures and dose rates
- Also used to determine when a canister may be shipped



# Canister Transportability

- Discharge date, burnup, enrichment, decay heat, and loading map data used to determine when canisters containing SNF may be shipped



# Site Conditions

- On-Site Transportation Features
  - On-Site Rail
  - On-Site Roads for Heavy-Haul Trucks
  - Barge Access
- On-Site Equipment to Support Transportation Operations
  - Transfer Casks
  - Cranes and Rigging
- On-Site Staging Areas for Transport Vehicles, Equipment and Operations Support

Photo courtesy  
of La Crosse

Trojan Transfer Station



Photo courtesy of Trojan



Onsite Rail Spur at La Crosse

Photo courtesy  
of Big Rock Point



Big Rock Point Horizontal Transfer System

# Near-Site Transportation Infrastructure and Experience

- Evaluate transportation mode options for the NPP sites
- National, Regional, or Short-Line Rail Access
  - Condition and capacity of near-site commercial rail infrastructure
  - Potential transload locations
  - Site experience with rail shipments
- Local Roads and Highways
  - Distance to potential transload locations (rail spurs or sidings)
  - Characteristics and condition of roads and associated infrastructure that would be used by heavy haul vehicles
  - Site experience with heavy haul shipments
- Barge Access
  - Characteristics of onsite or nearby docks/slips/sidings/shorelines
  - Site experience with barge shipments



**Low Overhead Bridge  
Near Big Rock Point**



**Junction of Onsite Rail Spur and  
Union Pacific Railroad at Zion**



**Current Condition of Connecticut Yankee Barge Slip**

# Site Experience Shipping Large Components Key to Understanding How SNF Might Be Moved



**Turbine Component  
Unloading at Crystal River**



**Reactor Pressure  
Vessel Shipping at  
Maine Yankee**



**Reactor Pressure  
Vessel Shipping at  
La Crosse**

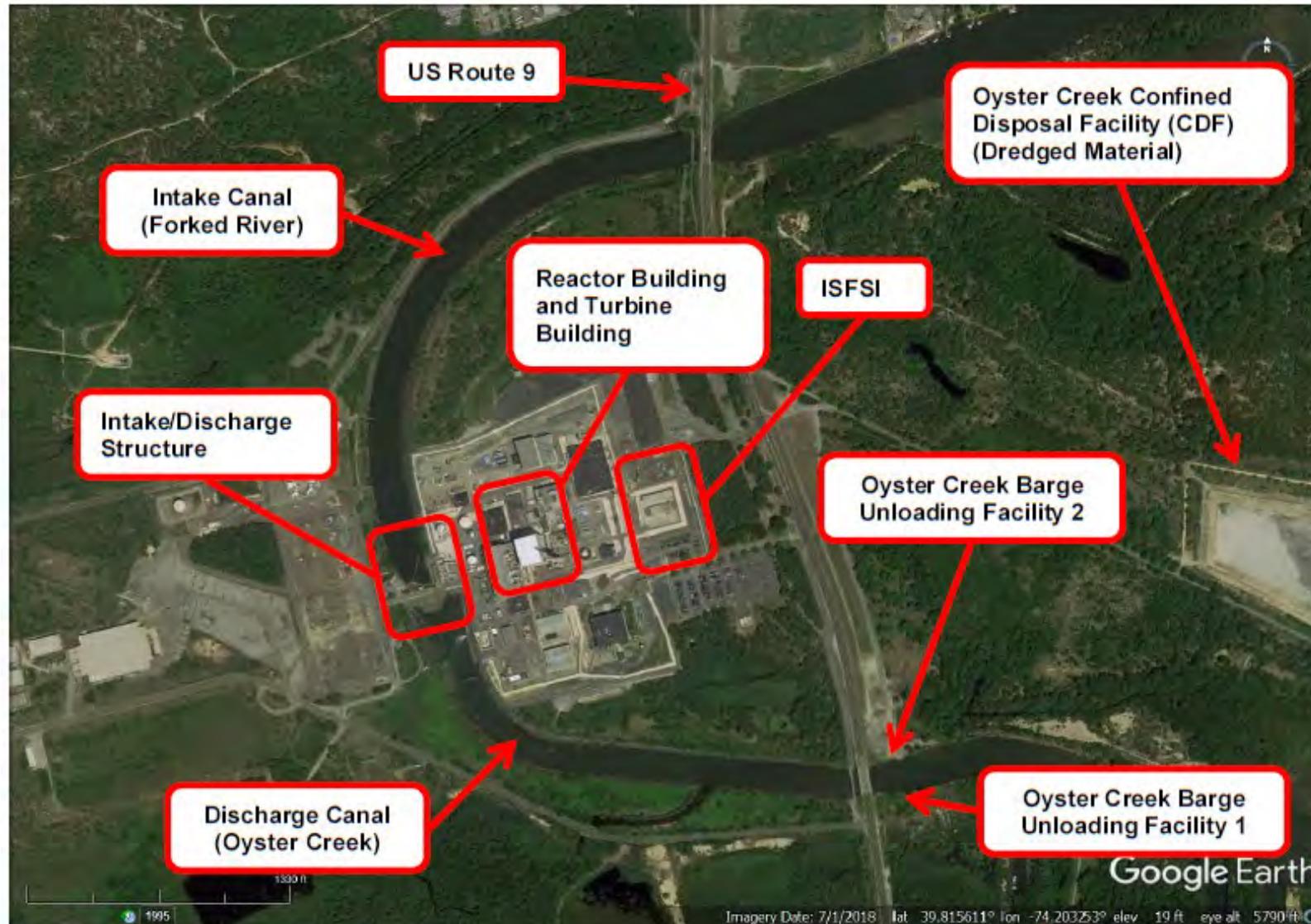


**Steam Generator Shipping  
Near Kewaunee**

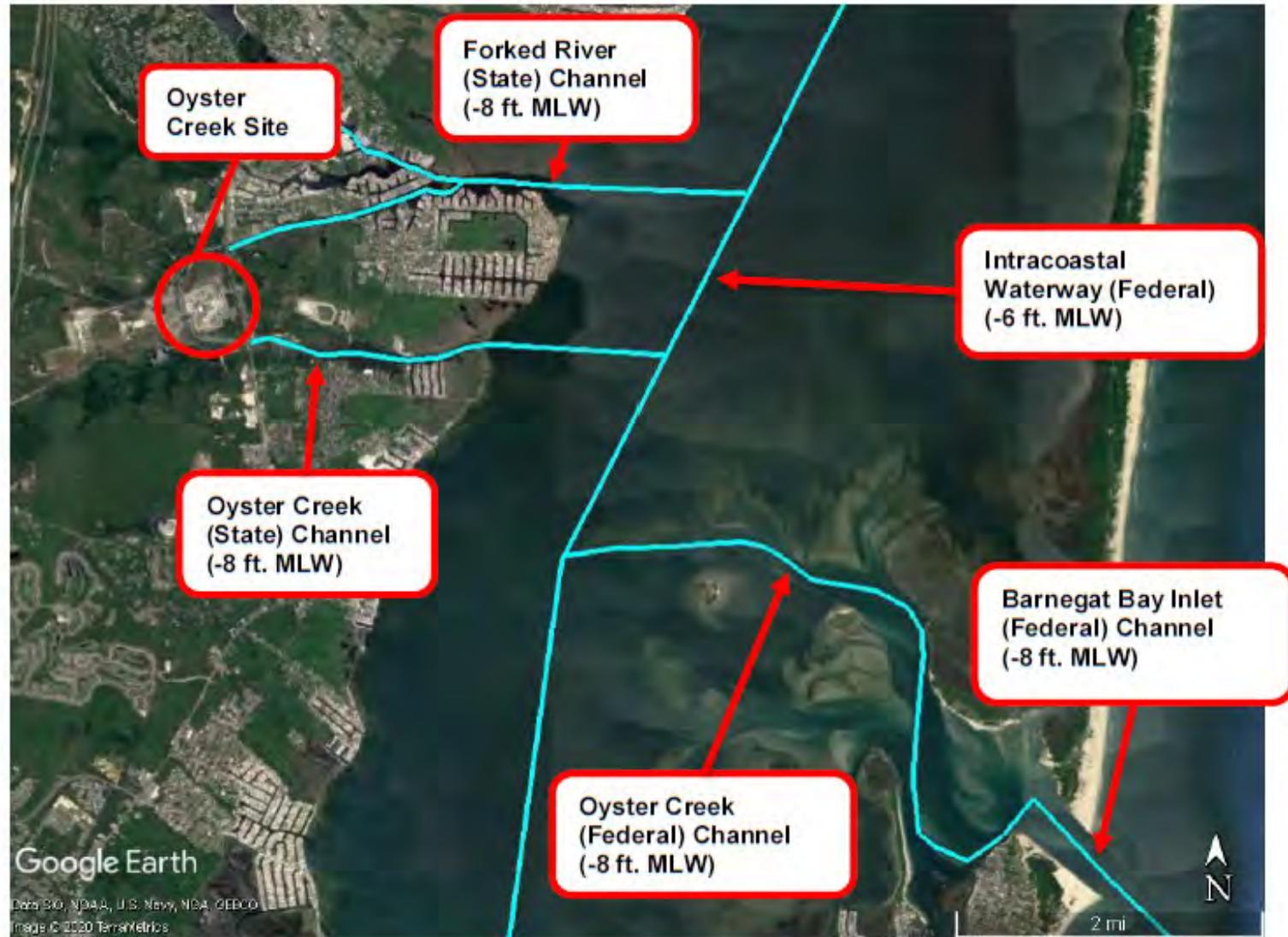
# Google Earth and GIS Database Development

- GIS data on the NPP site is assembled
- Data layers are developed in various areas relevant to transportation planning, including:
  - Property Boundaries and Owner-Controlled Areas (e.g., ISFSI Locations)
  - Highway and Rail Networks
  - Strategic Rail Corridor Networks (STRACNET)
  - Transload Locations
  - Navigable Waterways
  - Environmental Justice Populations identified under Executive Order 12898
  - Tribal Areas
  - Marine Security Zones
  - National Wetlands Inventory
  - National Register of Historic Places

# Google Earth Image Depicting Oyster Creek Site



# Google Earth Image Depicting Navigation Channels and Dredging Depths at Oyster Creek



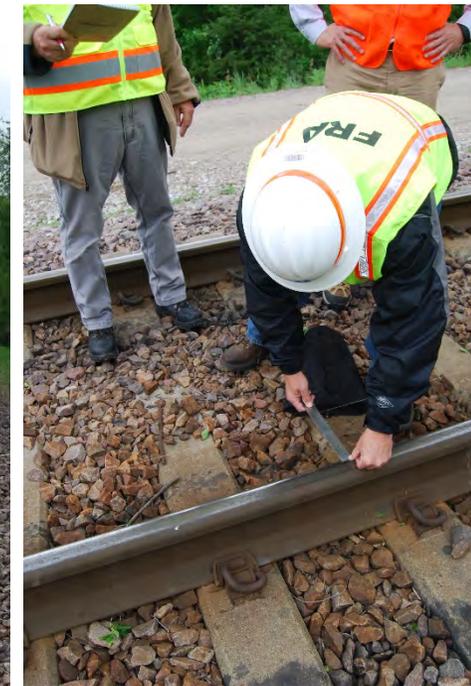
# Key Part of NPP Site Evaluations Are Site Visits

- Site visits typically take place over three days
- First day – NPP site
- Second day – near-site transportation infrastructure
  - Rail infrastructure
  - Potential heavy haul truck routes
  - Potential rail and barge transload locations
- Third day – often spent meeting with community engagement or advisory panels



# External Engagement During Site Visits

- Tribal and State representatives, SRG representatives, and FRA representatives participate in the entire site visit
  - SRG representatives from the Southern States Energy Board, the Western Interstate Energy Board, the Council of State Governments – Midwest, or the Council of State Governments – Eastern Regional Conference, according to the location of the NPP
  - State representatives typically represent their State department of energy, State department of environmental or natural resources, State Rail Safety Participation Program, State Police, State department of transportation, radiation protection organization, or emergency management organization



# External Engagement During Site Visits (continued)

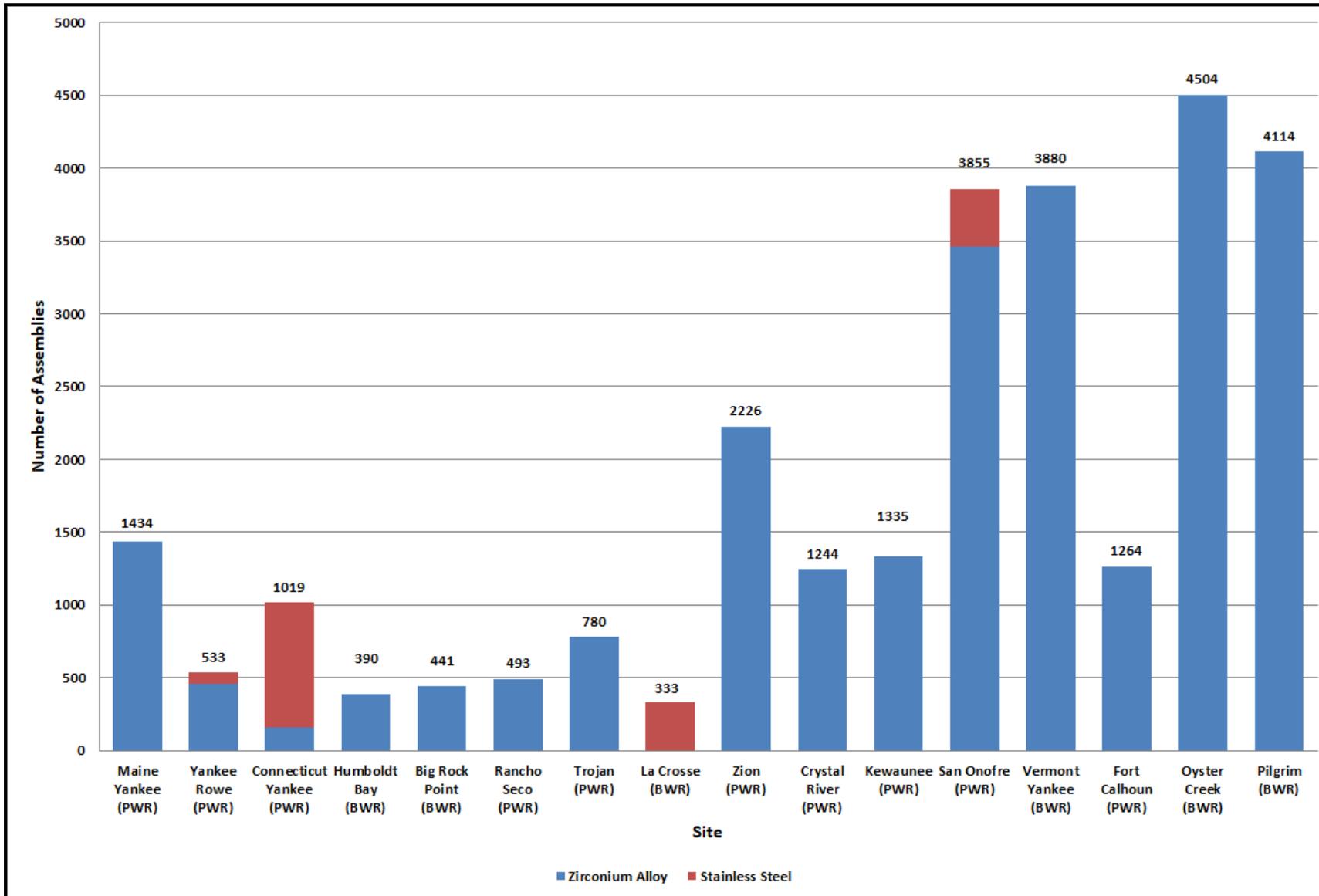
- Tribal representatives explore issues associated with cultural affiliation and Tribal involvement with past and present site activities.
- As the regulator of the U.S. railroads, the FRA representatives bring unique experience to the site visits
  - FRA also coordinates meetings with the railroads that serve the NPP sites
- Meeting with local community engagement or advisory panels
  - Provides an opportunity to inform these panels on DOE activities and the roles and responsibilities of federal agencies during site decommissioning



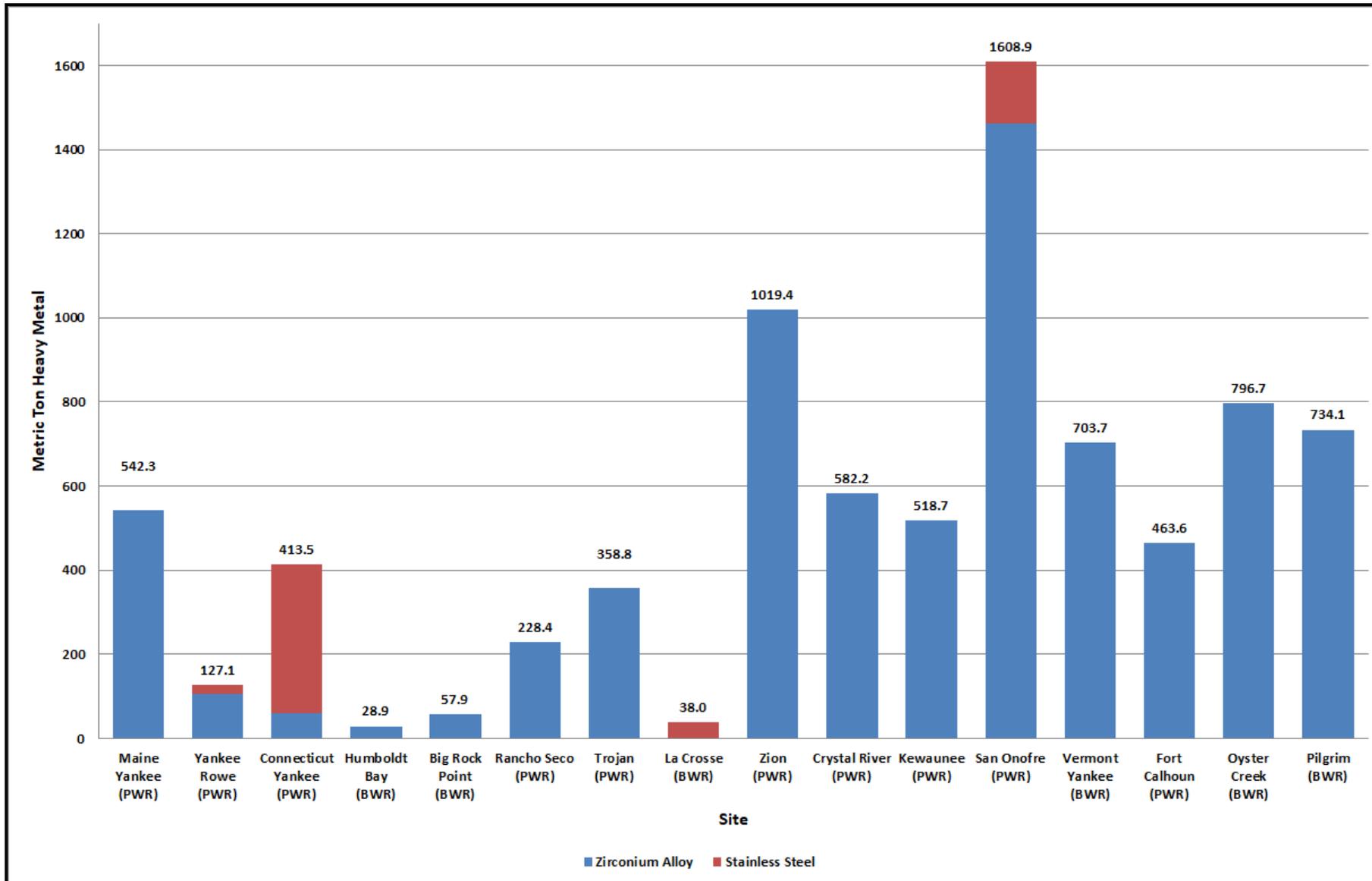
# Examples of Results

- The following slides provide examples of the types of information collected during site evaluations

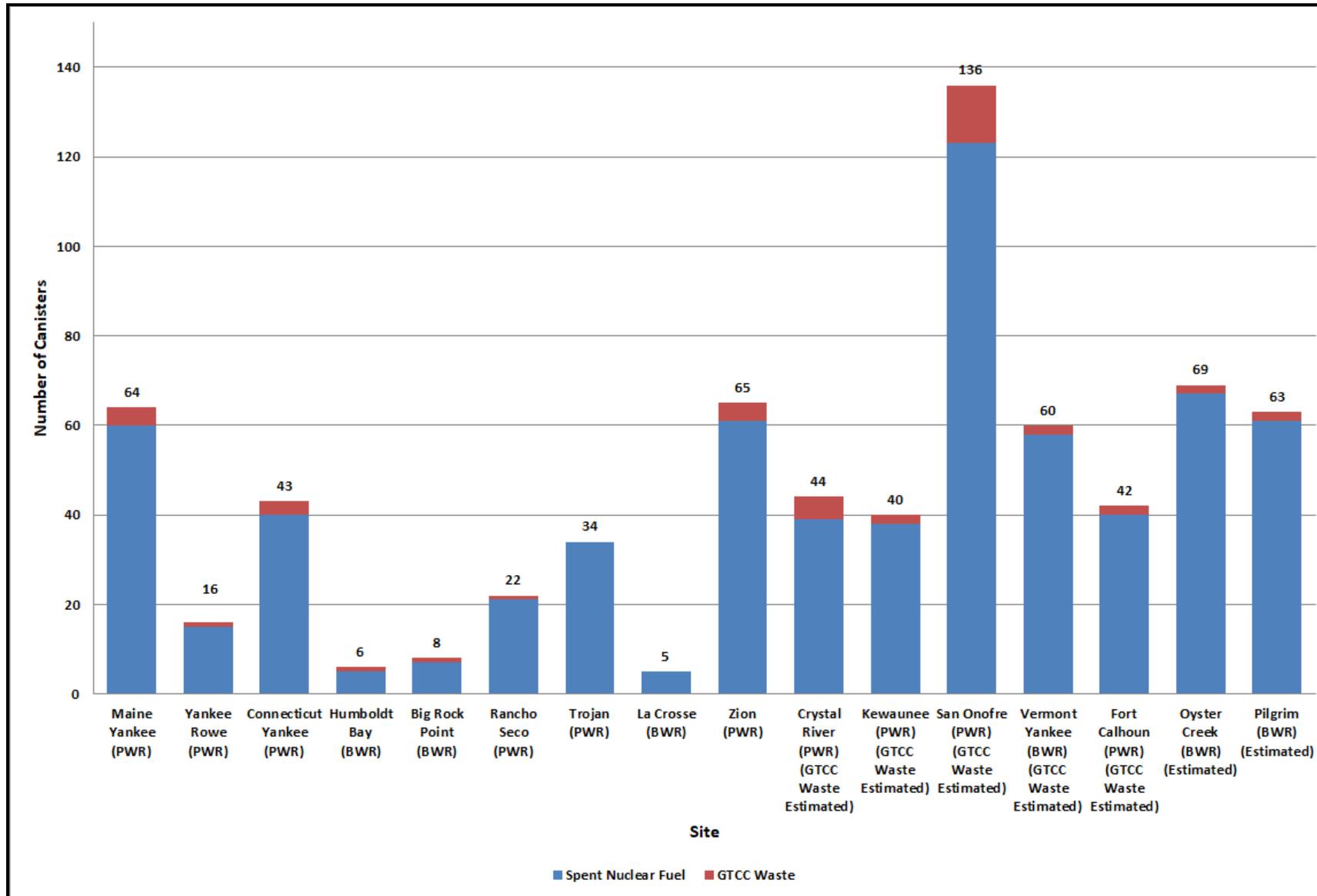
# Number of SNF Assemblies at each NPP Site



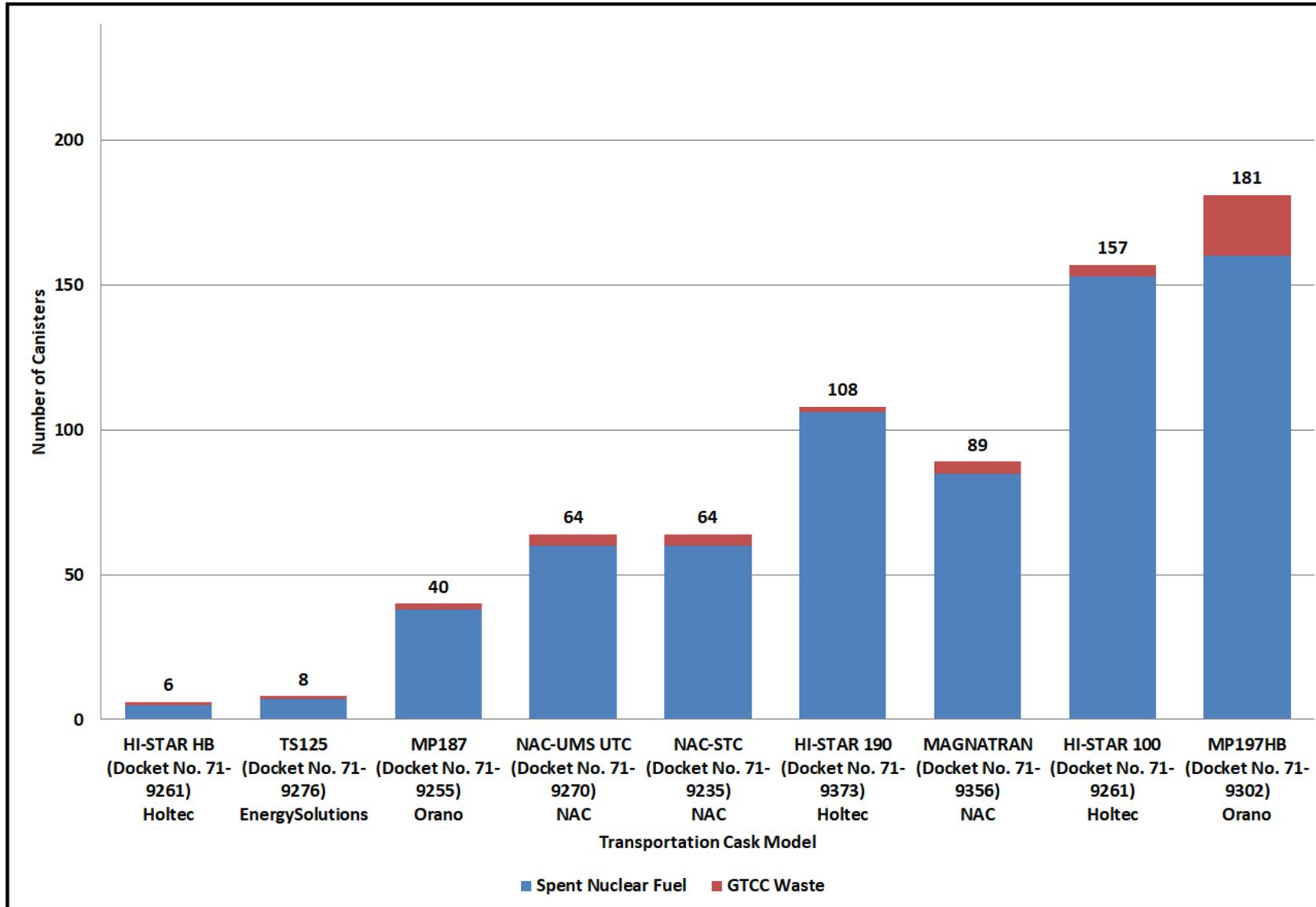
# Metric Tons Heavy Metal at each NPP Site



# Number of Dry Storage Canisters at each Site



# Number of Canisters by Transportation Cask Type



# General Types of Storage Systems Deployed at NPP Sites



**Vertical Concrete Casks  
at Maine Yankee  
(Wiscasset, Maine)**

**Horizontal Storage  
Modules at Fort Calhoun  
(Fort Calhoun, Nebraska)**



**HI-STORM UMAX  
Underground Storage  
Modules at San Onofre  
(San Clemente, California)**



**Underground Storage  
Modules at Humboldt Bay  
(Eureka, California)**

# Transfer Cask, J-Skid, Gantry Towers, and Horizontal Transfer System at Big Rock Point in Michigan



**Transfer Cask and J-Skid**



**Horizontal Transfer System**

**Gantry Towers**



# Barge Slip and Onsite Rail Line at Maine Yankee



**Barge Slip**



**Onsite Rail Line**

# Transportation Infrastructure Near Zion in Illinois



**Junction of Plant Lead  
with Union Pacific  
Railroad with Concrete  
Ties on Corners**



**Switch Derailer  
on Plant Lead**



**Union Pacific Railroad  
at Plant Lead (Looking  
North)**



**Union Pacific Railroad  
at Plant Lead Showing  
Zion Station (Looking  
South)**

# Offsite Rail Access at Hoosac Tunnel Near Yankee Rowe in Massachusetts



**Offsite Rail Access at Hoosac Tunnel**



**East Entrance to Hoosac Tunnel**

# Low Overhead Clearance Abandoned Railroad Bridge on U.S. 31 Near Big Rock Point in Michigan



Low Overhead Bridge on U.S. 31



Top of Low Overhead Bridge

# Bellevue Transload Location Near Kewaunee in Wisconsin



**Bellevue Transload  
Location (Looking North)**



**Bellevue Transload  
Location (Looking South)**



**Bellevue Transload  
Location at WI-29**



**Approaching  
Bellevue Transload  
Location on WI-29  
(Looking West)**

# Potential Transload Location Near Pilgrim NPP in Massachusetts



Looking East



Looking West



# Onsite Rail Spur at Fort Calhoun in Nebraska



**Rail Spur Looking Southeast**



**Rail Spur Looking Northwest**

## Summary of Transportation Mode Options for Shipments from NPP Sites

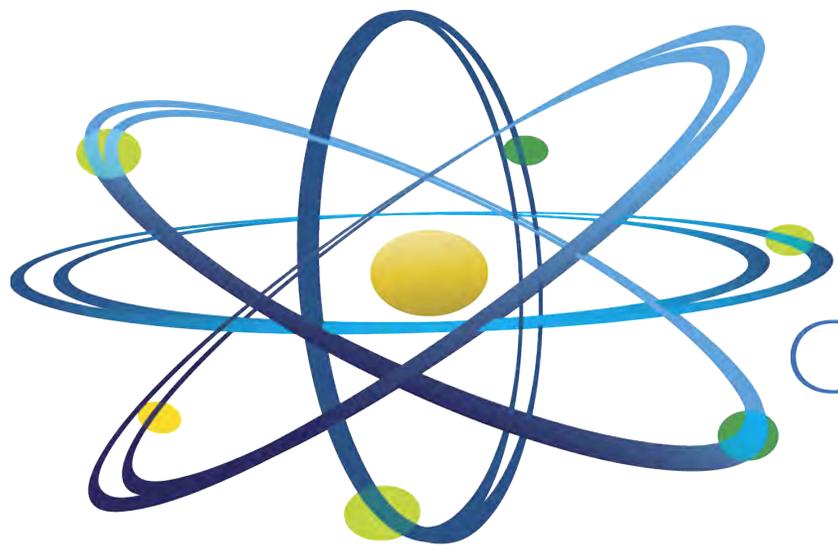
Site	Transportation Mode Options		Comments
Maine Yankee	Direct rail	Barge to rail	The on-site rail spur is not currently maintained. The condition of the Central Maine and Quebec Railway would need to be verified.
Yankee Rowe	Heavy haul truck to rail	–	The shortest heavy haul would be 7.5 miles to the east portal of the Hoosac Tunnel.
Connecticut Yankee	Barge to rail	Heavy haul truck to rail	The on-site barge slip has not been used since decommissioning but remains intact. It is uncertain whether the cooling water discharge canal is deep enough to accommodate barges without dredging. The shortest heavy haul would be about 12.5 miles to the end of the Portland rail spur. The rail infrastructure at the end of the Portland rail spur would need to be evaluated.
Humboldt Bay	Heavy haul truck to rail	Heavy haul truck to barge to rail	The heavy haul distance to a rail spur or siding would be in the range of 160 to 280 miles. The condition of the Fields Landing Terminal located two miles from the Humboldt Bay site would need to be verified for barge transport.
Big Rock Point	Heavy haul truck to rail	Barge to rail	The heavy haul distance would likely be about 52 miles to Gaylord, Michigan. A shorter heavy haul distance of 13 miles to Petoskey, Michigan may be possible. The rail infrastructure at these locations would need to be evaluated.
Rancho Seco	Direct rail	–	The rail spur is not currently maintained. Weight restrictions on the Lone Industrial Lead would require route clearance by the railroad or a track upgrade.
Trojan	Direct rail	Barge to rail	The on-site rail spur was removed.
La Crosse	Direct rail	Barge to rail	The on-site rail spur was used to ship the reactor pressure vessel. The location and method for loading the transportation cask and moving the transportation cask to a rail spur is uncertain.
Zion	Direct rail	Barge to rail	The rail spur was refurbished to support reactor decommissioning waste shipments.
Crystal River	Direct rail	Barge to rail	An extensive on-site rail system serves co-located fossil fuel plants.
Kewaunee	Heavy haul truck to rail	Heavy haul truck to barge to rail	The condition of potential heavy haul truck routes, transload locations, and rail infrastructure would need to be evaluated.
San Onofre	Direct rail	Heavy haul truck to barge to rail	The rail spur was refurbished to support reactor decommissioning shipments for San Onofre-1.
Vermont Yankee	Direct rail	–	The on-site rail spur was reactivated to support decommissioning.
Fort Calhoun	Direct rail	Barge to rail	The on-site rail spur could be reinstalled or on-site transload performed. Barge was used to ship steam generators, pressurizer, and reactor vessel head.
Oyster Creek	Barge to rail	Heavy haul truck to rail	Two on-site barge access locations exist at the site. Heavy haul truck transport to rail transload locations could range from 30 to 70 miles.
Pilgrim	Barge to rail	Heavy haul truck to rail	One on-site barge access location exists at the site. Heavy haul truck transport to rail transload location could range from 23 to 30 miles.

# Future Work – NPP Site Evaluations

- April 2021 update of the NPP site evaluation report posted on DOE-NE website (<https://www.energy.gov/ne/articles/nuclear-power-plant-infrastructure-evaluations-removal-spent-nuclear-fuel>)
- Updated report includes Oyster Creek and Pilgrim
- COVID-19 pandemic put in-person site evaluations on hold
- Continue to collect data on conditions at the sites
  - GC-859 Nuclear Fuel Data Survey
  - Additional information on storage systems in use at the sites
  - New SNF load maps
  - Additional information on the local transportation infrastructure and transload locations around the sites
- DOE intends to continue conducting site evaluations of additional NPP sites and plans to eventually conduct evaluations for all NPP sites
  - When Dresden site evaluation occurs, conduct in-person site evaluation of Morris ISFSI to supplement virtual site evaluation of the Morris ISFSI conducted in June 2020

Facility Interface Data Sheet		Three Mile Island 1	
<b>General Information</b>			
Site:	Three Mile Island Station	Unit:	1
Site Status:	<input checked="" type="checkbox"/> Operating <input type="checkbox"/> Permanent Shutdown <input type="checkbox"/> Decommissioned	Docket Numbers:	50-289
Address:	Route 441 South Middlestown, PA 17057	Contact Name:	Matthew L. Eyre
Site Operator:	AmerGen Energy Co., LLC	Organization/Position:	
NSSS Vendor:	Babcock & Wilcox	Phone Number:	610-765-5625
Unit Type:	<input checked="" type="checkbox"/> PWR <input type="checkbox"/> BWR <input type="checkbox"/> Other	Fax Number:	
DCSS:	No spent fuel currently in dry storage.		
<b>Site/Plant Cask Handling Information</b>			
<b>Roads</b>			
Best Truck Route to Nearest Interstate:	SR-441/Ann St./SR-3032 (Airport Connector)	Weight Limits:	Permit @ 80,000 lbs to 120,000 lbs
Bridges:	2	Height:	
Underpasses:		Description:	Off-site road dimension limits: 48'-0" long trailer X 8'-6" wide. On-site roads are capable of supporting heavy haul transporters.
<b>Rail</b>			
Access to Site:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Servicing Railroad Company:	CSX
On Site Rail:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Last Used:	1990
Length of Rail Inside Protected Area:	3000'-0"	Road Distance to Off-Site Rail Head:	NA
Description:	0.8 miles total of on-site track. No spurs. There is a storage track that could serve as a passing track. On-site switches are in protected area.		
<b>Water</b>			
Water Way:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Barge Access:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Road Distance to Off-Site Barge Terminal:			
Description:	Susquehanna R. Harve de Grace		
<b>Crane</b>			
Capacity:	110 tons		
Rating:	110 tons		
Palm of Hook to Highest Obstruction Distance:			
Description:	Sister hook.		

Facility Interface Data Sheet		Duane Arnold	
<b>General Information</b>			
Site:	Duane Arnold Energy Center	Unit:	Docket Numbers: 50-331, 72-00032
Site Status:	<input checked="" type="checkbox"/> Operating <input type="checkbox"/> Permanent Shutdown <input type="checkbox"/> Decommissioned		
Address:	3277 DAEC Road	Contact Name:	Brian Voss
Site Operator:	Nuclear Management Co.	Organization/Position:	Refuel & ISFSI Program Manager
NSSS Vendor:	General Electric	Phone Number:	319-451-7054
Unit Type:	<input type="checkbox"/> PWR <input checked="" type="checkbox"/> BWR <input type="checkbox"/> Other	Fax Number:	319-451-7323
DCSS:	Currently, 10 Transnuclear NUHOMS-618T loaded (6 10 assemblies), ISFSI constructed for 80 storage units. Support pad installed for 30 units. 12 NUHOMS storage modules in place; 10 loaded and 2 empty.		
<b>Site/Plant Cask Handling Information</b>			
<b>Roads</b>			
Best Truck Route to Nearest Interstate:	Pain Marsh Rd/Blansfery Rd/Edgewood Rd/L-100	Weight Limits:	Permit @ 80,000 lbs
Bridges:	5	Height:	Permit @ 80,000 lbs
Underpasses:	0	Description:	On-site roads were proven capable of handling NUHOMS heavy haul transport equipment with 100 ton cask load in 2003. Security gate is 12'-1" wide.
<b>Rail</b>			
Access to Site:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Servicing Railroad Company:	Cedar Rapids & Iowa City Railroad
On Site Rail:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Last Used:	2003
Length of Rail Inside Protected Area:	100'-0"	Road Distance to Off-Site Rail Head:	NA
Description:	There is approx. 3000 feet of rail track on site, plus 300 feet of rail track along. Tracks used in 2003 for delivery of dry spent fuel storage units to the site, but did not include use of tracks into Reactor Building receiving area. Receiving area rail was used in 1980 and is maintained.		
<b>Water</b>			
Water Way:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Name:	Cedar River
Barge Access:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Last Used:	NA
Road Distance to Off-Site Barge Terminal:	100 miles		
Description:	The Cedar River is not navigable at the site location, the nearest barge access is at the Mississippi River in Davenport, IA.		
<b>Crane</b>			
Capacity:	100 tons	Single Failure Proof:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Rating:	100 tons	Submergible Hook:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Palm of Hook to Highest Obstruction Distance:	24'-4"		
Description:	Crane hoist speed is 3 feet/minute.		
<b>Cask Receiving Area Information</b>			



Clean. **Reliable. Nuclear.**

# Break!

Please be back in the room ready to continue at 3:15 PM sharp!



MIDWEST

# **Carrier Route Selection Process and the Rail Corridor Risk Management System (RCRMS)**

(Patrick Brady will provide slides that will be shown during this portion.)



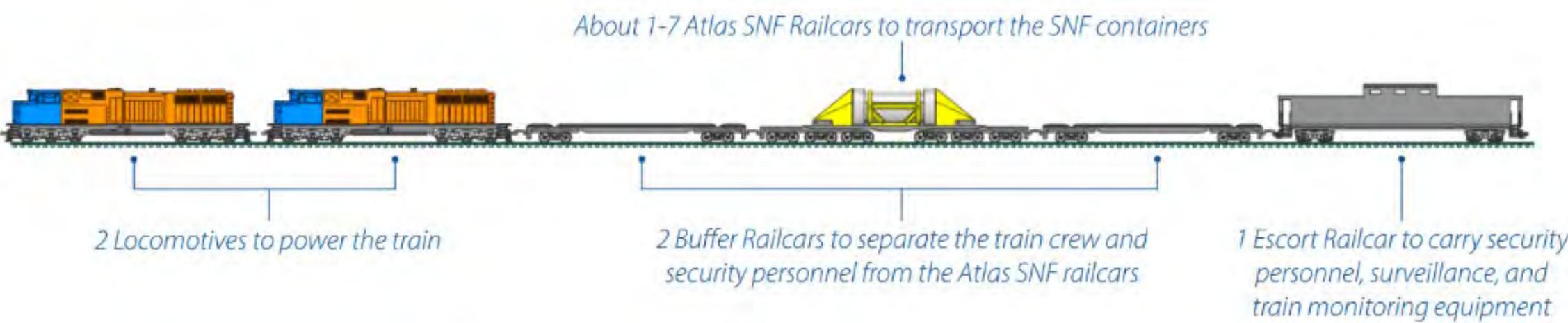
**MIDWEST**

# How DOE Prepares for Shipment After Route Selection



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# Transportation Infrastructure Discussion



# State Preparation Activities

- How will your states evaluate the proposed route(s)?
- How will your states inspect shipments, if at all?
- How will your state distribute 180(c) funds (assuming they are provided)?
- How will your state organize trainings and emergency management exercises for SNF shipments?



# Announcements

- Group Dinner at Elephant & Castle (185 N. Wabash Ave.) at 7 pm
  - Meet in the East Tower lobby at 6:45 pm to walk over.
- MRMTC Meeting tomorrow, Thursday, December 2
  - Join your colleagues for a networking breakfast beginning at 7:30 am in the Living Room Bar and Lounge, 2<sup>nd</sup> floor of the West Tower.
  - The meeting will begin promptly at 8:30 am in this same room, Crystal Ballroom A.
  - Plan to adjourn at 5 pm.



*Thank you for participating!*



**MIDWEST**

# Spent Nuclear Fuel Transportation Workshop

**Midwestern Radioactive Materials  
Transportation Committee**

December 1, 2021