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December 8, 2022

VIA EMAIL

Hon. Michelle L. Phillips
Secretary to the Commission
3 Empire State Plaza
Albany, NY 12223-1350

Re: Matter No. 21-01188 – In the Matter of the Indian Point Closure Task Force and Indian Point Decommissioning Oversight Board.

Dear Secretary Phillips:

Please accept for filing in the above-captioned matter, the U.S. Department of Energy's December 7, 2022 Presentation to the Indian Point Closure Task Force and Indian Point Decommissioning Oversight Board. Should you have any questions regarding this filing, please contact me. Thank you.

Respectfully submitted,

Tom Kaczmarek
Executive Director
Indian Point Closure Task Force
Indian Point Decommissioning Oversight Board

DOE Integrated Waste Management Program Overview and Transport Planning and Nuclear Power Plant Site Infrastructure Evaluations

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Office of Nuclear Energy

US Department of Energy

Steven J. Maheras

**Pacific Northwest National
Laboratory**

**Indian Point Decommissioning Oversight
Board Meeting
November 7, 2022**

Disclaimer

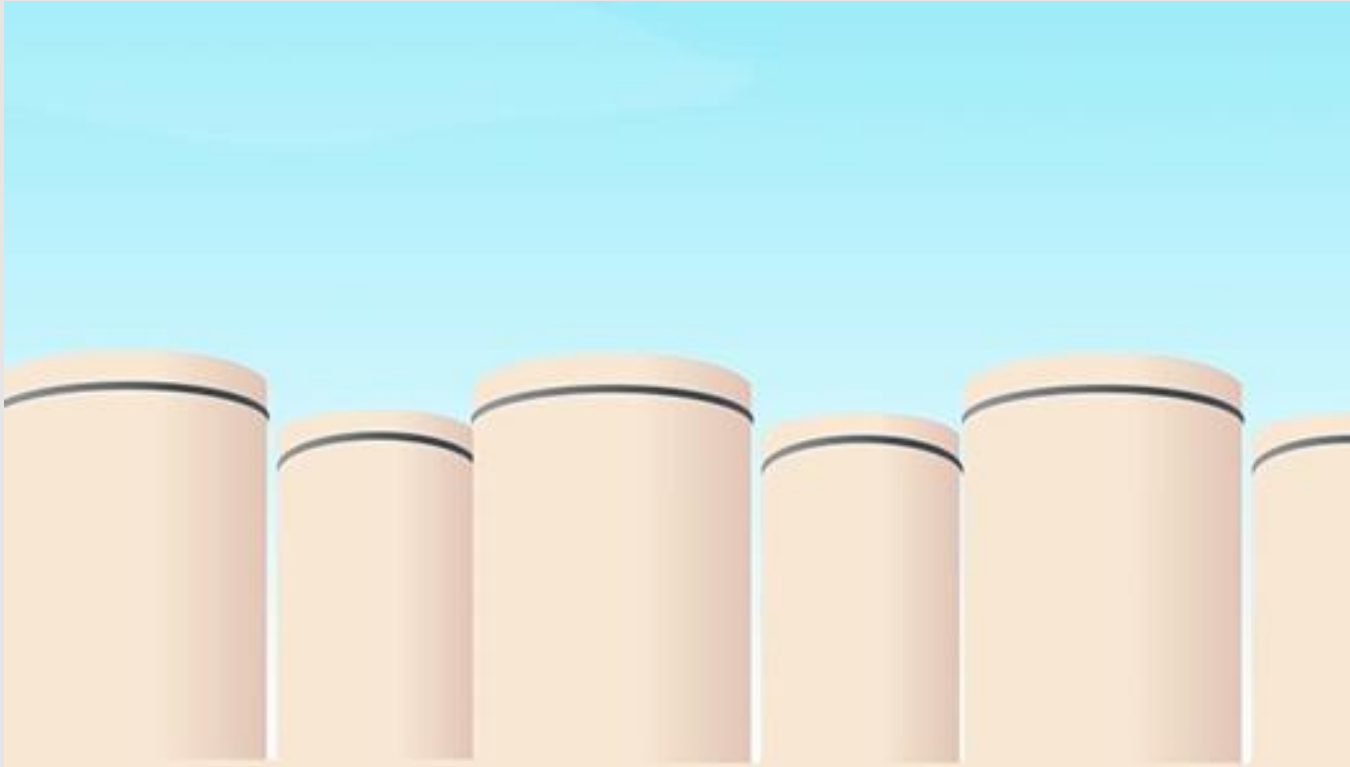
- This is a technical presentation that does not take into account contractual limitations or obligations under the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (Standard Contract) (10 CFR Part 961). For example, under the provisions of the Standard Contract, 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.

Office of Integrated Waste Management

Mission

To implement Federal interim storage for commercial spent nuclear fuel following a consent-based siting process.





Interim Storage

- Allow for removal of spent nuclear fuel from reactor sites
- Provide useful research opportunities
- Build trust and confidence
- Begin to address taxpayer liability

Consent-Based Siting

- Consent-based siting is an approach to siting facilities that focuses on the needs and concerns of people and communities.
- By prioritizing communities and people, we believe we can find a solution to the decades-long stalemate on managing the nation's spent nuclear fuel.
- A consent-based approach, driven by community well-being and community needs, is both the right thing to do and our best chance for success.

Request for Information

- Questions on:
 - the consent-based siting process itself
 - removing barriers to meaningful participation—especially for groups and communities who have not historically been well-represented in these conversation
 - interim storage as a component of the nation's waste management system
- Special focus on ensuring issues of equity and environmental justice are built into the consent-based siting process, as well as the waste management system as a whole



FEDERAL REGISTER

The Daily Journal of the United States Government



Notice

Notice of Request for Information (RFI) on Using a Consent-Based Siting Process To Identify Federal Interim Storage Facilities

A Notice by the [Energy Department](#) on 12/01/2021



PUBLISHED DOCUMENT



AGENCY:

Office of Spent Fuel and Waste Disposition, Office of Nuclear Energy,
Department of Energy.



ACTION:

Request for information.



SUMMARY:

The Office of Nuclear Energy (NE), U.S. Department of Energy (DOE), requests information on how to site Federal facilities for the temporary, consolidated storage of spent nuclear fuel using a consent-based approach. DOE anticipates that communities; governments at the local, State, and Tribal levels; members of



DOCUMENT DETAILS

Printed version:

[PDF](#)

Publication Date:

12/01/2021

Agency:

[Department of Energy](#)

Dates:

Responses to the RFI must be received by March 4, 2022 by 5:00 p.m. (ET).

Document Type:

Notice

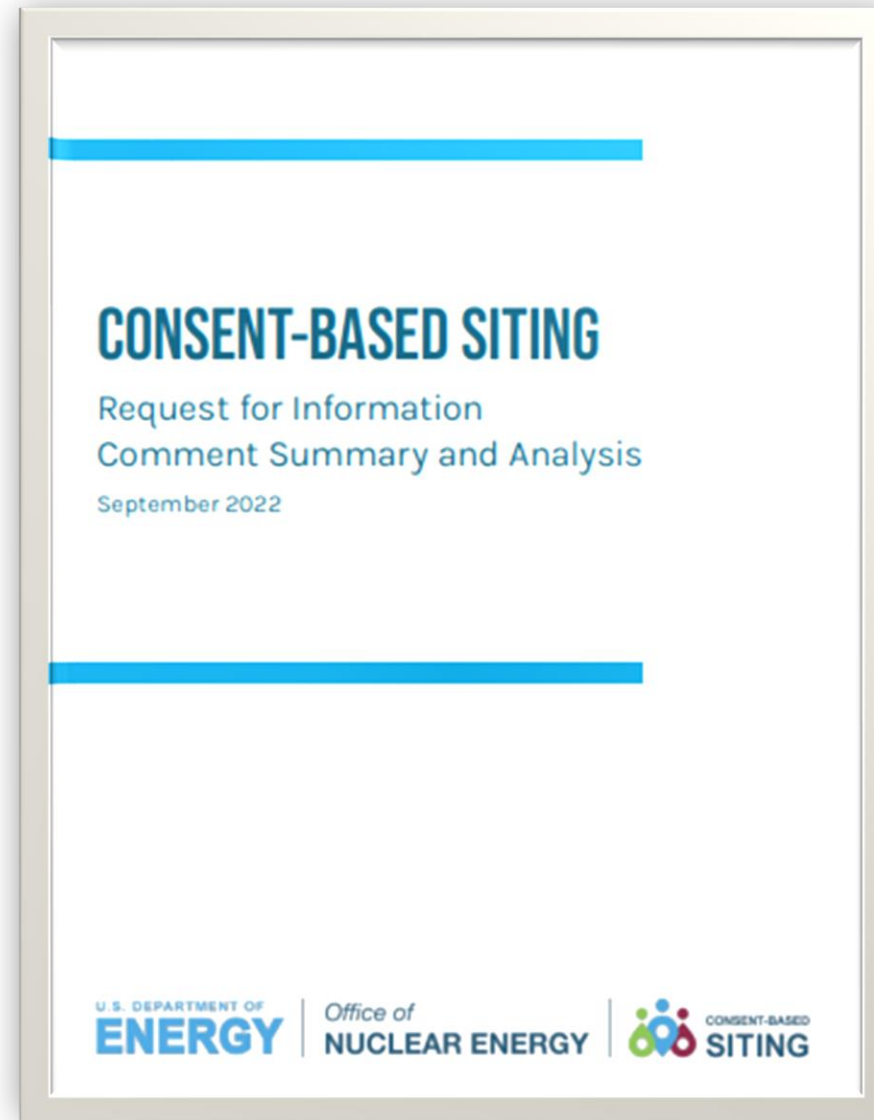
Document Citation:

88 FR 68244

Summary of Feedback

~225 comments as follows:

- **Tribes:** 3 from Tribal groups, 3 from Tribes
- **States:** 12 State government organizations, 3 State and Regional Groups, and 3 groups representing State governments or their interests
- **Local governments:** 7
- **NGOs:** ~35
- **Environmental Justice organizations:** 2
- **Industry:** ~12
- **Members of Academia:** ~7
- **Labor Union:** 1
- **Private Citizens:** ~132 (including 45 “form” letters)



Funding Opportunity Announcement

- Informed by public feedback
- \$16 Million, 6-8 awardees, period of performance 18-24 month
- Not a call for volunteers to host a site
- Reduce barriers for participation
- Increase outreach, enable mutual learning and start building capacity
 - Learning about spent-nuclear fuel and spent nuclear fuel management, consolidated interim storage, consent-based siting and more.

energy.gov/consent-based-siting

The screenshot displays the Energy.gov website. At the top, a dark navigation bar contains links for Newsroom, Leadership, Energy.gov Offices, and National Labs, along with a search function. Below this, a white header features the Office of Nuclear Energy logo and navigation links for ABOUT US, REACTOR TECHNOLOGIES, INITIATIVES, and INFORMATION RESOURCES. The main content area has a green background with the title "Funding Opportunity Announcement: Community Engagement on Consent-Based Siting" in white. Below the title, it says "Office of Nuclear Energy". A white box contains the sub-header "Office of Nuclear Energy » Funding Opportunity Announcement: Community Engagement on Consent-Based Siting" and the main title "Funding to Support Community Engagement on Consent-Based Siting". The text below states: "The Department of Energy (DOE) issued a \$16 million funding opportunity announcement (FOA) to provide resources for communities interested in learning more about consent-based siting, management of spent nuclear fuel, and interim storage facility siting considerations. Award recipients will promote dialogue that helps foster the development of innovative community ideas, incorporates principles of equity and environmental justice into community engagement strategies, and captures feedback related to the interim storage of spent nuclear fuel and high-level radioactive waste."

Public Feedback is Informing Next Steps in Consent-Based Siting

1

Further developing
consent-based siting
process

2

Implementing
funding opportunity
for interested groups
and communities to
learn more

3

Clarifying our
broader strategy for
an integrated waste
management system

Looking Ahead



Consent-based siting and addressing societal challenges



Need for a disposal pathway



Extended storage research



Foreseeing waste management from advanced reactors deployment



Knowledge management



Subscribe for Updates

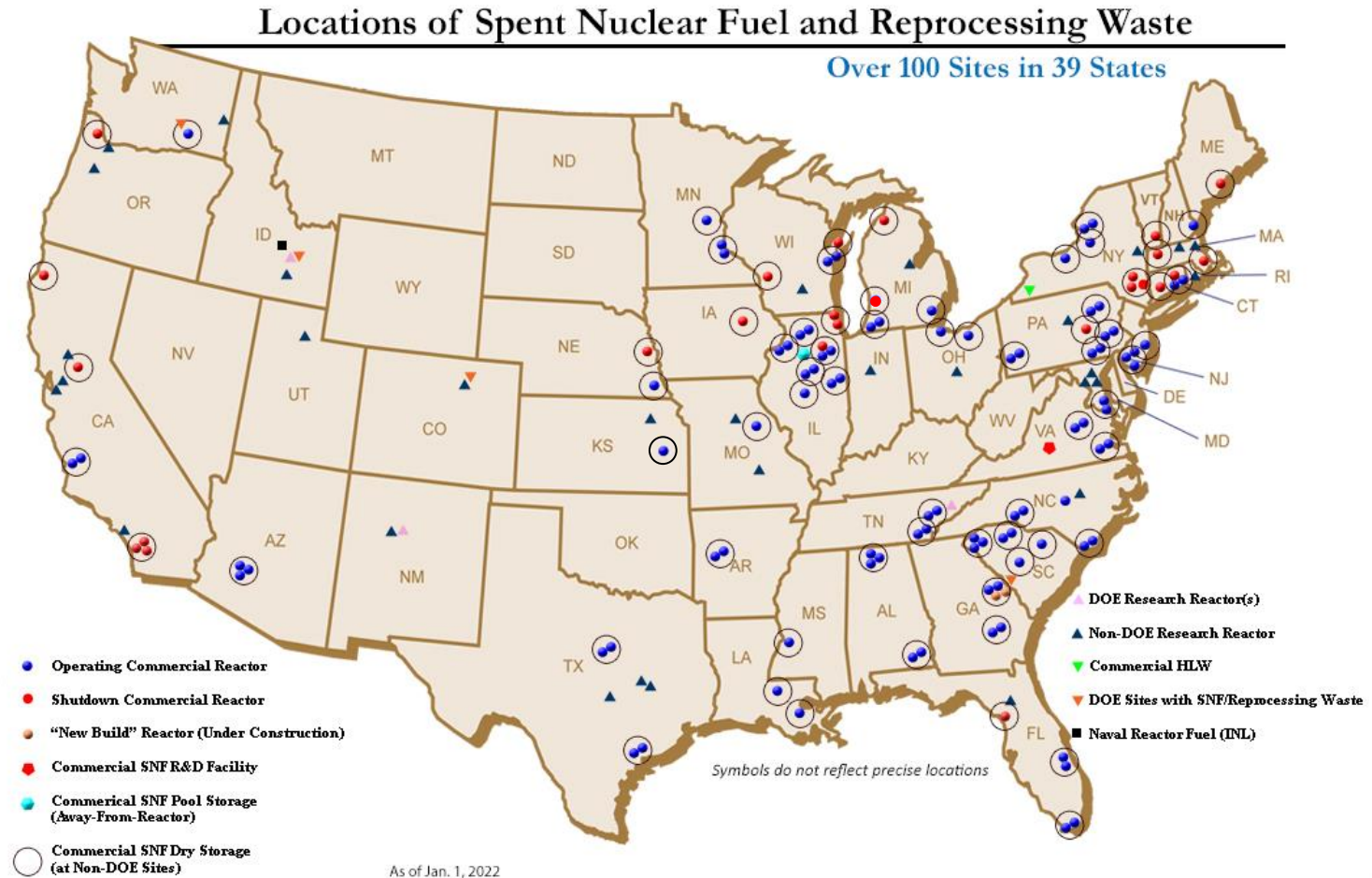
Get the latest news from the Office of Nuclear Energy in your inbox. [Sign up here.](#)

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**More information at
[energy.gov/consent
basedsiting](https://energy.gov/consentbasedsiting)**

Planning for DOE Transport of Spent Nuclear Fuel

- Nearly all existing commercial spent nuclear fuel (SNF) is stored at the reactor sites where it was generated
- Of the 74 commercial reactor sites, 20 sites have ceased reactor operations
- Large-scale SNF transportation capabilities will be required to move commercial SNF from reactor sites to federal interim storage site(s)



DOE Transportation Activities

- Railcar development
- Analytical tools
- Intergovernmental engagement
- Package Performance Test
- Documenting site-specific history and conditions through site evaluations



Railcar Development



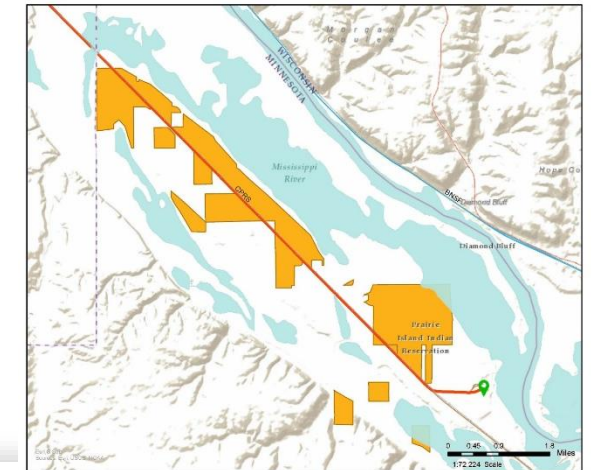
DOE is developing railcars to comply with the Association of American Railroads (AAR) Standard S-2043

- **Atlas** 12-axle cask carrying railcar is undergoing testing – expected to be approved for use in 2023. A 4-axle flat deck **buffer** railcar was also developed.
- **Fortis** 8-axle cask carrying railcar has an AAR-approved design. DOE placed the contract for fabrication and testing in 2022.
- **Rail Escort Vehicle (REV)** – carry security personal as well as safety and security monitoring equipment.
- Integrated Security & Security Monitoring System is being developed (**ISSMS**) for railcars.

Stakeholder Tool for Assessing Radioactive Transportation (START)



- DOE continues to develop the Stakeholder Tool for Assessing Radioactive Transportation (START)
- Web-based GIS application capable of generating and analyzing route options for transporting radioactive materials by any surface or water mode
- Produces route performance measures and maps to support analysis and communication
- Provides input to DOE systems and logistics models
- Capable of producing data for transportation-related environmental analyses



Intergovernmental Engagement

- Cooperative Agreements with State Regional Groups and Tribes
- DOE Office of Nuclear Energy Transportation Core Group
- Federal agency coordination
- DOE's **National Transportation Stakeholders Forum (NTSF)**
 - State and Tribal governments
 - DOE program offices with current/planned radioactive material transport
 - Other Federal agencies (US DOT, US NRC)
 - Annual Meeting (St. Louis, MO May 2023)
 - www.NTSF.info



National Transportation Stakeholders Forum

NTSF Ad Hoc Working Group Activities

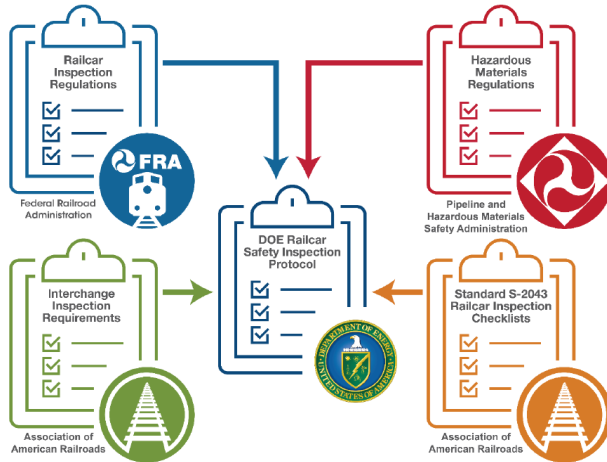
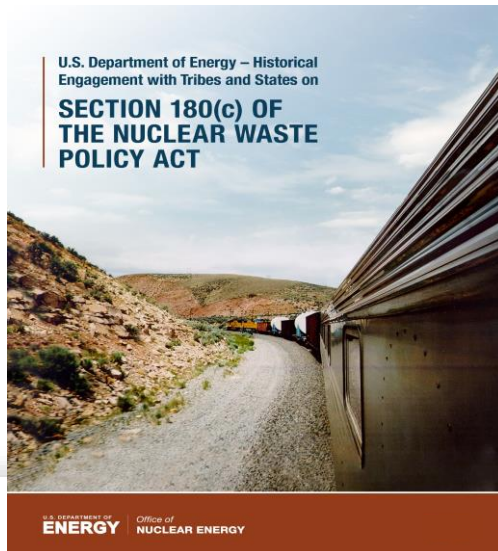


Figure S-1. Components of DOE Railcar Safety Inspection Protocol



- **SNF Rail/Routing AHWG**

- **Draft Railcar Safety Inspection Protocol:** developed through the NTSF Rail/Routing AHWG was shared with State Regional Groups and TRMTC support staff and comments were incorporated. Next steps are to develop a cross-walk of rail and highway regulations and inspection requirements for transporting radioactive materials.

- **Section 180(c) AHWG**

- **Section 180(c) Historical Summary Report released:** IWM published the knowledge management document which summarizes activities conducted between 1983 and 2017 by DOE and various DOE-supported working groups to examine issues related to implementation of Section 180(c) of the Nuclear Waste Policy Act of 1982, as amended (NWPA).

Package Performance Test

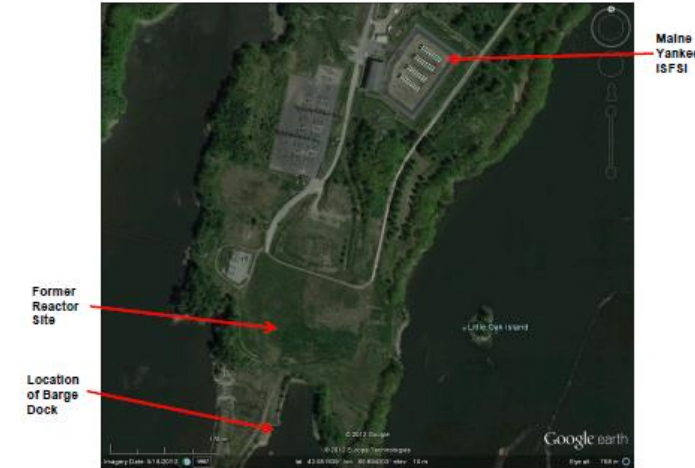
- Developing preliminary plans for a **full-sized rail cask package test** (actual testing will depend on funding).
 - DOE will lead, and invite NRC to participate
- US has not tested a full-sized rail SNF transportation cask
- Endorsed by National Academy of Sciences and the Blue Ribbon Commission
- Test will include regulatory tests (drop test, fire) 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



Nuclear Power Plant Site Infrastructure Evaluations

Nuclear Power Plant (NPP) Infrastructure Evaluations

- The purpose of evaluations is to support planning or proposals for removing spent nuclear fuel (SNF) from nuclear power plant sites
 - Site inventory
 - Site conditions
 - Near-site transportation infrastructure and experience
- Identify gaps in information needed to ship SNF from the nuclear power plant sites
- Based on the available information, identify options for transporting SNF from nuclear power plant sites



Maine Yankee Site

NPP Site Evaluations

- Confirmed aspects of inventories at the sites, obtained detailed inventory data by canister, and canister load maps
- Observed transportation infrastructure at and near sites
- Participation by Tribal, Federal Railroad Administration (FRA), State, and State Regional Group (SRG) representatives has provided unique perspectives and observations
- Information provided by the sites coupled with the opportunity to visit each site has been critical to DOE's understanding of the conditions at and near the sites



Current Condition of Onsite Rails at Maine Yankee



Fort Calhoun Independent Spent Fuel Storage Installation

NPP Site Inventories

- **NPP SNF site inventories based on the GC-859 Nuclear Fuel Data Survey**

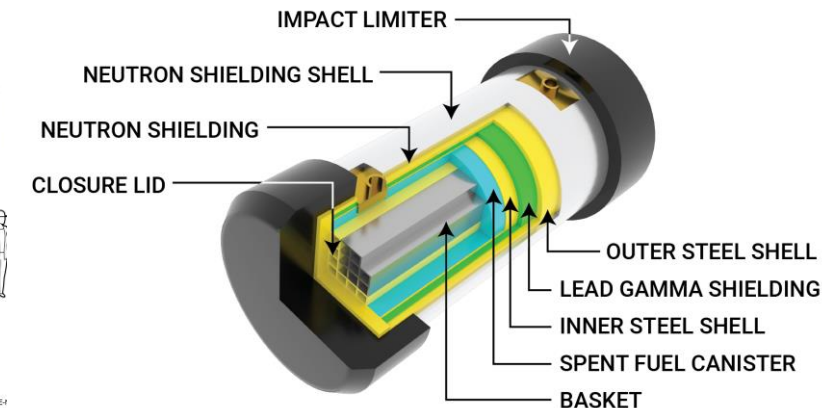
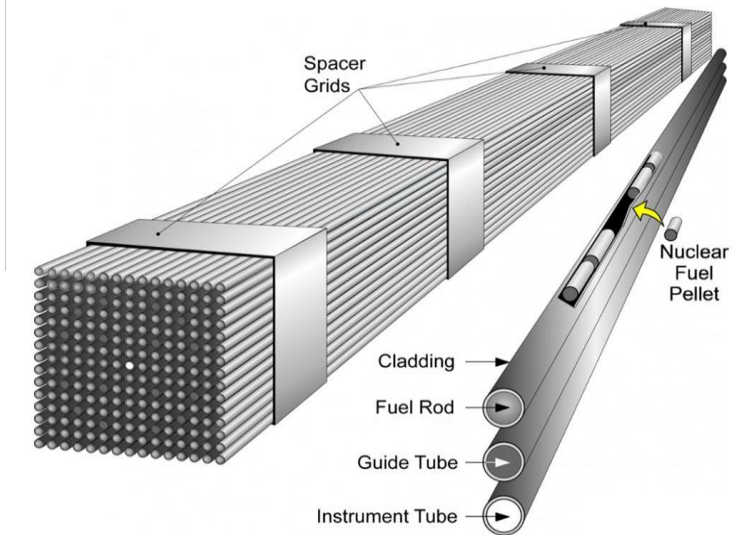
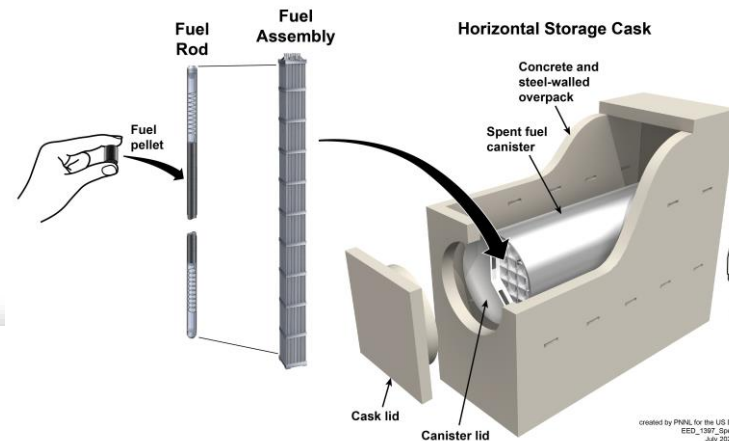
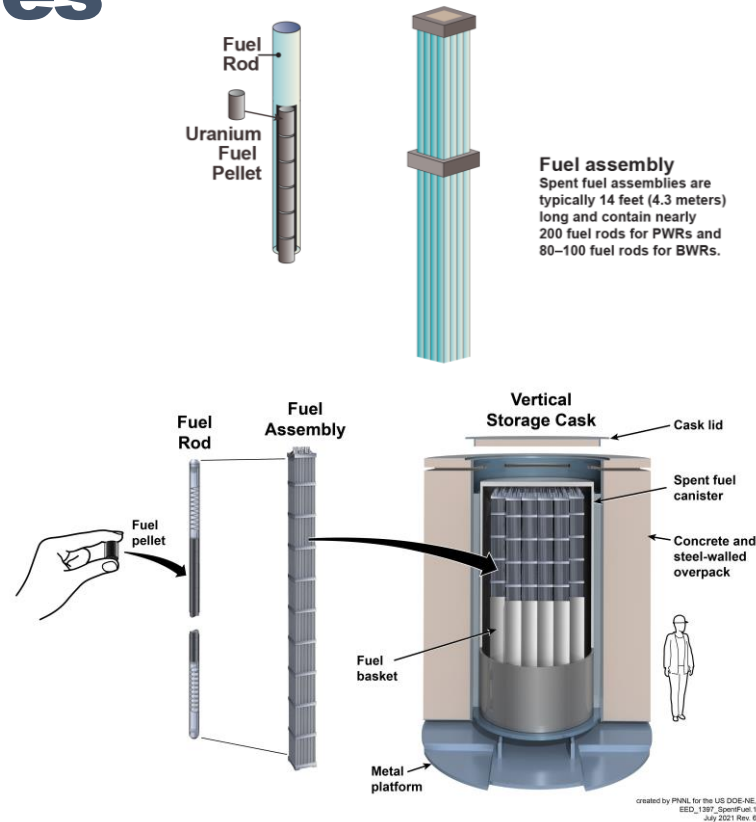
- Most recent data through December 31, 2017
- Number of spent nuclear fuel assemblies
- Metric tons heavy metal (MTHM)
- Assembly ID and type, Discharge date, burnup, enrichment of SNF assemblies

- **Type and number of SNF storage systems (vendor and model) used at each site's ISFSI**

- Canisters containing SNF
- Canisters containing Greater than Class C (GTCC) waste
- Loading maps, logs, etc.

- **Storage features/conditions**

- Number of damaged fuel assemblies
- Number of high burnup fuel assemblies



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**



Trojan Transfer Station
Photo courtesy of Trojan



Onsite Rail Spur at La Crosse
Photo courtesy of La Crosse



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

Near-Site Transportation Infrastructure and Experience

- Evaluate transportation mode options for the sites
- Near-Site Rail Access
 - Condition and capacity of near-site rail infrastructure
 - Potential transload locations
 - Site experience with rail shipments
- Local Roads and Highways
 - Distance to potential rail 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/shorelines
 - Site experience with barge shipments

Junction of Onsite
Rail Spur and
Union Pacific
Railroad at Zion



Low Overhead
Bridge Near Big
Rock Point



Railroad Grade
Crossing at East
Portal of Hoosac
Tunnel Near
Yankee Rowe



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



**Turbine
Component
Unloading at
Crystal River**



**Steam Generator
Shipping
Near Kewaunee**

**Reactor Pressure
Vessel Shipping
at Maine Yankee**



**Reactor Pressure
Vessel Shipping
at La Crosse**

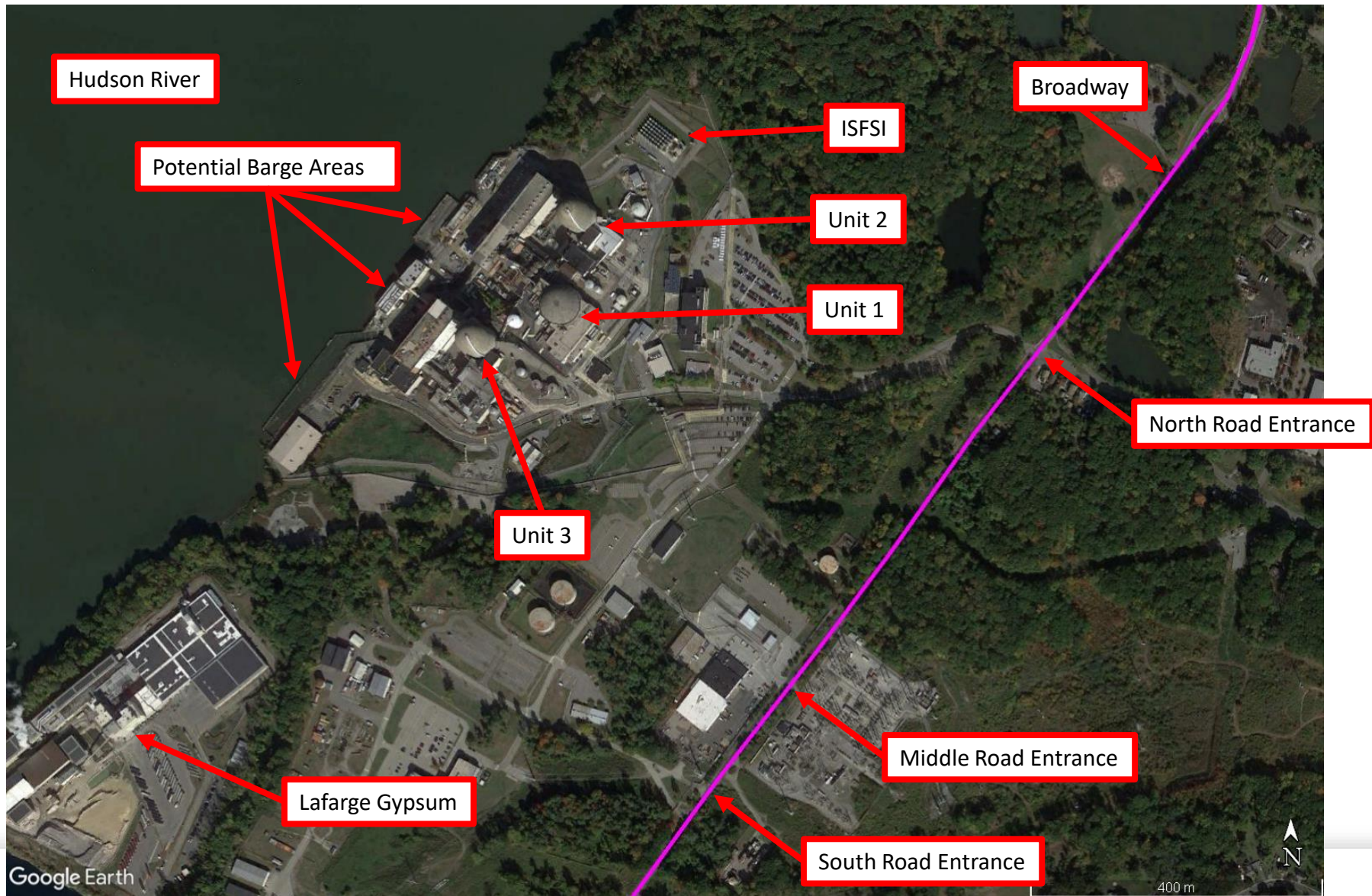


Indian Point Site Evaluation

- Site evaluation conducted July 25-29, 2022
- Participants from US Department of Energy, Pacific Northwest National Laboratory, Tribal Radioactive Materials Transportation Committee (TRMTC), Federal Railroad Administration (FRA), US Nuclear Regulatory Commission, Council of State Governments Eastern Regional Conference (CSG ERC), NYS Energy Research and Development Authority (NYSERDA), NYS Department of Health, NY State Police, NYS Department of Public Service, and NYS Dept. of Transportation, Motor Carrier Compliance Bureau
- Day 1– Onsite at Indian Point
- Day 2 – Near-site transportation infrastructure evaluation of potential transload locations
 - Housatonic Railroad, Metro North, CSX Railroad
 - Attended Indian Point DOB Meeting in the evening
- Day 3 – External engagement
 - Meeting with Indian Point DOB
 - Meeting with NYS Transportation staff



Aerial View of Indian Point Site



Aerial View of ISFSI (2020)



Indian Point ISFSI



Looking West Towards Hudson River



Looking North

Vertical Cask Transporter, Barge Area, and Road to Barge Area



Vertical Cask Transporter



Looking North

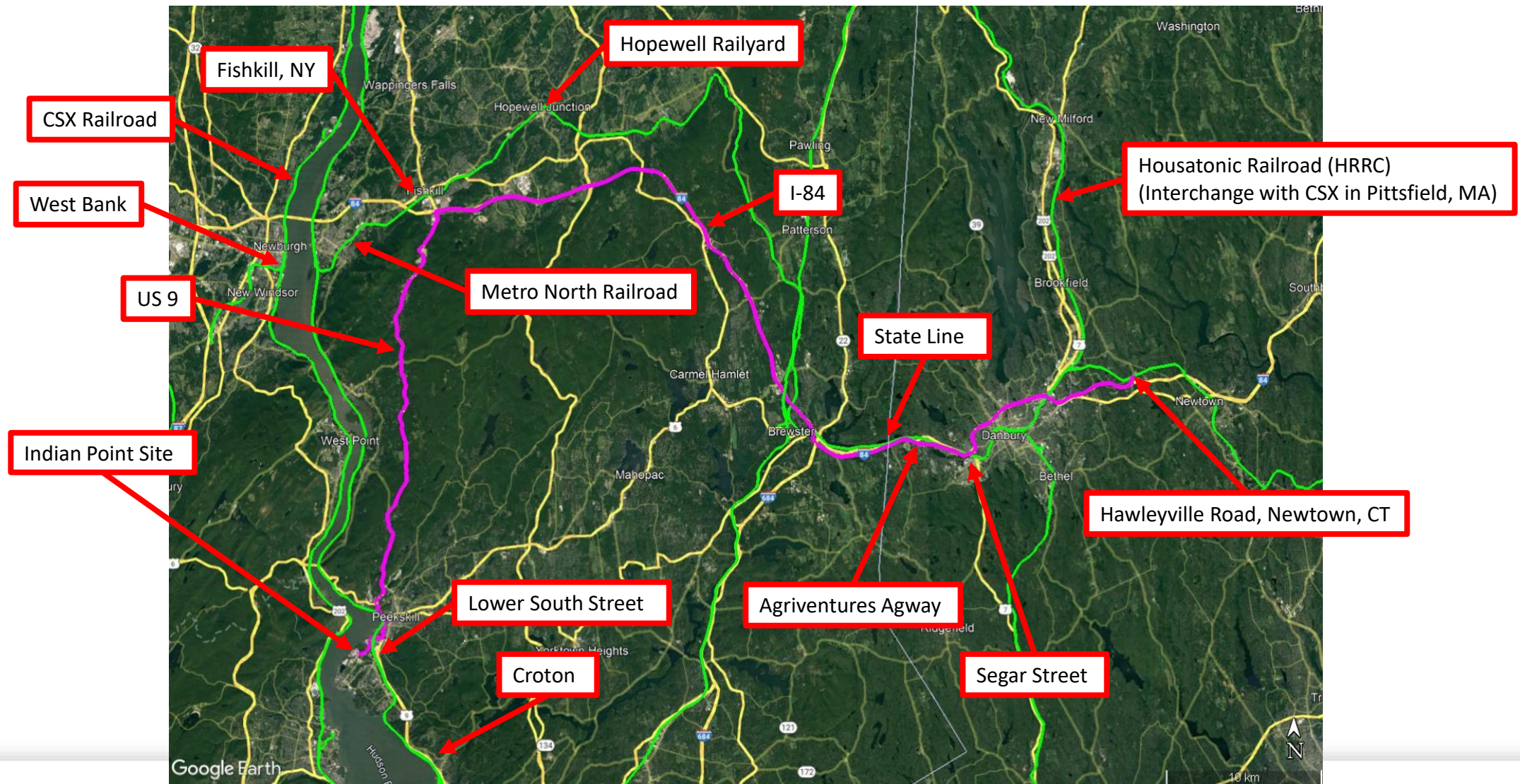


Looking West

Eight Potential Transload Locations Evaluated

- **Hawleyville Road, Newtown, CT – Housatonic Railroad (HRRC)**
 - Currently being used for rail shipments of low-level waste shipments to Andrews, TX
 - 57 miles from Indian Point
- **Segar Street, Danbury, CT – HRRC**
 - 50 miles from Indian Point
- **Agriventures Agway, Danbury, CT – HRRC**
 - Used to transload transformer
 - 47 miles from Indian Point
- **State Line, Danbury, CT – HRRC**
 - 46 miles from Indian Point
- **Hopewell Railyard, Hopewell Junction, NY – Metro North**
 - 28 miles from Indian Point
- **Croton, NY – Metro North**
 - 7 miles from Indian Point
- **Lower South Street, Peekskill, NY – Metro North**
 - 1.7 miles from Indian Point
- **West Bank of Hudson River, Newburgh, NY – CSX Railroad**
 - Cross Hudson River using I-84 Newburgh-Beacon Bridge
 - 31 miles from Indian Point

Potential Heavy Haul Route to Hawleyville Road Transload Location



Hawleyville Road Potential Transload Location

Looking Southwest



Hawleyville Road Entrance (Looking Southwest)



131 lb. Rail



Looking North on
Hawleyville Road

Croton Railyard Potential Transload Location



Looking Southeast



Looking Northwest



Looking Southeast

West Bank of Hudson River Potential Transload Location

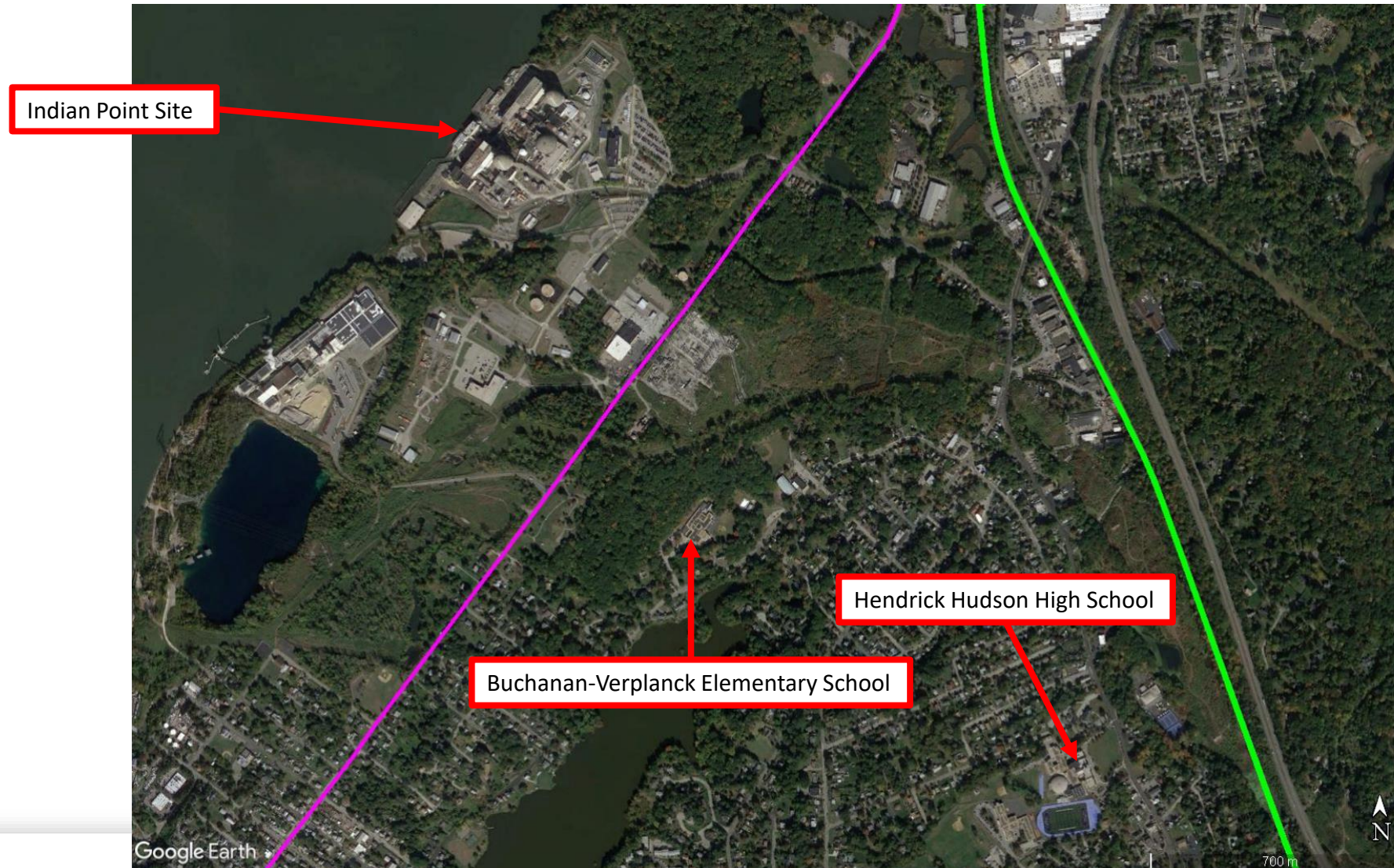


Looking North

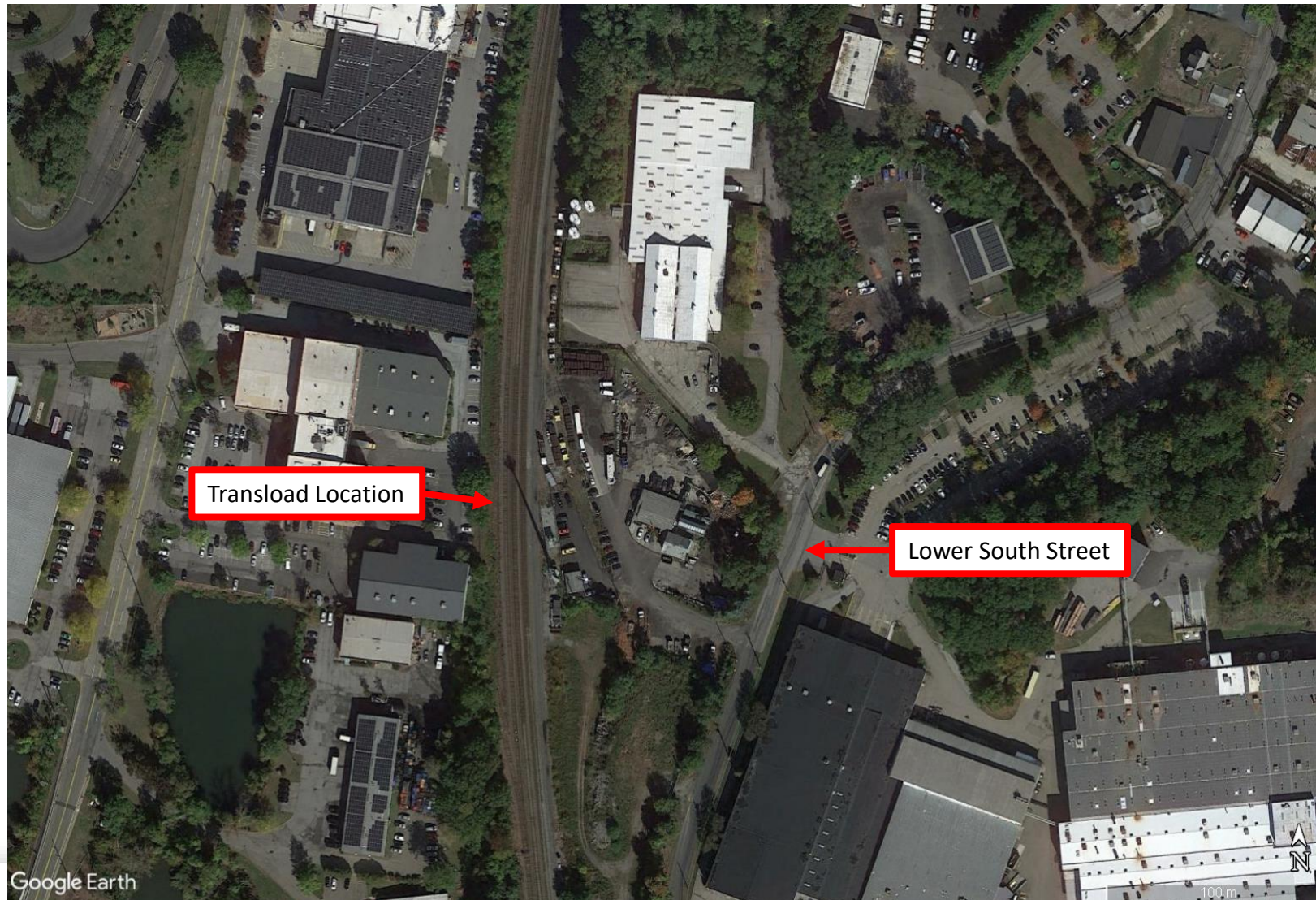


Looking South

Local Schools in the Vicinity of Indian Point



Lower South Street Potential Transload Location



Google Earth

Lower South Street Potential Transload Location



Looking North



Looking South

Transportation Mode Options

SITE	TRANSPORTATION MODE OPTIONS	
Maine Yankee	 DIRECT RAIL	 BARGE to RAIL
Yankee Rowe	 HEAVY HAUL TRUCK to RAIL	
Connecticut Yankee	 BARGE to RAIL	 HEAVY HAUL TRUCK to RAIL
Humboldt Bay	 HEAVY HAUL TRUCK to RAIL	 HEAVY HAUL TRUCK to BARGE to RAIL
Big Rock Point	 HEAVY HAUL TRUCK to RAIL	 BARGE to RAIL
Rancho Seco	 DIRECT RAIL	
Trojan	 DIRECT RAIL	 BARGE to RAIL
La Crosse	 DIRECT RAIL	 BARGE to RAIL
Zion	 DIRECT RAIL	 BARGE to RAIL
Crystal River	 DIRECT RAIL	 BARGE to RAIL
Kewaunee	 HEAVY HAUL TRUCK to RAIL	 HEAVY HAUL TRUCK to BARGE to RAIL
San Onofre	 DIRECT RAIL	 HEAVY HAUL TRUCK to BARGE to RAIL
Vermont Yankee	 DIRECT RAIL	
Fort Calhoun	 DIRECT RAIL	 BARGE to RAIL
Oyster Creek	 BARGE to RAIL	 HEAVY HAUL TRUCK to RAIL
Pilgrim	 BARGE to RAIL	 HEAVY HAUL TRUCK to RAIL
Morris	 DIRECT RAIL	 HEAVY HAUL TRUCK to BARGE to RAIL
Dresden	 DIRECT RAIL	 BARGE to RAIL
Indian Point	 HEAVY HAUL TRUCK to RAIL	 BARGE to RAIL
Palisades	 HEAVY HAUL TRUCK to RAIL	 BARGE to RAIL

Questions?

U.S. DEPARTMENT OF
ENERGY

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