

 U.S. DEPARTMENT OF **ENERGY**

Nuclear Fuels Storage & Transportation Planning Project
Office of Fuel Cycle Technologies
Nuclear Energy

NFST Transportation Program Overview

**Jeff Williams
Jay Jones
Erica Bickford
Matt Feldman
Steve Maheras**

**2014 National Transportation Stakeholders Forum
Bloomington, MN
May 15, 2014**



 U.S. DEPARTMENT OF **ENERGY**

Plenary Session Outline
Nuclear Energy

- **Nuclear Fuel Storage and Transportation Planning Project (NFST) Overview – Jeff Williams**
- **NFST Transportation System Development Overview – Matt Feldman**
- **Shutdown Sites Report – Steve Maheras**
- **National Transportation Plan – Jay Jones and Teri Engelhart**
- **180(c) Discussion – Erica Bickford and Tammy Ottmer**
- **START / Routing Activities Discussion – Erica Bickford**

National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Plenary Session Outline

- **Nuclear Fuel Storage and Transportation Planning Project (NFST) Overview – Jeff Williams**
- NFST Transportation System Development Overview – Matt Feldman
- Shutdown Sites Report – Steve Maheras
- National Transportation Plan – Jay Jones and Teri Engelhart
- 180(c) Discussion – Erica Bickford and Tammy Ottmer
- START / Routing Activities Discussion – Erica Bickford

National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

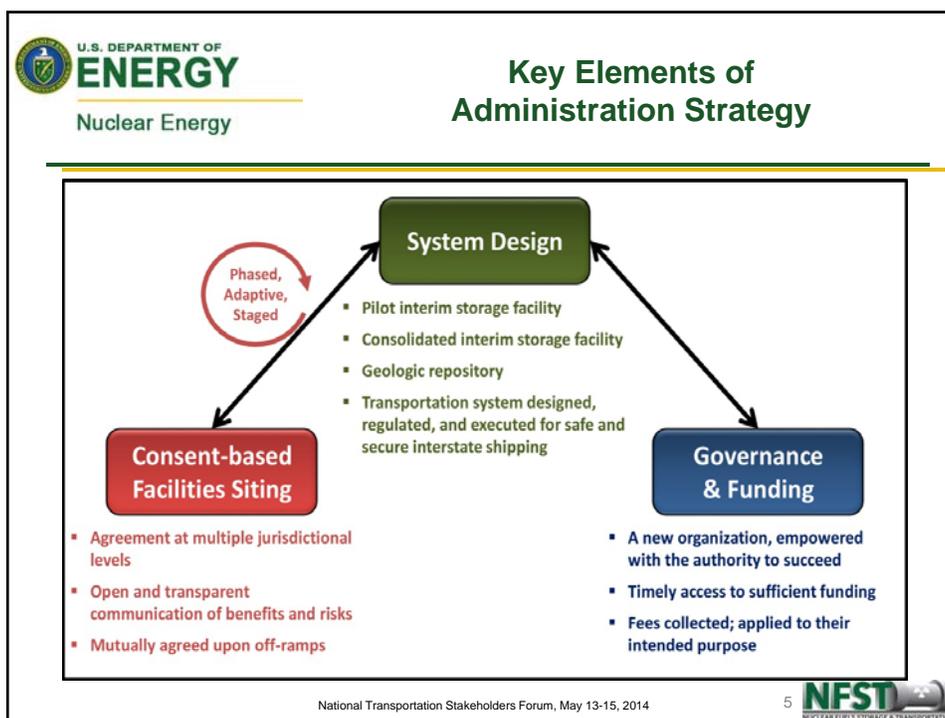
BRC and Administration's Strategy

- **Emphasized Interim Storage as Part of an Integrated Waste Management System**
- **“Consolidated Storage would...**
 - Allow for the removal of 'stranded' spent fuel from shutdown reactor sites
 - Enable the federal government to begin meeting waste acceptance obligations
 - Provide flexibility to respond to lessons learned from Fukushima and other events
 - Support the repository program
 - Provide options for increased flexibility and efficiency in storage and future waste handling functions”
- ***“The Administration agrees that interim storage should be included as a critical element in the waste management system and has several benefits, including flexibility in system planning and execution and the opportunity to move expeditiously to fulfill government contractual responsibilities.”***
- ***“The Administration supports a pilot interim storage facility initially focused on serving shut-down reactor sites.”***




National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF **ENERGY**
Nuclear Energy

NFST Established in FY 2013 to Plan for Interim Storage and Transportation

NFST
NUCLEAR FUELS STORAGE & TRANSPORTATION

- **Mission**
 - Lay the groundwork for implementing interim storage, including associated transportation, per the Administration's *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste*, and develop a foundation for a new nuclear waste management organization
- **Purpose**
 - Make progress on this important national issue
 - Build foundation that could be transferred to a new waste management disposal organization (MDO)
- **Activities**
 - Build upon BRC recommendations
 - Lay ground work for implementing the Strategy
 - Align with existing NWPA constraints
- **Full implementation of the Administration's Strategy will require legislation**

National Transportation Stakeholders Forum, May 13-15, 2014



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Key Activities: Interim Storage Facility (ISF) Siting

- **Developed a database of prior siting efforts**
 - <http://curie.ornl.gov/SED/pages/sed-homepage>
- **Reviewing and evaluating lessons learned from prior domestic and international siting efforts**
- **Evaluating public preferences related to consent-based siting and UNF management**

BRC recommendation:
DOE should build a data base of the experience that has been gained and relevant documentation produced in efforts to site nuclear waste facilities, in the United States and abroad.

Several local communities have expressed interest to DOE in hosting an ISF






National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Key Activities: Storage

- **Evaluating interim storage design concepts, with input from industry contractors**
- **Preparing facility functions and requirements**
- **Evaluating costs and impacts of opening non-disposable storage canisters**
- **Developing data on alternative generic design concepts for receiving, storing, handling, and repackaging UNF canisters to support systems analyses**

BRC recommendation:
"Perform systems analyses and design studies needed to develop a conceptual design for a spent fuel storage facility"






National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Pilot Storage Facility – Nominal Concept

- **5,000 to 10,000 MT capacity with a receipt rate of 1,500 MT/y**
 - Accept dry storage containers from shutdown sites with “stranded fuel”
 - Transport dual purpose container (DPC) in its associated transportation overpack
 - Transfer the DPC to a new storage overpack associated with each DPC
 - 9 stranded sites use 13 canister designs, 8 storage, and 7 transport overpack designs

- **Fully developed facilities could include:**
 - Rail yard and associated maintenance equipment
 - Cask-handling building for transfer of the DPC from transportation to storage overpacks
 - Storage pads with multiple vertical and horizontal storage overpack designs
 - Security facilities
 - Infrastructure and balance of plant facilities

National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

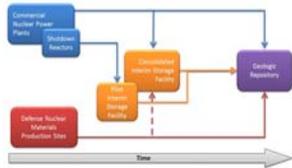
Key Activities: Systems Analysis

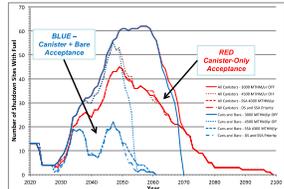
- **Reestablished capabilities and performed systems analysis of alternative approaches for accepting and moving fuel; continuing activity**
 - Developing methodologies, approaches, and tools to analyze the waste management system
 - Provided insights regarding potential waste management system architectures
 - Identified data and analysis capability needs

- **Identifying opportunities for better integration of storage into the waste management system, including consideration of standardization and alternative storage systems at ISF**

BRC recommendation:

“Develop systems analyses to provide quantitative estimates of the system benefits of utility actions”





Impact of acceptance strategies on pace of deinventorying sites

National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Key Activities: Transportation

- **Collaborating with stakeholders through State Regional Groups and tribal representatives**
 - Revised NWP 180(c) policy and
 - National Transportation Plan (NTP)
 - Routing options
- **Planning for design, testing, and acquisition of rail cars and transportation casks**
- **Assessing needs and developing plan for removing UNF from shutdown reactor sites**
- **Developing new routing capabilities and investigating routing options from shutdown reactor sites**

BRC recommendation:
"Complete development of procedures and regulations for providing technical assistance, funding, and training to local groups in preparation for movement of spent fuel"




National Transportation Stakeholders Forum, May 13-15, 2014

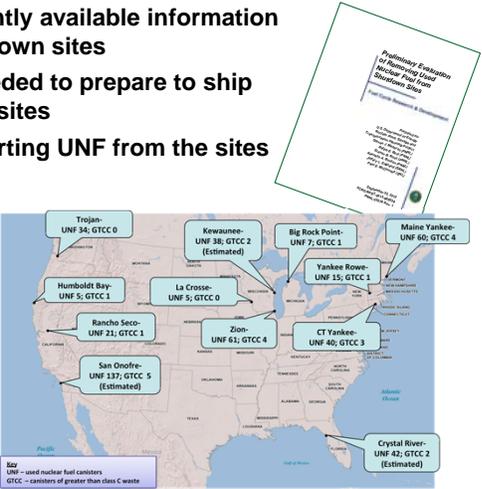
11  NUCLEAR FUEL STORAGE & TRANSPORTATION



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Completed Preliminary Evaluation of Removing Used Nuclear Fuel from Shutdown Sites

- **Collected and documented currently available information relevant to de-inventorying shutdown sites**
- **Identified gaps in information needed to prepare to ship used nuclear fuel (UNF) from the sites**
- **Identified alternatives for transporting UNF from the sites**
- **Developed preliminary task lists and estimates of time durations**
- **Next steps:**
 - Developing detailed de-inventory plans for each site
 - Completing and adding information related to recent shutdowns



Preliminary Evaluation of Removing Used Nuclear Fuel from Shutdown Sites

For State, Regional, & Tribal Groups

UNF - used nuclear fuel canisters
GTCC - canisters of greater than class C waste

National Transportation Stakeholders Forum, May 13-15, 2014

12  NUCLEAR FUEL STORAGE & TRANSPORTATION



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

DOE is focused on the long-lead time activities

■ Railcars (cask car, buffer car, and escort car) are required to meet Association of American Railroads (AAR) Standard S-2043, *Performance specifications for trains used to carry high-level radioactive material*

- Development process is rigorous
 - Procurement
 - Design Cars (including extensive finite element analysis)
 - Manufacture prototype for testing
 - Test railcars and document results
 - AAR Approval Review
- Development of compliant railcars will take several years

National Transportation Stakeholders Forum, May 13-15, 2014

13 

NUCLEAR FUELS STORAGE & TRANSPORTATION

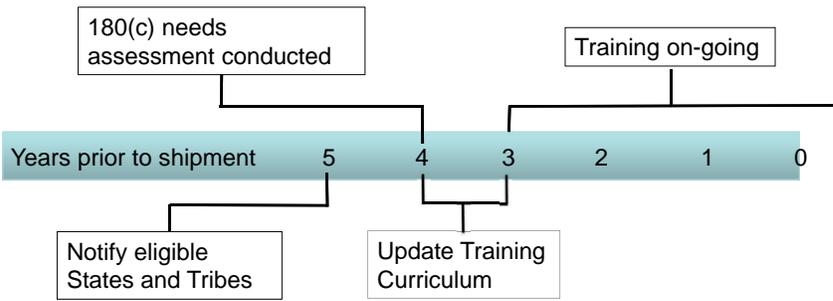


U.S. DEPARTMENT OF ENERGY
Nuclear Energy

DOE is focused on the long-lead time activities

■ NWPA Section 180(c) activities need to move forward to provide support for proper training of public safety officials and for States, Tribes and Local Officials to make preparations for shipments

- Section 180(c) provides for federal funding for training of public safety officials along the route



The diagram is a horizontal timeline starting at 5 years prior to shipment and ending at 0 years (shipment). A light blue bar represents the timeline. Key activities are marked with boxes and connected to the timeline by vertical lines:

- 180(c) needs assessment conducted:** A box at the top left, connected to the timeline at the 5-year mark.
- Notify eligible States and Tribes:** A box at the bottom left, connected to the timeline between the 5-year and 4-year marks.
- Update Training Curriculum:** A box at the bottom center, connected to the timeline between the 4-year and 3-year marks.
- Training on-going:** A box at the top right, connected to the timeline from the 3-year mark to the 0-year mark.

National Transportation Stakeholders Forum, May 13-15, 2014

14 

NUCLEAR FUELS STORAGE & TRANSPORTATION

U.S. DEPARTMENT OF ENERGY
Nuclear Energy

DOE is focused on the long-lead time activities

- **Procurement of casks will take at least 2-3 years, but many other issues must be settled before the order can be placed**
 - Which casks, how many, what order will they be used?
 - Transportation Cask Certificate of Compliance (CoC) issues
- **Offsite infrastructure improvements are necessary prior to shipment in many cases**
 - Road beds may need to be improved where heavy-haul is used
 - Short-line rail tracks





National Transportation Stakeholders Forum, May 13-15, 2014

15 **NFST**
NUCLEAR FUEL STORAGE & TRANSPORTATION

U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Plenary Session Outline

- Nuclear Fuel Storage and Transportation Planning Project (NFST) Overview – Jeff Williams
- NFST Transportation System Development Overview – Matt Feldman
- Shutdown Sites Report – Steve Maheras
- National Transportation Plan – Jay Jones and Teri Engelhart
- 180(c) Discussion – Erica Bickford and Tammy Ottmer
- START / Routing Activities Discussion – Erica Bickford

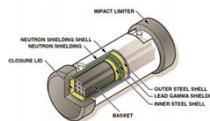
National Transportation Stakeholders Forum, May 13-15, 2014

16 **NFST**
NUCLEAR FUEL STORAGE & TRANSPORTATION

Transportation System Organization

■ Historically, the development of a transportation system has been divided into three primary elements

- Institutional
 - Establish relationships with Federal, State and Tribal partners to develop policies and agreements on transportation system operations and responsibilities
- Operational
 - Day-to-day activities that will take place to operate the transportation system with carriers and utilities
- Hardware
 - All physical items that must be acquired in order to operate the transportation system
 - Casks
 - Railcars
 - Heavy-haul logistics providers



National Transportation Stakeholders Forum, May 13-15, 2014

17

FY14 Project Activities

- **Institutional**
 - Continue and expand interactions with State Regional Groups (SRGs) and Tribes
 - Issue Draft NTP for review and comment
 - Design Section 180(c) tabletop exercise
 - Initiate Route Planning through development of standardized process
- **Operational**
 - Continue to update and expand Shutdown Sites Report
 - Develop and Test Stakeholder Tool for Assessing Radioactive Transportation (START)
- **Hardware**
 - Initiate development of S-2043 Compliant Railcars
 - Identify hardware needs for de-inventory of shutdown sites

National Transportation Stakeholders Forum, May 13-15, 2014

18



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Transportation System Development Future Tasks Prior to Shipment: Institutional

■ Institutional

- Continue work with SRGs and Tribes, NTSF, other groups
- Develop communications plans and materials
- Identify training needs and materials necessary for technical support and for development of modules that specifically address UNF shipments
- Conduct Section 180(c) pilot or evaluation program, finalize policy and fund States and Tribes for training
- Work with States, Tribes and carriers to refine route planning process
- Work with Stakeholders on Operational Activities
- Assess vehicle inspection standards and processes for all transport modes
- Tabletop reviews of initial routes with States, Tribes, SRGs, carriers and logistics companies

National Transportation Stakeholders Forum, May 13-15, 2014

19





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Transportation System Development Future Tasks Prior to Shipment: Operational

■ Operational

- Refine Stakeholder Tool for Assessing Radioactive Transportation (START)
- Develop Site-Specific Campaign Plans
- Identify Routes
- Ensure Transportation Cask Certificates of Compliance are in place
- Determine need for infrastructure upgrades and follow up to ensure they are completed
- Identify needs for, recruit, and train operational workforce
- Ensure receipt facilities are ready to receive transportation casks
- Begin work with DOT, FRA and Railroads on procedures for inspection and monitoring
- Identify secure tracking and monitoring technology

National Transportation Stakeholders Forum, May 13-15, 2014

20





Transportation System Development Future Tasks Prior to Shipment: Hardware

■ Hardware

- Determine Cask and Railcar needs
- Design and Analysis of S-2043 compliant Escort and Buffer Railcars
- Testing and procurement of all railcars
- Design new rail casks as needed
- Procure Casks
- Procure Cask Ancillary Equipment
- Develop or procure cask and railcar maintenance capabilities

National Transportation Stakeholders Forum, May 13-15, 2014



Development of an S-2043 Railcar is underway, but approval will take several years

■ Meeting AAR Standard S-2043 for Railcars Carrying UNF requires design and testing

- Railcars (cask car, buffer car, and escort car) are needed to meet Association of American Railroads (AAR) Standard S-2043, *Performance specifications for trains used to carry high-level radioactive material*
 - Design and testing necessary to develop compliant railcars will take several years
 - Standard developed for single cask design on a cask car, but this cask railcar will need to accommodate multiple different casks
 - To date no one has received AAR approval for S-2043
- To support development activities for an S-2043 railcars, NFST has several current FY activities
 - AAR S-2043: Use and History
 - AAR S-2043 Cask Railcar Systems Requirements Document
 - Request for Information and Sources Sought notification posted in FedConnect (Solicitation # DE-SOL-0006863)

National Transportation Stakeholders Forum, May 13-15, 2014





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Plenary Session Outline

- Nuclear Fuel Storage and Transportation Planning Project (NFST) Overview – Jeff Williams
- NFST Transportation System Development Overview – Matt Feldman
- **Shutdown Sites Report – Steve Maheras**
- National Transportation Plan – Jay Jones and Teri Engelhart
- 180(c) Discussion – Erica Bickford and Tammy Ottmer
- START / Routing Activities Discussion – Erica Bickford

National Transportation Stakeholders Forum, May 13-15, 2014

23 

NUCLEAR FUELS STORAGE & TRANSPORTATION



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Purpose of Shutdown Sites Evaluation

- Support planning for removing UNF from shutdown sites
- Collect, document and identify gaps in information needed to prepare for shipment of UNF from the sites
- Identify alternatives for transporting UNF from the sites
- Determine activities required to prepare to ship UNF from the sites

*Preliminary Evaluation
of Removing Used
Nuclear Fuel from
Shutdown Sites*

Fuel Cycle Research & Development

Prepared for
U.S. Department of Energy
Nuclear Fuels Storage and
Transportation Planning Project
Steven J. Maheras (PNNL)
Ralph E. Best (PNNL)
Steven B. Ross (PNNL)
Kenneth A. Buxton (PNNL)
Jeffrey L. England (SNL)
Paul E. McConnell (SNL)

September 30, 2013
FCRD-NFST-2013-000236
PNNL-22876 Rev. 1



24

National Transportation Stakeholders Forum, May 13-15, 2014

24 

NUCLEAR FUELS STORAGE & TRANSPORTATION



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Technical Content of Evaluation

- **Section 1 – Introduction**
- **Section 2 – Site Inventory**
 - By site
- **Section 3 – Site Conditions**
 - By site
- **Section 4 – Near-Site Transportation Infrastructure and Experience**
 - Section 4.1 – Overview of requirements
 - Section 4.2 – Offsite transportation experience, infrastructure, and scenarios
 - Section 4.3 – Gaps in Information
- **Section 5 – Actions Necessary to Remove Used Nuclear Fuel From Shutdown Sites**
 - Sections 5.1 and 5.2 – Activities
 - Section 5.3 – Results
- **Section 6 – Conclusions and Recommendations**
- **Section 7 – References**

National Transportation Stakeholders Forum, May 13-15, 2014

25

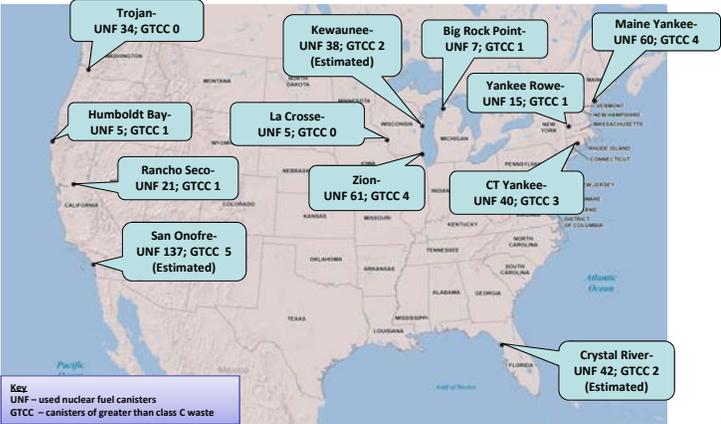




U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Locations of 12 Shutdown Reactor Sites

■ **Nine Storage System Types and Eight Different Transportation Cask Designs**



Key:
UNF – used nuclear fuel canisters
GTCC – canisters of greater than class C waste

National Transportation Stakeholders Forum, May 13-15, 2014

26



Sources of Information Used in Evaluation

■ Documents and Data Bases – Public Documents, DOE-RW Documents, DOE Used Fuel Disposition Campaign Documents, Data Bases, Nuclear Industry Sources

- DOE RW-859 Data Base
- Facility Interface Data Sheets (FIDS), Services Planning Documents (SPDs), Facility Interface Capability Assessment reports (FICAs), and Near-Site Transportation Infrastructure reports (NSTIs)

■ Independent Spent Fuel Storage Installation (ISFSI) Site Managers

- Confirmed information obtained from other sources
- Clarified current conditions at the shutdown sites
- Provided photos and other detailed information

■ Heavy Equipment, Lifting, Rigging, and Transporting Companies



MP187 Transportation Cask Heavy Haul to Rancho Seco
Photo courtesy of Rancho Seco



Big Rock Point Reactor Pressure Vessel Heavy Haul
Photo courtesy of Barnhart Crane and Rigging

National Transportation Stakeholders Forum, May 13-15, 2014

27

Sources of Information Used in Evaluation (continued)

■ Shutdown site visits

- Nine shutdown sites visited from August 2012 through July 2013
- Confirmed aspects of inventories at the sites, obtained detailed inventory data by canister, and canister load maps
- Observed transportation infrastructure at and near sites
- SRG representatives, a Tribal representative, and a Federal Railroad Administration (FRA) representative participated in 6 shutdown site visits
- Detailed photos taken at sites

■ Google Earth

- Understand layout of shutdown sites
- Used to provide detailed maps of shutdown sites and ISFSIs
- Portray potential rail and heavy haul routes



Current Condition of Onsite Rails at Maine Yankee



Maine Yankee Site

National Transportation Stakeholders Forum, May 13-15, 2014

28



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

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
Onsite Rail Spur at La Crosse



Photo courtesy of Trojan
Trojan Transfer Station



Photo courtesy of Big Rock Point
Big Rock Point Horizontal Transfer System

National Transportation Stakeholders Forum, May 13-15, 2014

29 



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Near-Site Transportation Infrastructure and Experience

- **National, Regional, or Short-Line Rail Access**
 - Condition and capacity of near-site commercial rail infrastructure
 - Site experience with rail shipments
- **Local Roads and Highways**
 - Distance to nearest rail head
 - Characteristics and condition of roads and associated infrastructure that would be used by heavy haul vehicles
 - Experience with heavy haul shipments
- **Barge Access**
 - Characteristics of onsite or nearby docks/slips/sidings/shorelines
 - Experience with barge shipments



Junction of Onsite Rail Spur and Union Pacific Railroad at Zion



Low Overhead Bridge Near Big Rock Point



Current Condition of Connecticut Yankee Barge Slip

National Transportation Stakeholders Forum, May 13-15, 2014

30 

Reactor Site	Transportation Mode Options		Comments
Maine Yankee	Direct rail	Barge to rail	The condition of the onsite rail spur and Maine Eastern Railroad would need to be verified.
Yankee Rowe	Heavy haul truck to rail	—	The 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	Depth of barge canal uncertain and may require dredging to accommodate barges
Humboldt Bay	Heavy haul truck to rail	Heavy haul truck to barge to rail	The heavy haul distance would be 160 to 260 miles. The condition of the Fields Landing Terminal would need to be verified.
Big Rock Point	Heavy haul truck to rail	Barge to rail	The heavy haul would probably be about 52 miles to Gaylord, Michigan. A shorter heavy haul of 13 miles to Petoskey, Michigan may be possible.
Rancho Seco	Direct rail	—	The rail spur is not being maintained.
Trojan	Direct rail	Barge to rail	The onsite rail spur was removed.
La Crosse	Direct rail	Barge to rail	The onsite rail spur was used to ship reactor pressure vessel.
Zion	Direct Rail	Barge to rail	The rail spur recently refurbished.
Crystal River	Direct rail	Barge to rail	Extensive onsite rail system. Have not conducted site visit.
Kewaunee	Heavy haul truck to rail	Heavy haul truck to barge to rail	Condition of potential heavy haul truck routes and rail infrastructure needs to be verified. Have not conducted site visit.
San Onofre	Direct rail	Barge to rail	Rail spur recently refurbished. Have not conducted site visit.

National Transportation Stakeholders Forum, May 13-15, 2014

31  NUCLEAR FUELS STORAGE & TRANSPORTATION

U.S. DEPARTMENT OF ENERGY Nuclear Energy	Conclusions from Shutdown Sites Evaluation
	<ul style="list-style-type: none"> ■ Although there are common aspects, each site has some unique features and/or conditions ■ The 12 sites utilize designs from 4 different suppliers, including 9 different (horizontal and vertical) storage systems that would require 8 different transportation cask designs ■ Although some regulatory actions will be required, all UNF at the initial 9 shutdown sites is in licensed systems that can be transported, including a small amount of high-burnup fuel ■ Each site indicated that 2-3 years of advanced time is required for preparations ■ Each site has multiple transportation options, e.g., rail, barge, truck, as well as constraints and preferences

National Transportation Stakeholders Forum, May 13-15, 2014

32  NUCLEAR FUELS STORAGE & TRANSPORTATION



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Current Status of Shutdown Sites Evaluation

- **Latest shutdown sites report released on September 30, 2013**
 - Posted on DOE-NE website
 - <http://energy.gov/ne/downloads/preliminary-evaluation-removing-used-nuclear-fuel-shutdown-sites>
- **Shutdown sites report will be updated and submitted at the end of FY2014**
- **Items for inclusion in the update include**
 - Information from additional site visits
 - Additional information on the local transportation infrastructure and intermodal transfer locations
- **Future plans**
 - Develop Campaign Plans for removing UNF from shutdown sites, containing descriptions of equipment required, estimates of times to complete tasks, and estimates of uncertainties
 - Conduct 10 CFR Part 71 Certificate of Compliance (CoC) review
 - Update UNF inventories
 - Evaluation of additional sites as they shutdown
 - National news reports suggest that additional sites may be prematurely shutdown

National Transportation Stakeholders Forum, May 13-15, 2014

33





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Plenary Session Outline

- **Nuclear Fuel Storage and Transportation Planning Project (NFST) Overview – Jeff Williams**
- **NFST Transportation System Development Overview – Matt Feldman**
- **Shutdown Sites Report – Steve Maheras**
- **National Transportation Plan – Jay Jones and Teri Engelhart**
- **180(c) Discussion – Erica Bickford and Tammy Ottmer**
- **START / Routing Activities Discussion – Erica Bickford**

National Transportation Stakeholders Forum, May 13-15, 2014

34





U.S. DEPARTMENT OF
ENERGY
Nuclear Energy

NTP Overview and Work Scope

- **Prepare a draft NTP in a collaborative effort with stakeholders**
 - Focuses on the goals of the Blue Ribbon Commission recommendations and the Administration's Strategy
 - Addresses the NAS recommendations related to transportation of UNF
 - Integrates with technical activities
 - Is consistent with DOE transportation policy, guidance, and prior shipping experience (including Waste Isolation Pilot Plant and Foreign Research Reactor Fuel campaigns)
 - Considers stakeholder comments on prior DOE NTPs (2009 Office of Civilian Radioactive Waste Management Transportation Plan)

35  NFST
NUCLEAR FUELS STORAGE & TRANSPORTATION

National Transportation Stakeholders Forum, May 13-15, 2014



U.S. DEPARTMENT OF
ENERGY
Nuclear Energy

Objectives of NTP

- **Inform interested parties about the planning process and activities to be completed in order to ship UNF from reactor sites**
- **Describe other documents that would inform the NTP as issues are identified and/or resolved**
 - Completed technical studies
 - Rail and cask procurement plans
 - Future Campaign Plans
- **Outlines features of a working Transportation Plan by combining elements from other successful shipment campaigns**

36  NFST
NUCLEAR FUELS STORAGE & TRANSPORTATION

National Transportation Stakeholders Forum, May 13-15, 2014



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

National Transportation Plan (NTP) Working Group Discussion

- Working Group members have not had adequate time to review the NTP
- General impression was that NTP was well written (nothing alarming)
- Document covered most topics of interest, but needs more in depth treatment in certain areas
- Reasonable process for working together to revise and refine NTP
- Review comments will be compiled and submitted by SRGs and Tribes (individual comments accepted too)
- Recommendation that comment resolution be done through in-person meetings and webinars, rather than a formal comment response document
- Having a draft document and Working Group discussions support a collaborative process in developing the NTP

National Transportation Stakeholders Forum, May 13-15, 2014

37





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Plenary Session Outline

- Nuclear Fuel Storage and Transportation Planning Project (NFST) Overview – Jeff Williams
- NFST Transportation System Development Overview – Matt Feldman
- Shutdown Sites Report – Steve Maheras
- National Transportation Plan – Jay Jones and Teri Engelhart
- **180(c) Discussion – Erica Bickford and Tammy Ottmer**
- START / Routing Activities Discussion – Erica Bickford

National Transportation Stakeholders Forum, May 13-15, 2014

38



Section 180(c) Mandate

“The Secretary shall provide technical assistance and funds to States for training for public safety officials of appropriate units of local government and Indian tribes through whose jurisdiction the Secretary plans to transport spent nuclear fuel or high-level radioactive waste [to an NWPA-authorized facility].”

- **The training shall cover procedures for safe routine transportation of these materials and procedures for dealing with emergency response situations.**
- **Covers all modes of transport**

Section 180(c) History and Plans

- **Four attempts to implement since 1987 NWPA amendments**
 - 2004-2008 Working Group resulted in a Federal Register Notice that had significant support from Working Group members
- **Working Group reconstituted in Fall of 2012**
 - Identified and began discussions on 10 issues
- **Fall 2013, Inter-regional Team (IRT) formed to continue progress**
- **NTSF 2014**
 - Hear IRT status report
 - Re-engage with tribes
 - Initiate discussions on designing a tabletop exercise for NTSF 2015
 - Discuss START's support of Section 180(c) activities



U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Section 180(c) Working Group

What DOE Heard

- **Tabletop for Section 180(c) at NTSF 2015**
 - Summer: DOE designs exercise, needs assessment
 - Fall: Meetings
 - Winter: Complete exercise
 - NTSF 2015: Interactive tabletop
- **IRT Reported on 10 Issues**
- **Presented START demo**

State Report

- **Tabletop – development can be initiated even though IRT continues working**
 - Don't make needs assessment too burdensome
 - Asked if states can be paid for participation time
- **IRT**
 - States close to consensus on Principles of Agreement and 10 state recommendations

National Transportation Stakeholders Forum, May 13-15, 2014

41





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Plenary Session Outline

- **Nuclear Fuel Storage and Transportation Planning Project (NFST) Overview – Jeff Williams**
- **NFST Transportation System Development Overview – Matt Feldman**
- **Shutdown Sites Report – Steve Maheras**
- **National Transportation Plan – Jay Jones and Teri Engelhart**
- **180(c) Discussion – Erica Bickford and Tammy Ottmer**
- **START / Routing Activities Discussion – Erica Bickford**

National Transportation Stakeholders Forum, May 13-15, 2014

42





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Routing and START Comments

- **Short Line Railroads developing their own routing tool to meet the DOT hazmat rule**
- **Develop relationships between DOE, States and Railroads to identify routes**
- **States only have authority on alternate highway routes**
- **DOE is working with railroads on START development, and implementation of routing regulations**
- **A standard routing process will support uniformity among route selection criteria**
- **Input on how to improve START is welcome**

National Transportation Stakeholders Forum, May 13-15, 2014

43





U.S. DEPARTMENT OF ENERGY
Nuclear Energy

Summary

- **DOE has initiated efforts to prepare for the large-scale transportation of UNF and high-level waste, with an initial focus on removing UNF from the shutdown reactor sites**
- **Development of the transportation system is a multi-year process**
 - Significant Planning for the system can initially be developed without a known destination
 - For full system development to continue, the destination needs to be known at least 4 - 5 years prior to shipment, probably more
- **Collaborative interactions with stakeholders will be key to successful development and operation of a large-scale transportation system**
 - NTP, including routing activities
 - NWPA Section 180(c) Activities

National Transportation Stakeholders Forum, May 13-15, 2014

44

