



# **National Transportation Stakeholders Forum**

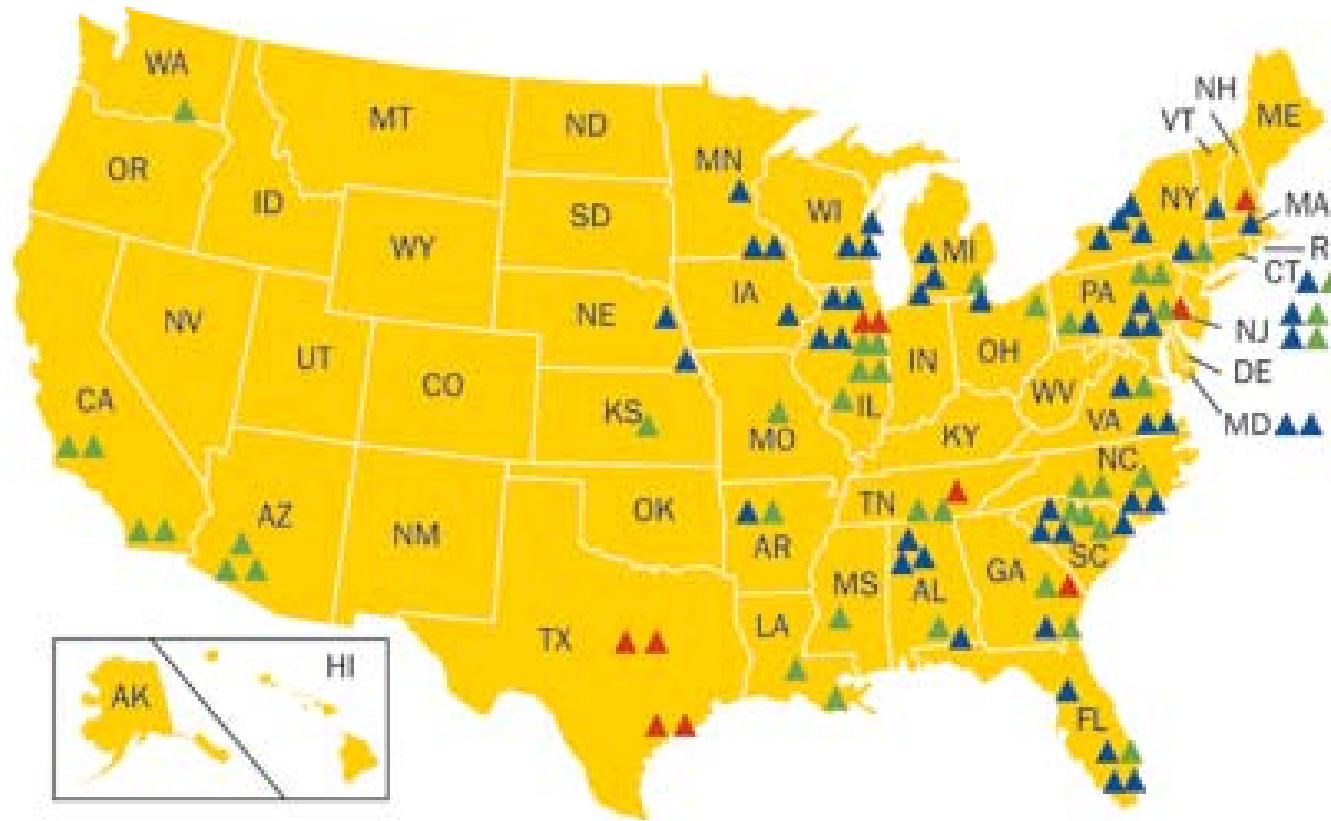
**2011 Annual Meeting**

**May 11, 2011**

**Evaluation of Shortline Railroads  
&  
SNF/HLW Rail Shipment Inspections**

**Tasked for the Transportation of Spent Nuclear Fuel**

## U.S. Commercial Nuclear Power Reactors—Years of Operation



**Years of Commercial Operation**

- △ 0-9
- ▲ 10-19
- ▲ 20-29
- ▲ 30-39

**Number of Reactors**

- 0
- 10
- 42
- 52

Source: U.S. Nuclear Regulatory Commission



# Evaluation of Shortline Railroads

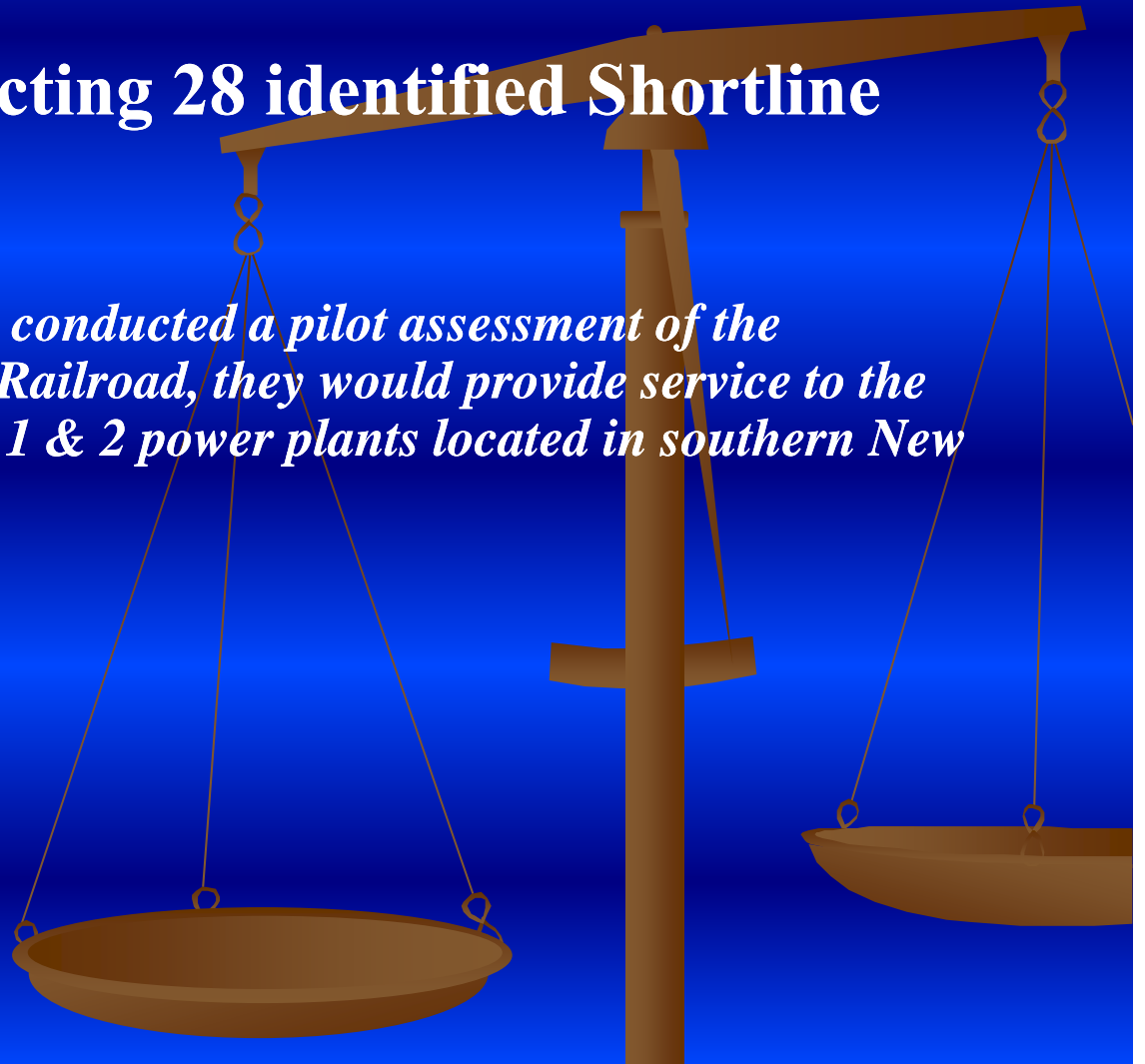
## ■ **Task:**

- **Identify Shortline Railroads Serving Nuclear Power Plants**
- **Establish Contact Information with Railroads Officials**
- **Field Review of each Railroad's Physical and Operational Infrastructure**
- **Facilitate Upgrades to Meet Safe Acceptable Standards**



# Evaluation of Shortline Railroads

- **Began by Contacting 28 identified Shortline Railroads**
- *In September, 2007, we conducted a pilot assessment of the Winchester & Western Railroad, they would provide service to the Hope Creek and Salem 1 & 2 power plants located in southern New Jersey*



# Evaluation of Shortline Railroads

## ■ Physical and Operational Infrastructure Survey Information

### TRACK INFORMATION

CLASS ONE RAILROAD CONNECTION -

CLASS of TRACK -

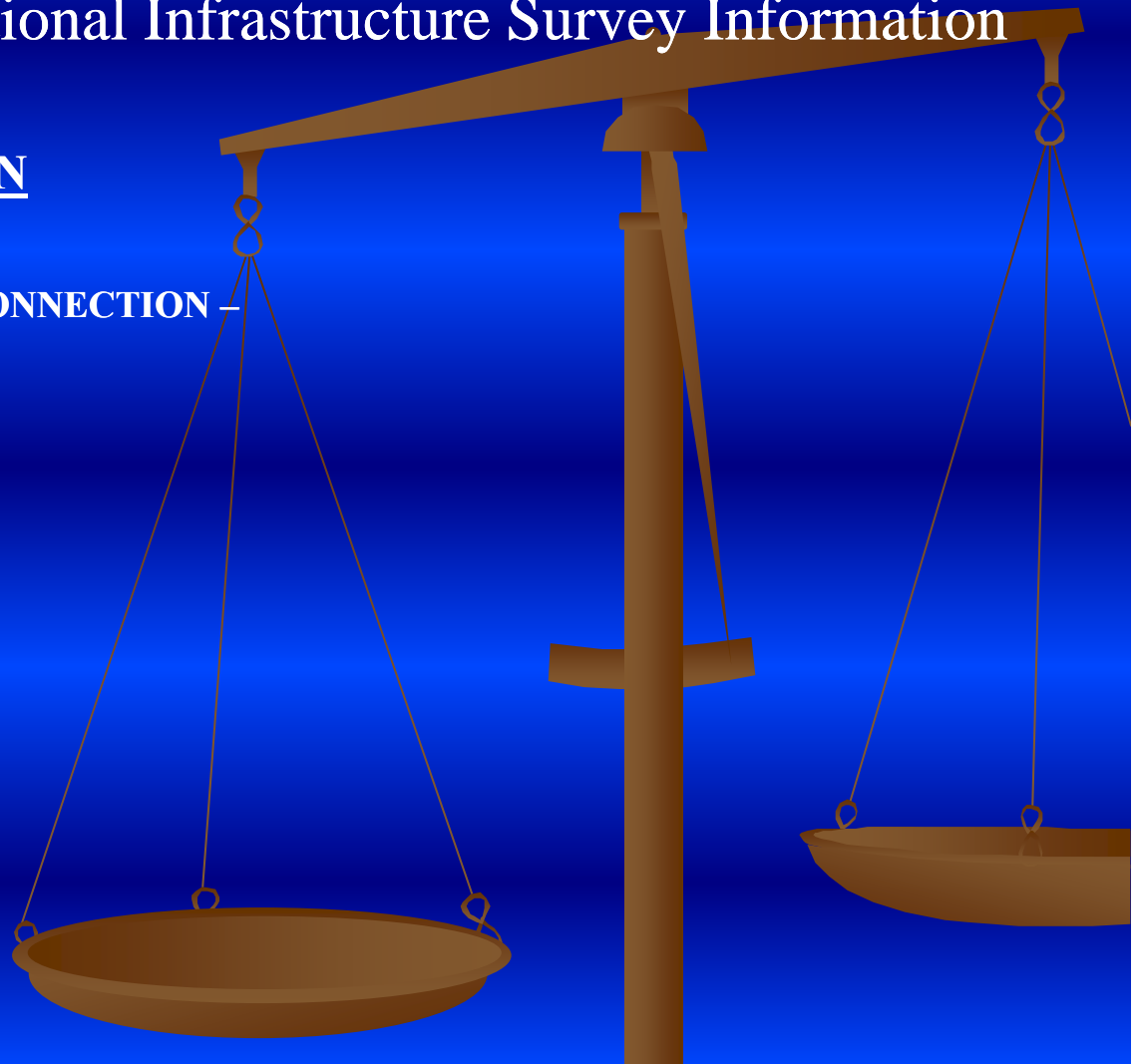
RAIL WEIGHT

≥100 LBS -

<100 LBS -

TRACK OWNERSHIP -

TRACK RESTRICTIONS -



# Evaluation of Shortline Railroads

- Physical and Operational Infrastructure Survey Information

## O P INFORMATION

**METHOD of OPERATION –**

**Signaled Territory -**

**Dispatched -**

**Joint Operations -**

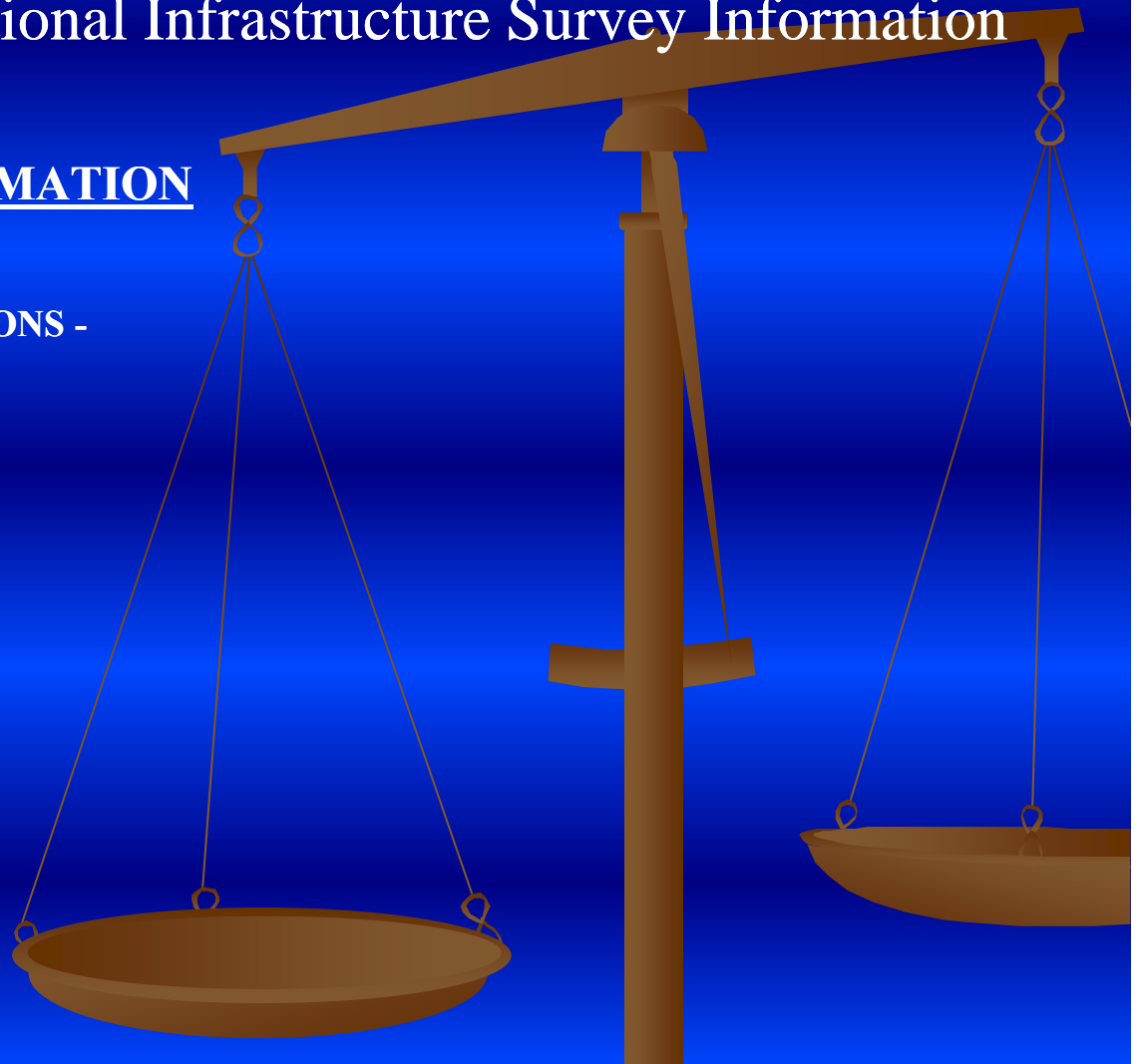


# Evaluation of Shortline Railroads

- Physical and Operational Infrastructure Survey Information

## MECHANICAL INFORMATION

EQUIPMENT RESTRICTIONS -





# Evaluation of Shortline Railroads

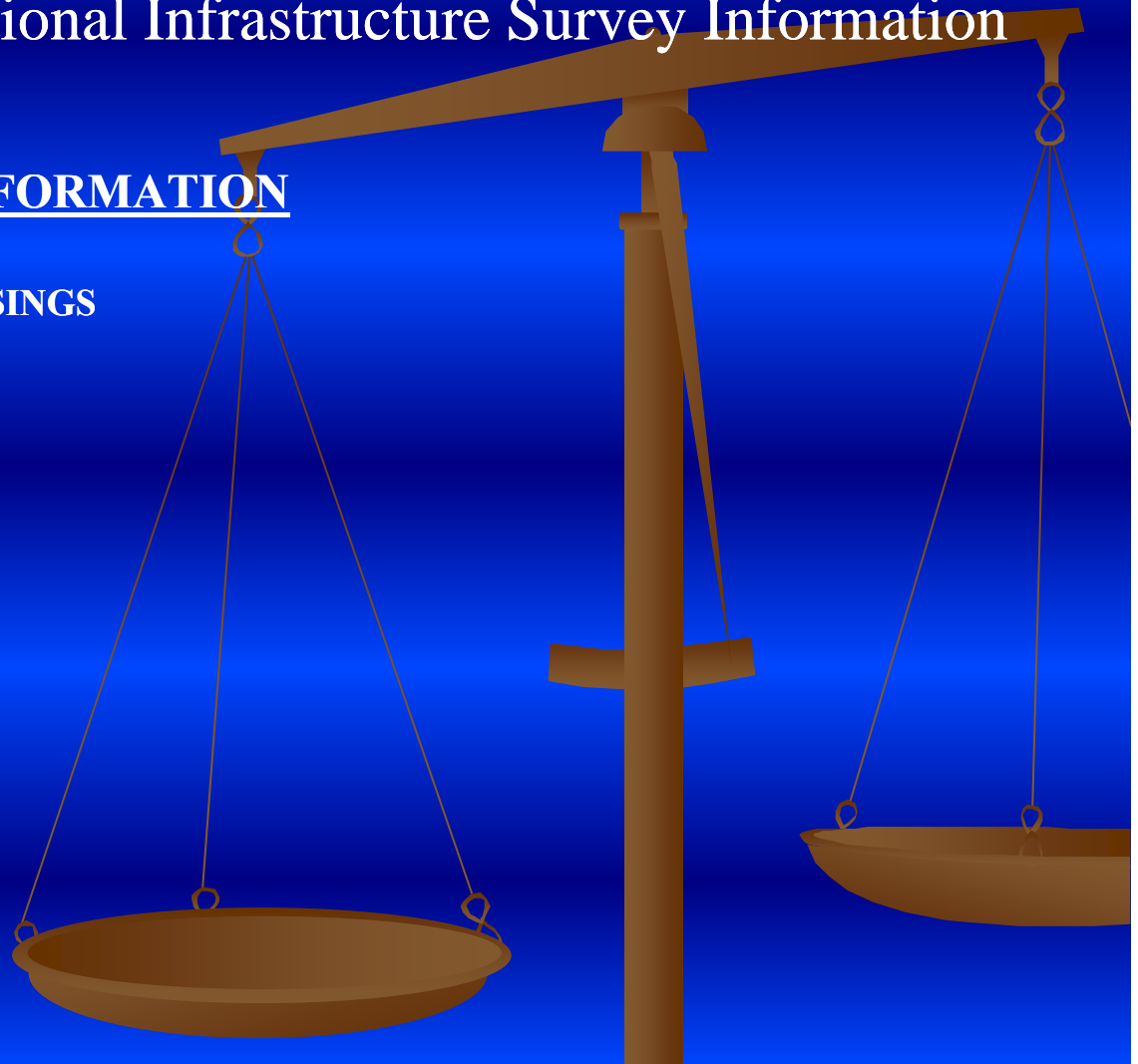
- Physical and Operational Infrastructure Survey Information

## GRADE CROSSING INFORMATION

NUMBER of GRADE CROSSINGS

ACTIVE -

PASSIVE -



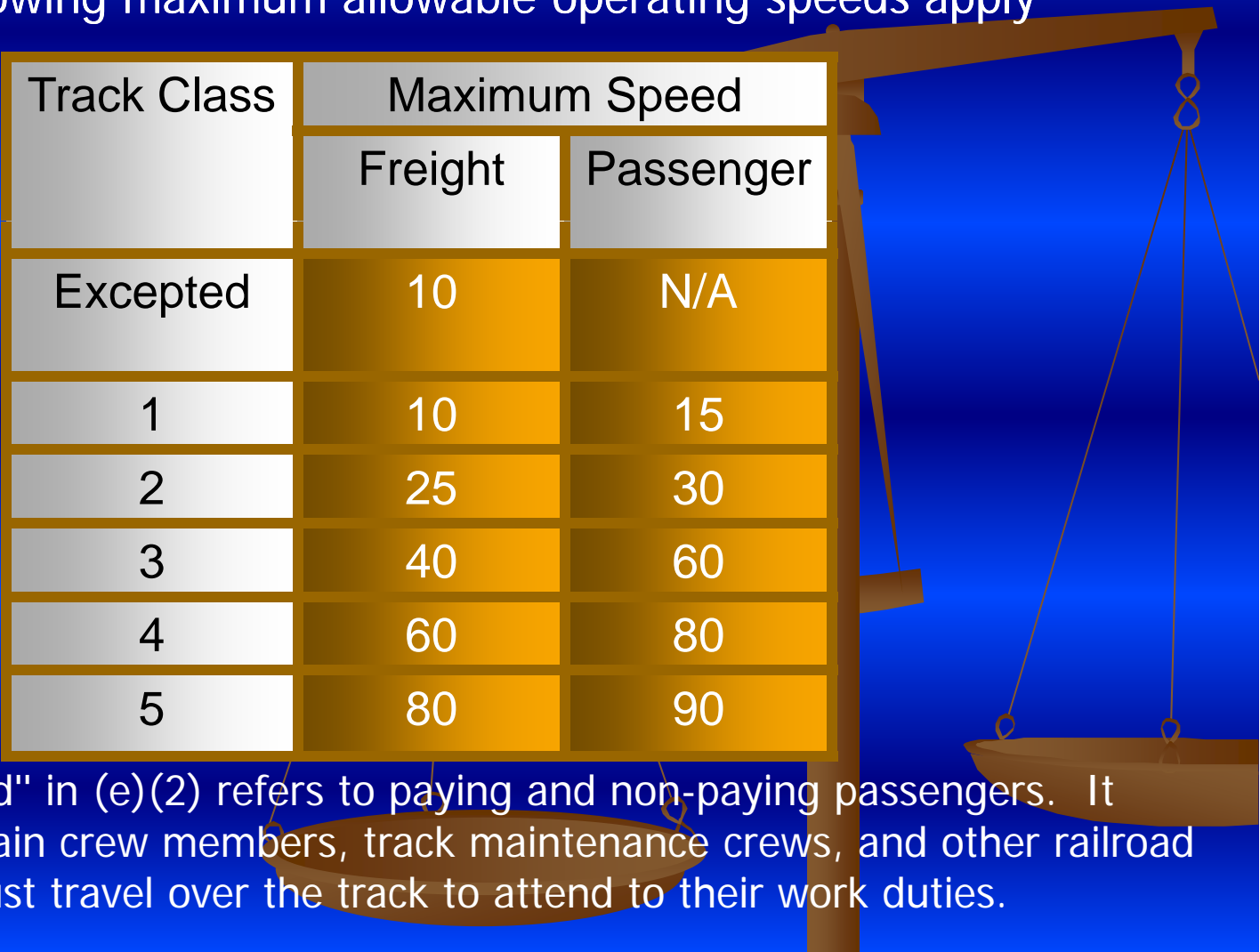
# Evaluation of Shortline Railroads

## CLASS 3 vs. EXCEPTED TRACK



# Evaluation of Shortline Railroads

The following maximum allowable operating speeds apply

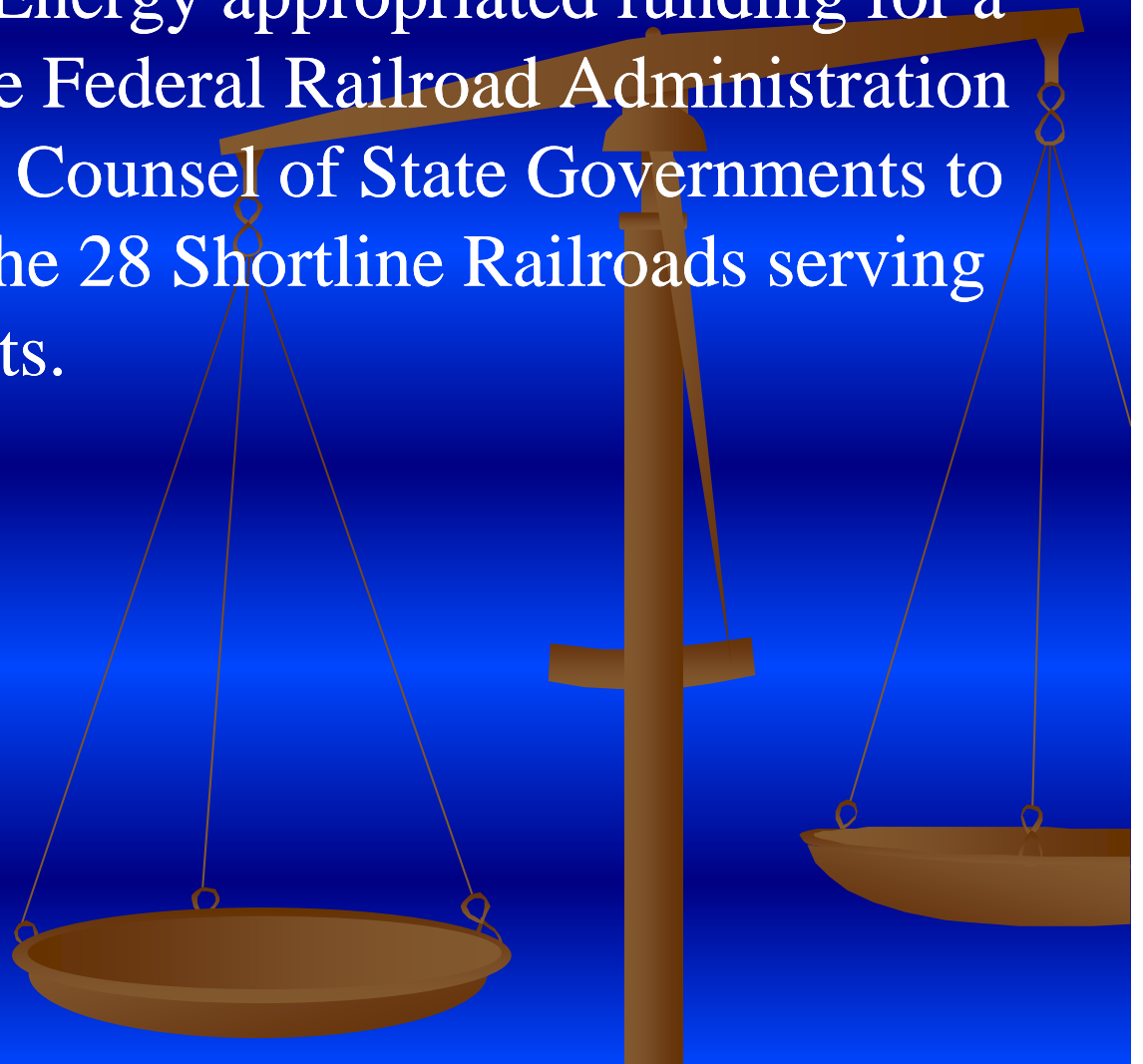


Track Class	Maximum Speed	
	Freight	Passenger
Excepted	10	N/A
1	10	15
2	25	30
3	40	60
4	60	80
5	80	90

The word "occupied" in (e)(2) refers to paying and non-paying passengers. It does not include train crew members, track maintenance crews, and other railroad employees who must travel over the track to attend to their work duties.

# Evaluation of Shortline Railroads

- The Department of Energy appropriated funding for a joint project with the Federal Railroad Administration accompanied by the Counsel of State Governments to conduct a study of the 28 Shortline Railroads serving Nuclear Power Plants.

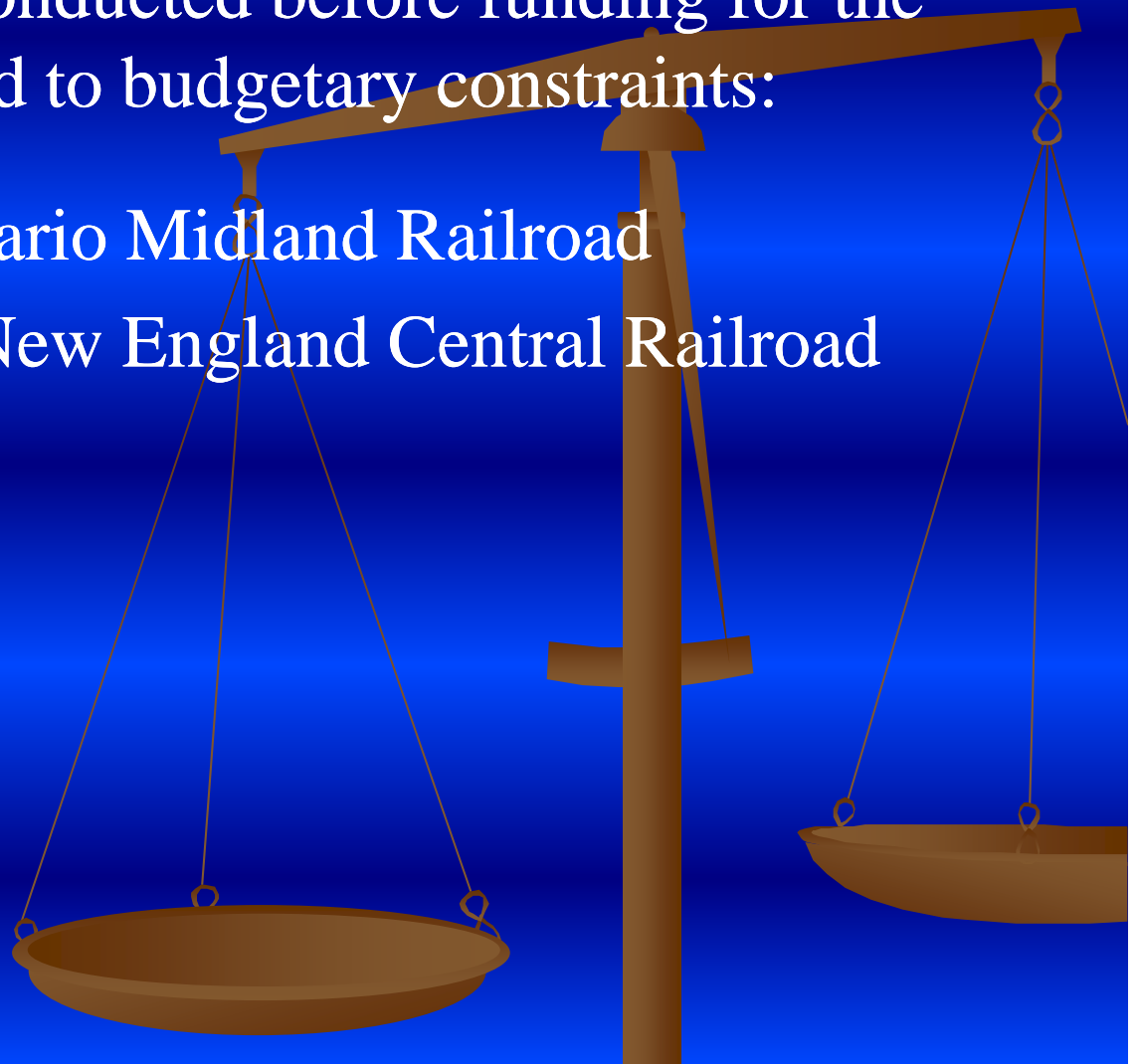


# Evaluation of Shortline Railroads

- Two studies were conducted before funding for the study was suspended to budgetary constraints:

GINNA NPP/Ontario Midland Railroad

Vermont NPP/New England Central Railroad

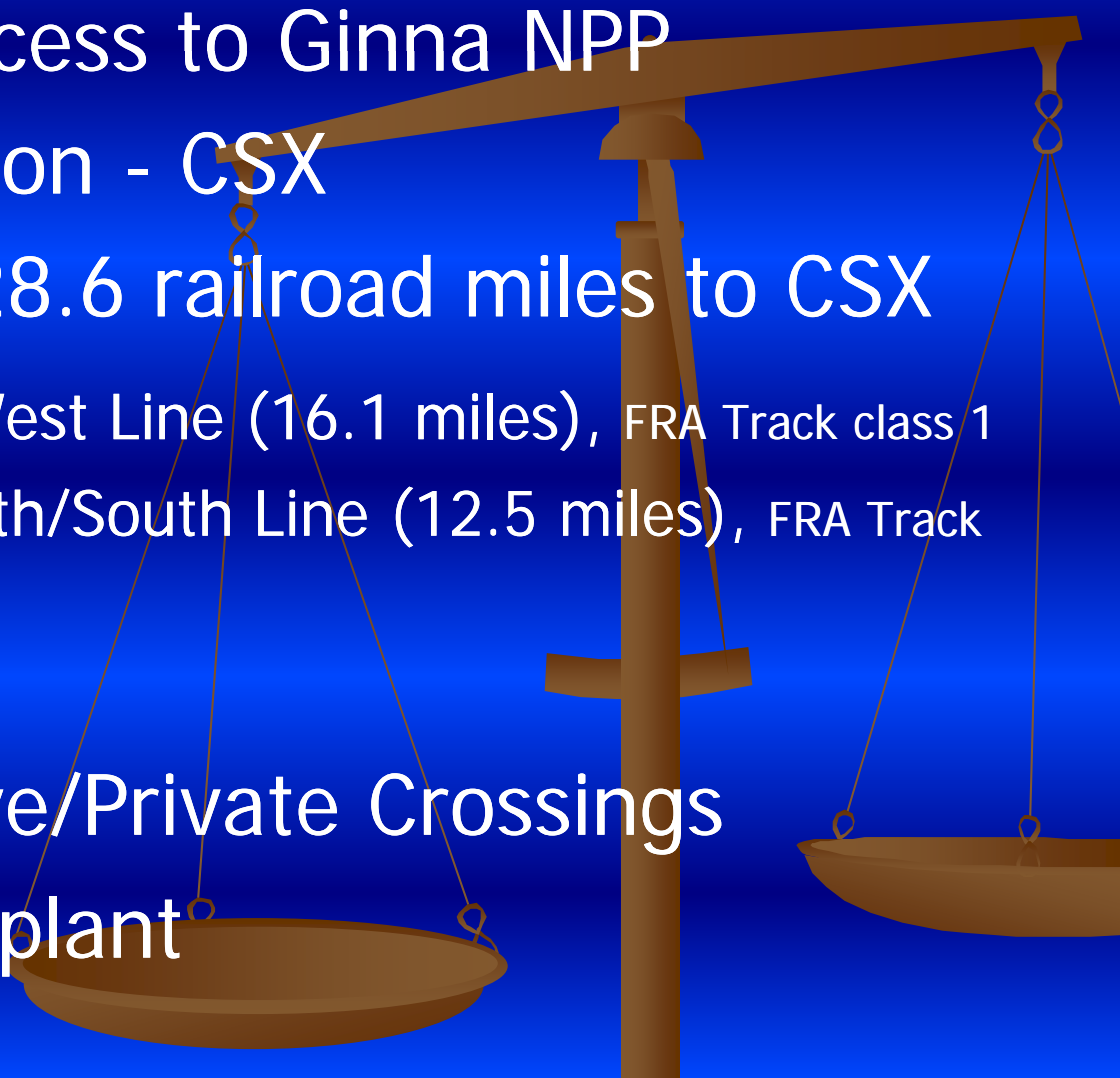


# Evaluation of Shortline Railroads

## Ginna/Ontario and Midland Railroad

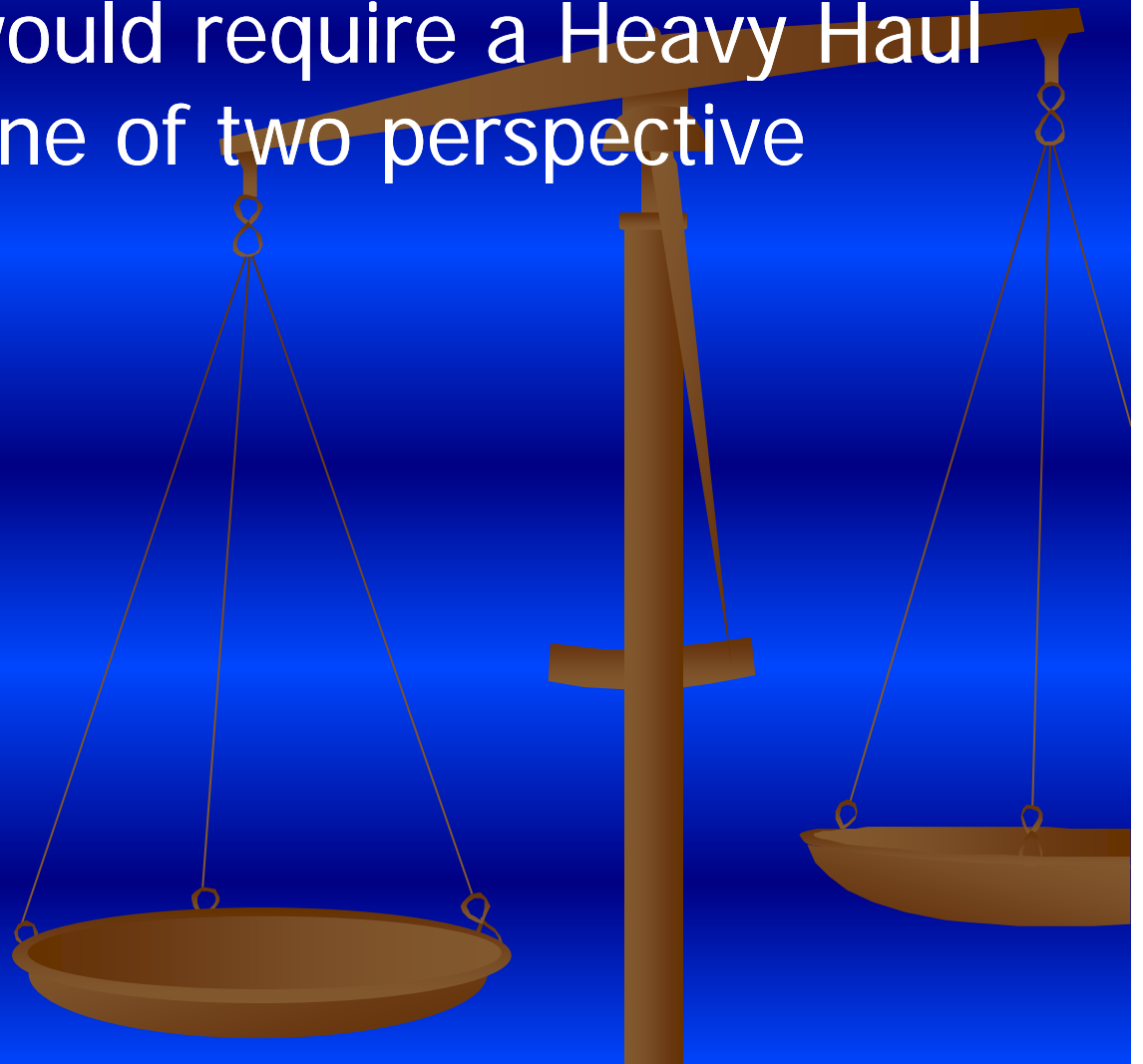


# Evaluation of Shortline Railroads

- No direct rail access to Ginna NPP
  - Class 1 connection - CSX
  - Approximately 28.6 railroad miles to CSX
    - Ontario Line - East/West Line (16.1 miles), FRA Track class 1
    - Sodus Bay Line - North/South Line (12.5 miles), FRA Track class 2
  - Dark Territory
  - 28 Active/Passive/Private Crossings
  - Barge Slip near plant
- 

# Evaluation of Shortline Railroads

- The shipment would require a Heavy Haul from Ginna to one of two perspective sites;





# Evaluation of Shortline Railroads

Ontario Center Road (Route 350) Site 3.8 miles from Ginna



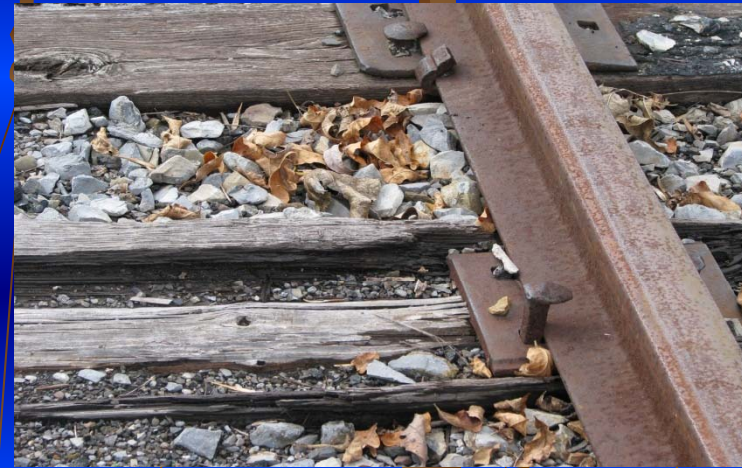
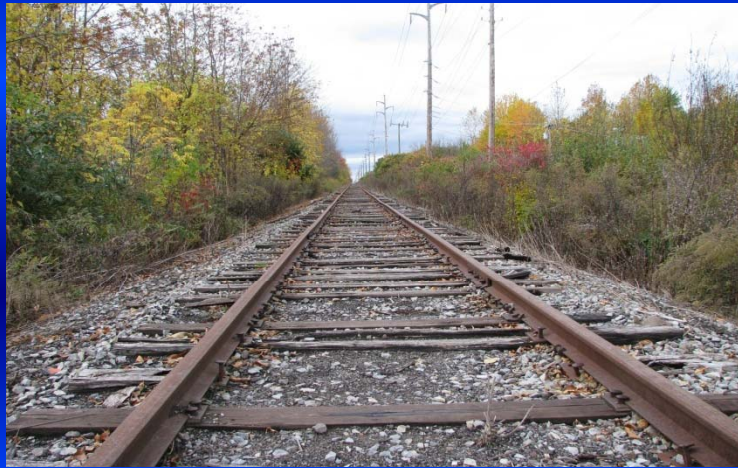
# Evaluation of Shortline Railroads

Knickerbocker Road Site 4.8 miles from Ginna



# Evaluation of Shortline Railroads

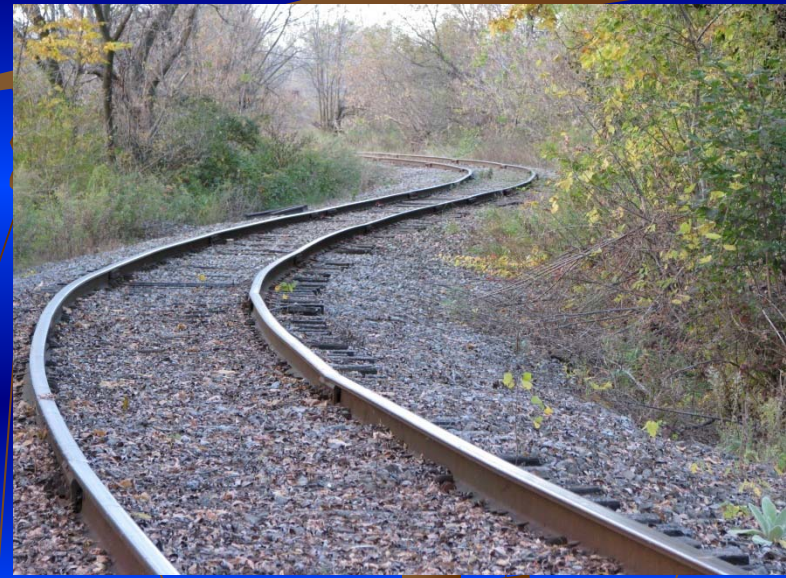
80 lb. Dudley rail on the Ontario Line  
(milled using the open hearth process in the early 1900s)



Because this rolling process was utilized, the rail has internal impurities, including slag, air pockets, and so on which makes the rail prone to breaks when heavy lateral forces are imposed; heavy cars like the ones proposed to transport the spent fuel rods would have an adverse effect on this size rail.

# Evaluation of Shortline Railroads

130 lb. PS rail on the Sodus Bay Line



A series of S-curves between the CSX interchange and MP 18.0 on the Sodus Bay Line have sharp curves of 10, 11, 12, and 13 degrees. A curve greater than 8 degrees limits the type of rolling stock able to negotiate over them. A rigid frame triple axle truck could easily derail trying to negotiate these curves.

# Evaluation of Shortline Railroads

Photographed and Documented all Bridges



# Evaluation of Shortline Railroads

Photographed and Documented all Crossings



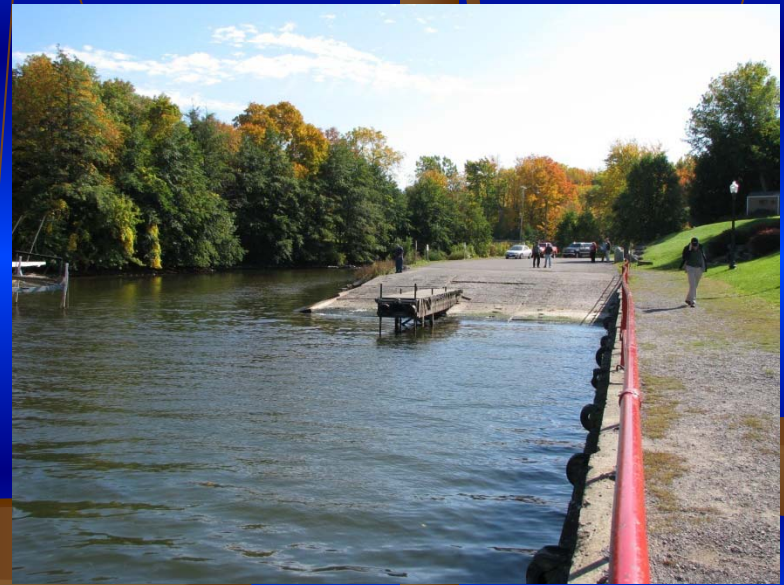
# Evaluation of Shortline Railroads

Possible Safe Havens



# Evaluation of Shortline Railroads

Barge Site Option - used previously by Ginna





# Evaluation of Shortline Railroads

Areas of Concern:

Ontario Line

80lb. Dudley Rail

Poor Tie Condition

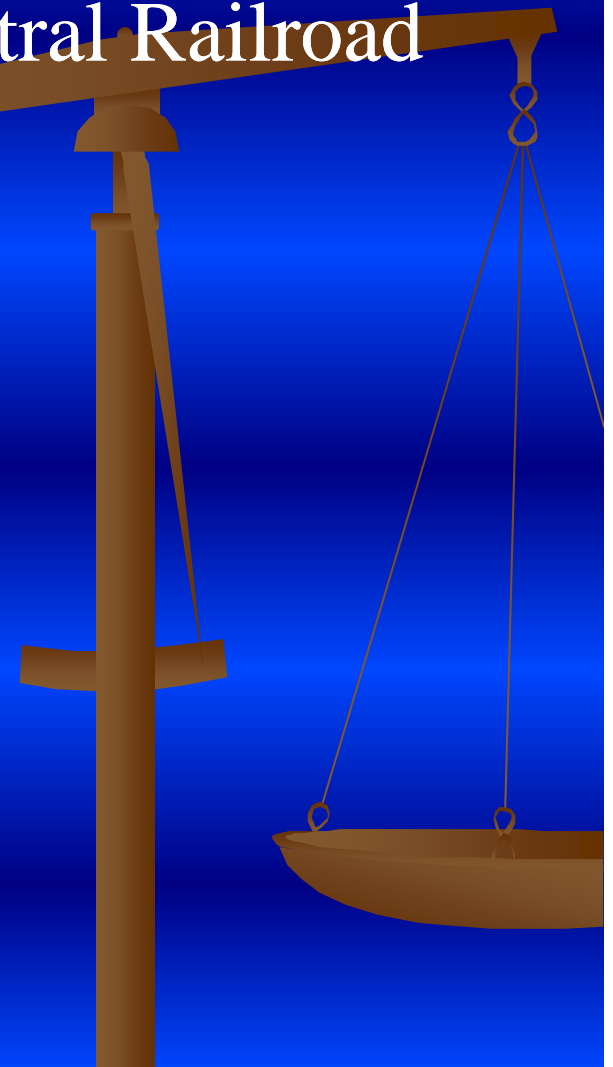
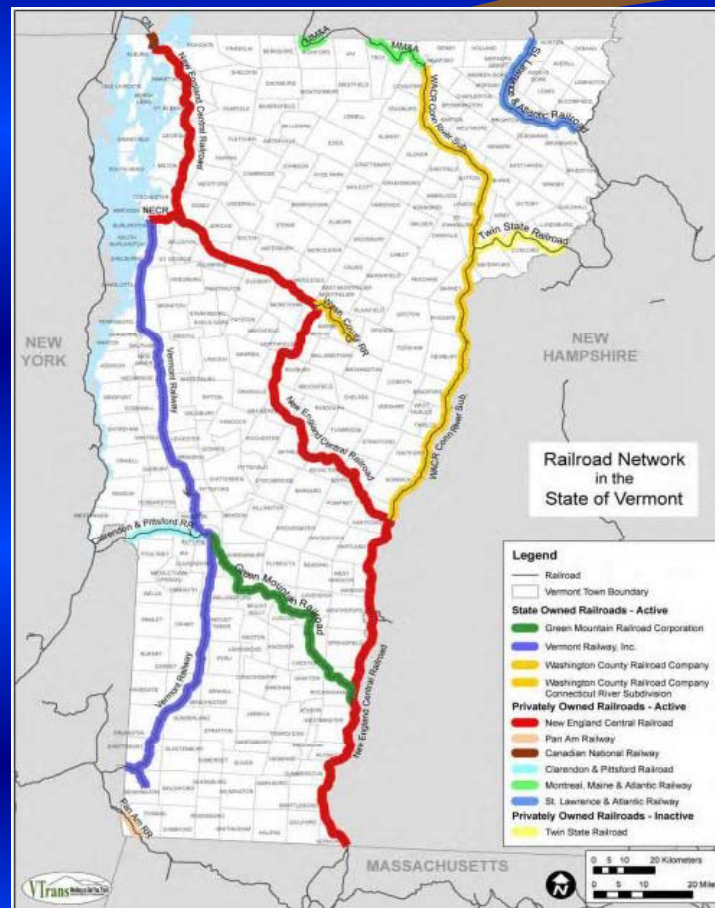
Sodus Bay Line

Sharp "S" Curves at Interchange



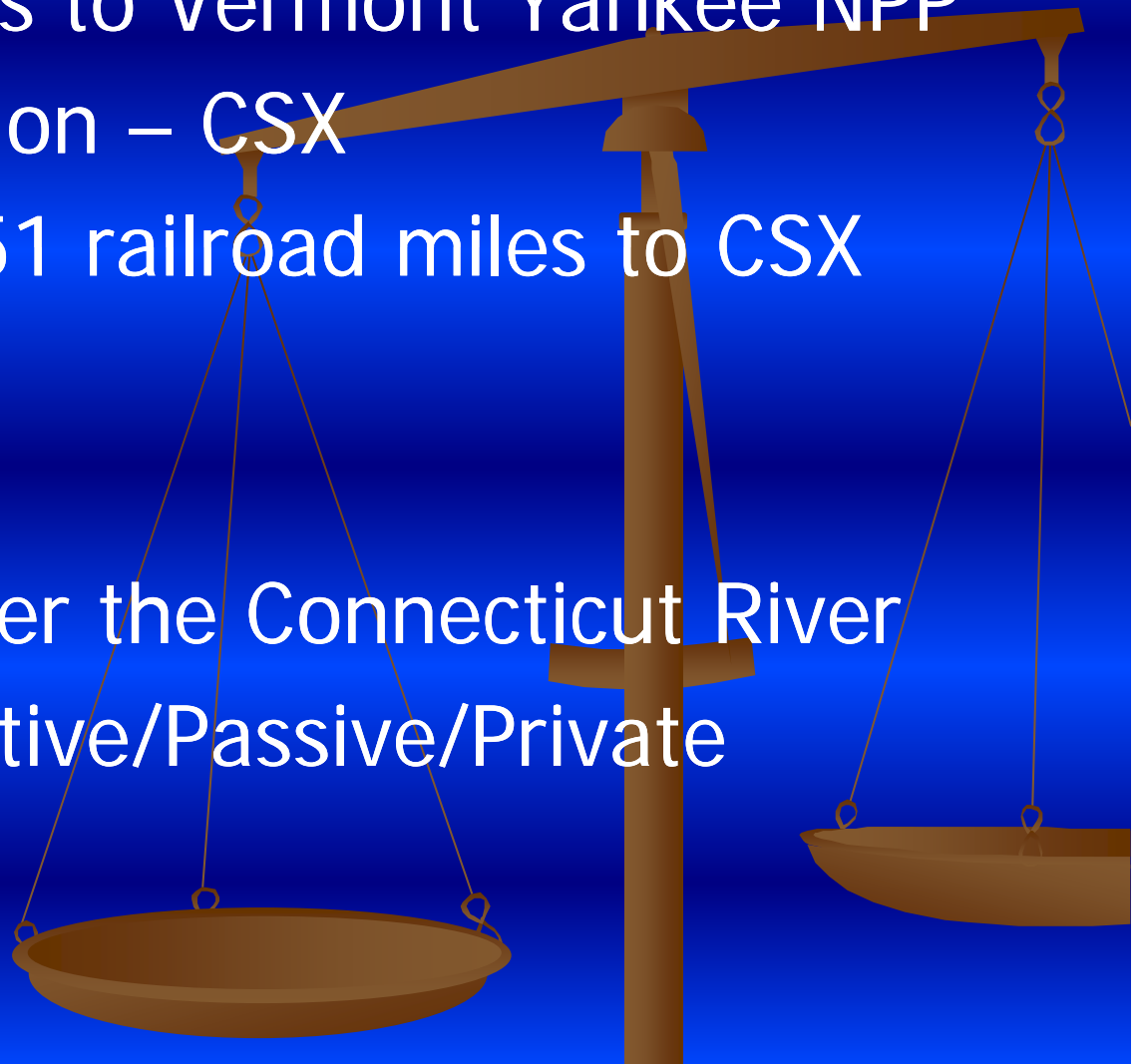
# Evaluation of Shortline Railroads

## Vermont NPP/New England Central Railroad



# Evaluation of Shortline Railroads

- Direct rail access to Vermont Yankee NPP
- Class 1 connection – CSX
- Approximately 51 railroad miles to CSX
  - FRA Track Class 2 and 3
- Amtrak Route
- Major Bridge over the Connecticut River
- 17 Crossings Active/Passive/Private
- 13 Bridges



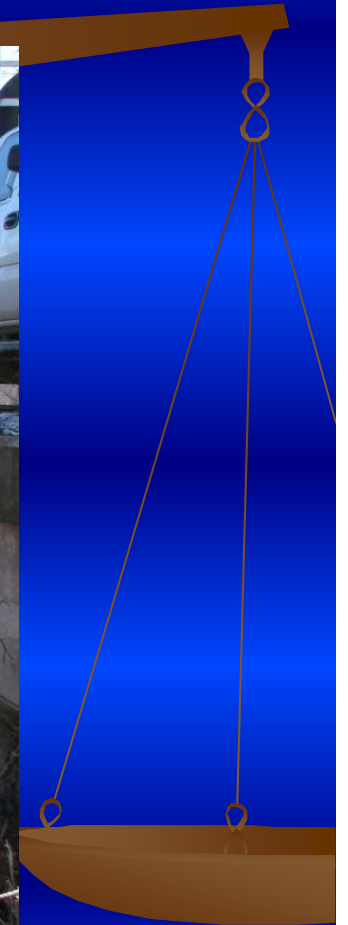
# Evaluation of Shortline Railroads

## Connecticut River Bridge



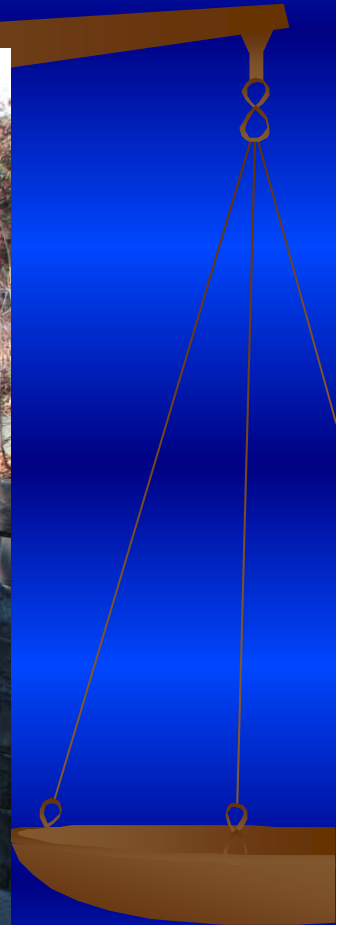
# Evaluation of Shortline Railroads

## Connecticut River Bridge



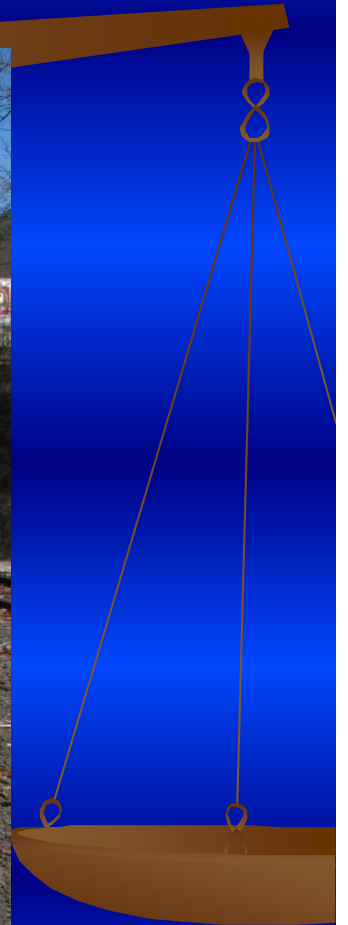
# Evaluation of Shortline Railroads

## Under Grade Bridges



# Evaluation of Shortline Railroads

## Over Grade Bridges



# Evaluation of Shortline Railroads

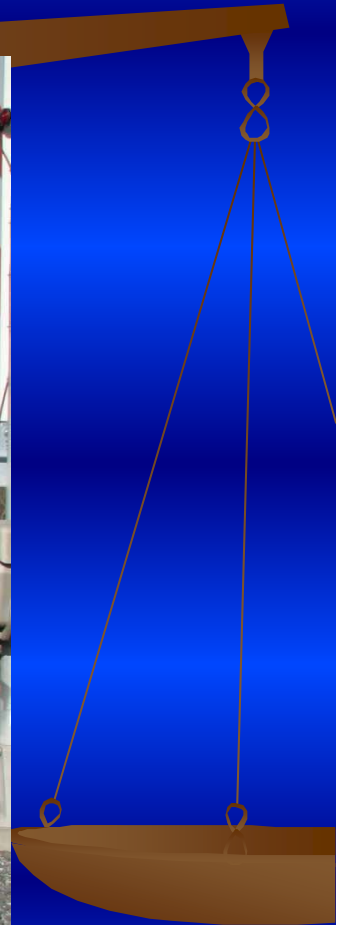
## Small Bridges





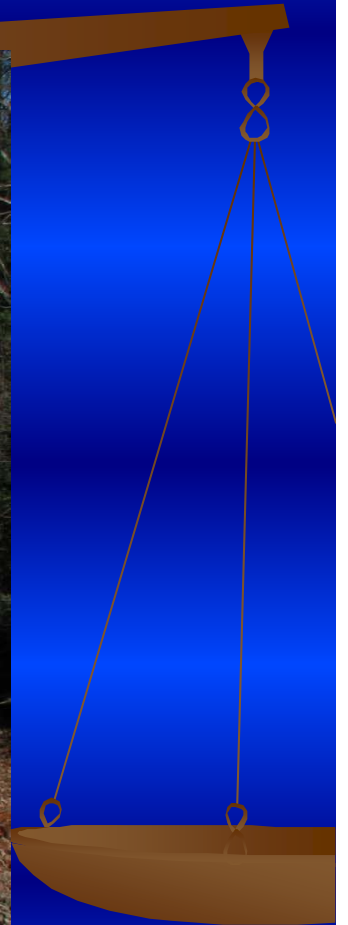
# Evaluation of Shortline Railroads

## Active Crossings



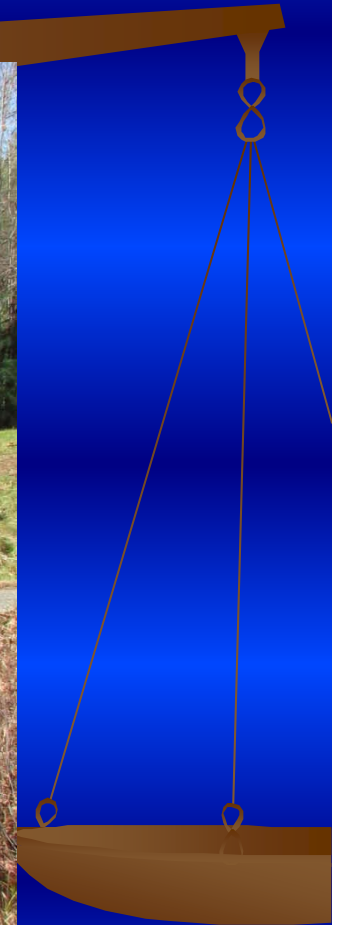
# Evaluation of Shortline Railroads

## Passive Crossings



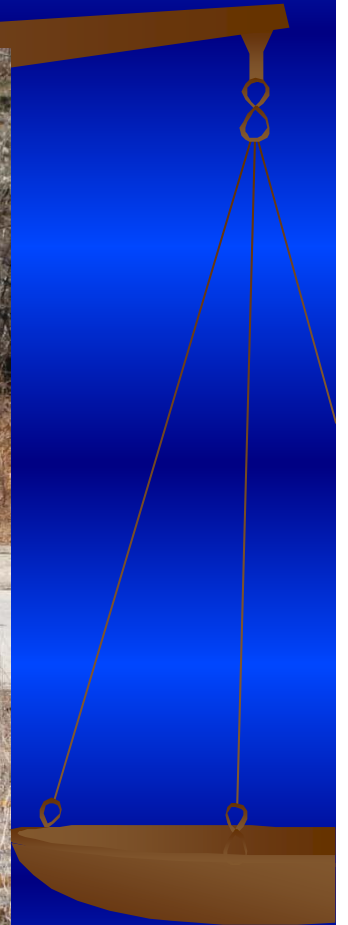
# Evaluation of Shortline Railroads

## Private Crossings



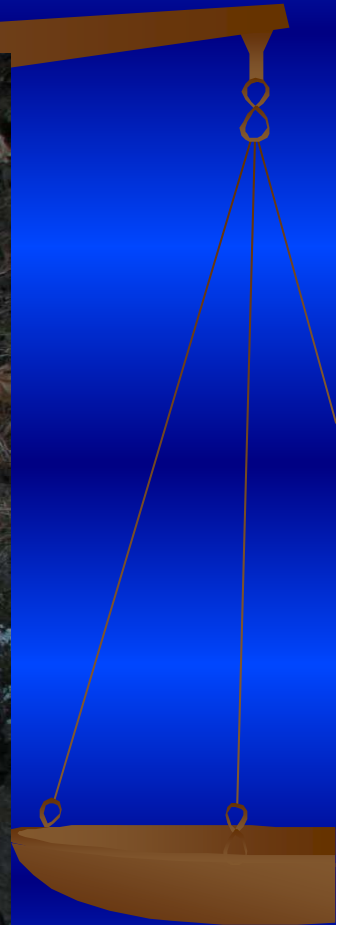
# Evaluation of Shortline Railroads

## Switches



# Evaluation of Shortline Railroads

## Clearances



# Evaluation of Shortline Railroads

Areas of Concern:

Amtrak Route

Comprehensive Bridge Inspection



# Evaluation of Shortline Railroads

## ■ VERMONT YANKEE NP



## ■ NORTHERN ROUTE



■ 1<sup>st</sup> Leg

NECR Railroad. Plant to East Northfield, Vermont.



■ 2<sup>nd</sup> Leg

Choice #1 ST Railroad. East Northfield, VT To South Schenectady, NY.



Choice #2 ST Railroad. East Northfield, VT to Springfield, Mass.



CSX Railroad. Springfield, Mass. to South Schenectady, NY.



■ 3<sup>rd</sup> Leg

Choice#1 CSX Railroad. South Schenectady, NY to Ashtabula, Ohio



Choice#2 CPRS Railway. South Schenectady, NY to Binghamton, NY



NS Railway. Binghamton, NY to Hornell, NY.



WNYP Railroad. Hornell, NY to Olean, NY.



NS Railway. Olean, NY to Driftwood, Pa.



BPRR Railroad. Driftwood, Pa. to New Castle, Pa.



CSX Railroad. New Castle, Pa. to Youngstown, Ohio.



# Evaluation of Shortline Railroads

## ■ SOUTHERN ROUTE

- 1<sup>st</sup> Leg and 2<sup>nd</sup> Leg as above

### ■ 3<sup>rd</sup> Leg

- Choice#1 CPRS Railway. South Schenectady, NY to Sunbury, Pa.
- NS Railway. Sunbury, Pa. to Lock Haven.
- NBER Railroad. Locke Haven to Tyrone, Pa.
- NS Railway. Tyrone, Pa. to Johnstown, Pa.
- CSX Railroad. Johnstown, Pa. to Cumberland, Maryland.
  
- Choice#2 CPRS Railway. South Schenectady, NY to Sunbury, Pa.
- NS Railway. Sunbury, Pa. to Hagerstown, Maryland.

- Routes in RED indicate preferred route to avoid large metropolitan areas.

- BPRR- Buffalo Pittsburgh Railroad
- CPRS- Canadian Pacific Railway
- NBER- Nittany Bald Eagle Railroad
- NECR- New England Central Railroad
- NS- Norfolk Southern Railway
- NYSW- New York, Susquehanna & Western Railway
- ST- Guilford Rail System
- WNYP- Western New York & Pennsylvania Railroad





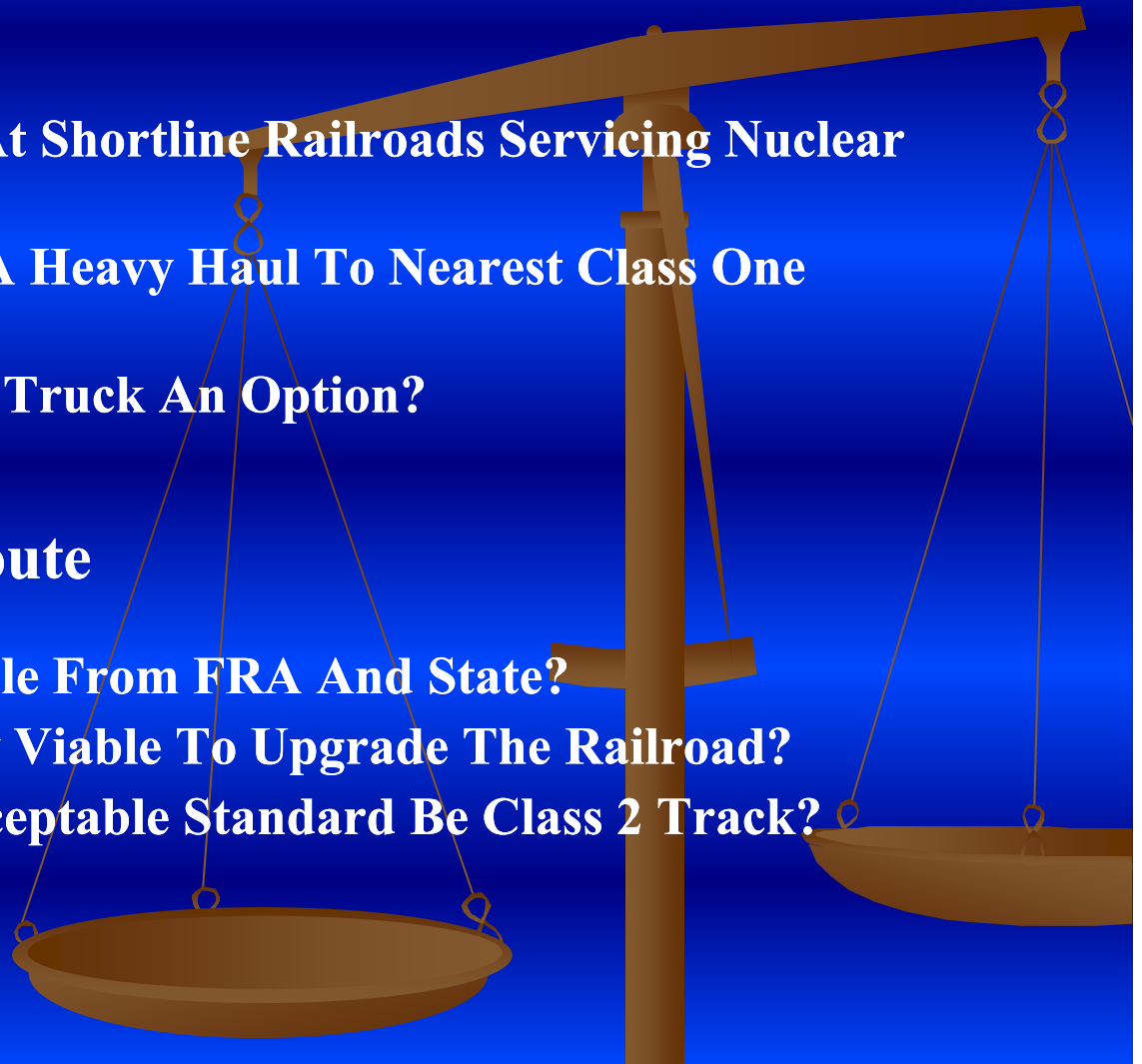
# Evaluation of Shortline Railroads

## Conclusions,

- **Need For In-depth Look At Shortline Railroads Servicing Nuclear Power Plants!**
- **Options To Transport VIA Heavy Haul To Nearest Class One Railroad!**
- **Is Barge Or Legal Weight Truck An Option?**

## If Rail Is The Logical Route

- **Are There Grants Available From FRA And State?**
- **Would It Be Economically Viable To Upgrade The Railroad?**
- **Should The Minimum Acceptable Standard Be Class 2 Track?**



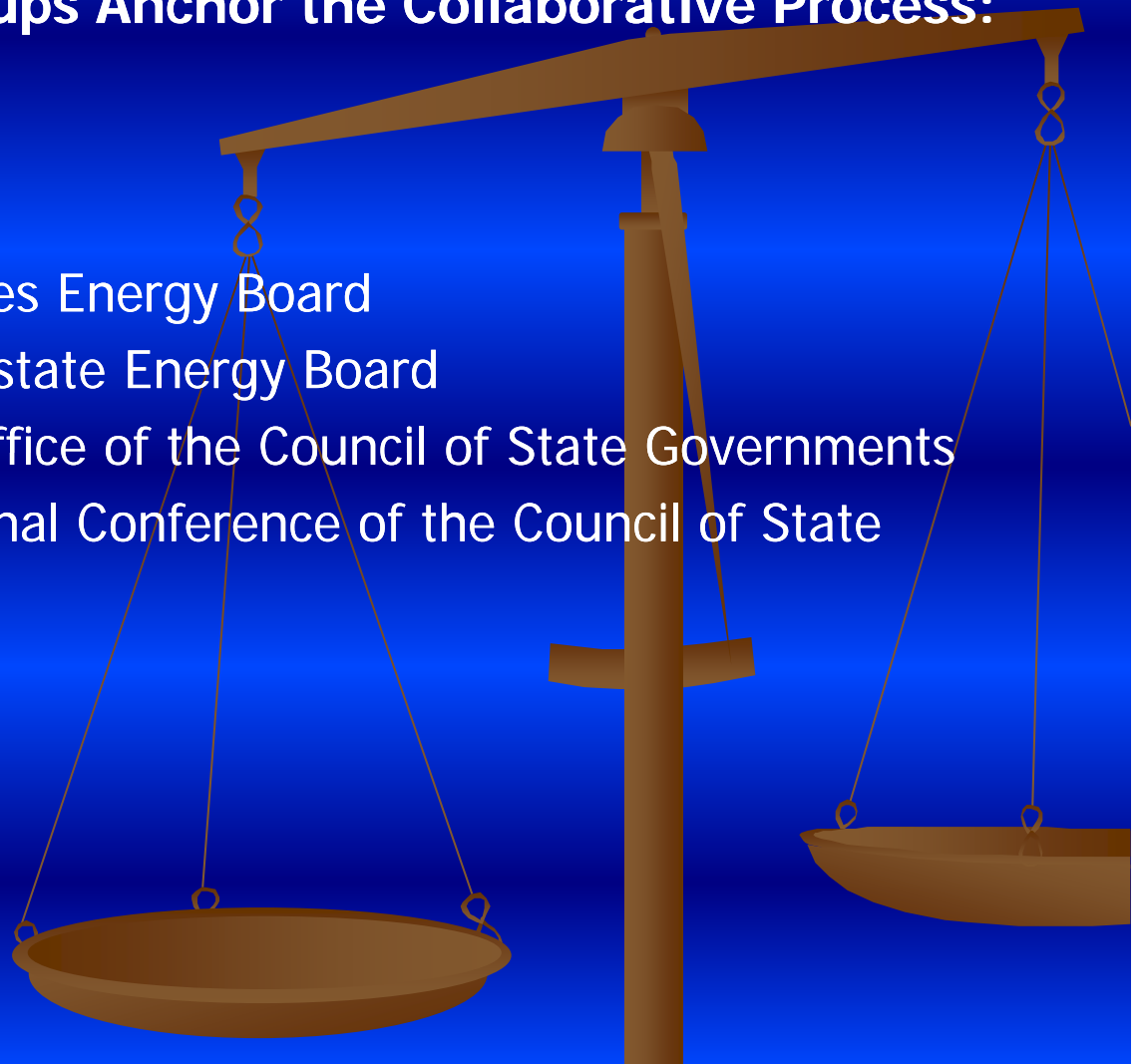
# SNF/HLW Rail Shipment Inspections



# SNF/HLW Rail Shipment Inspections

## Four State Regional Groups Anchor the Collaborative Process:

- Southern States Energy Board
- Western Interstate Energy Board
- Midwestern Office of the Council of State Governments
- Eastern Regional Conference of the Council of State Governments.



# SNF/HLW Rail Shipment Inspections

## CURRENT TRANSPORTATION ISSUES

**December 2, 2009**

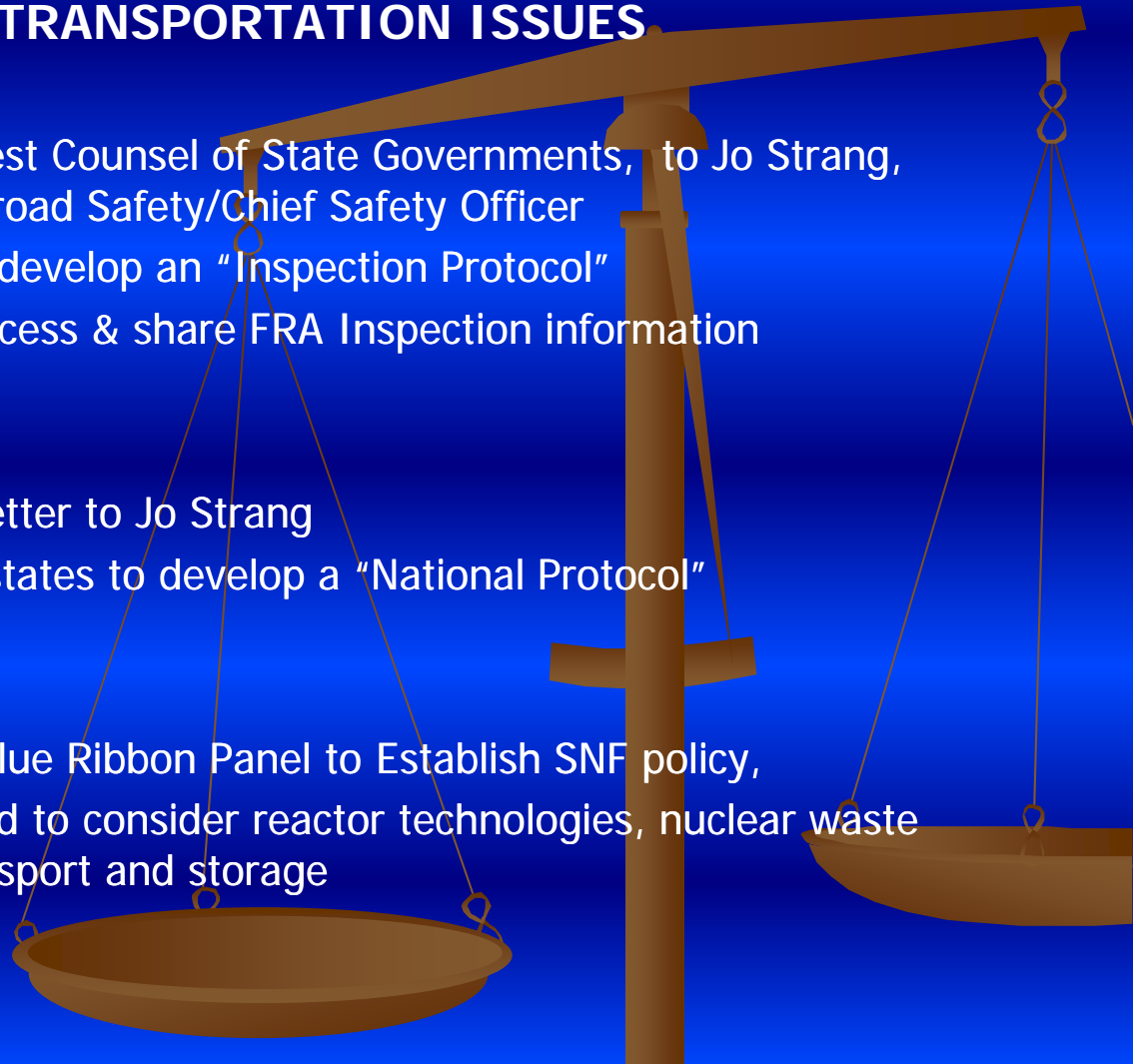
Letter from Rob Marvin, Mid West Counsel of State Governments, to Jo Strang, Associate Administrator for Railroad Safety/Chief Safety Officer  
Encouraging communication to develop an "Inspection Protocol"  
Expressed need for States to access & share FRA Inspection information

**January 19, 2010**

Council of State Governments letter to Jo Strang  
Encouraging support of FRA & states to develop a "National Protocol"

**March 2010**

President Obama appointed a Blue Ribbon Panel to Establish SNF policy, three subcommittees established to consider reactor technologies, nuclear waste disposal and nuclear waste transport and storage



# SNF/HLW Rail Shipment Inspections

## CURRENT TRANSPORTATION ISSUES

**2010**

NRC developed new Integrated Spent Fuel Management Program

Long term storage at the power plant sites up to 120 years

Interim storage facility

Potential reprocessing

Eventual permanent repository

**June 29, 2010**

Judicial panel of Administration Law Judges ruled that the current administration has no legal authority to withdraw the construction application for Yucca Mountain

**July 16, 2010**

Response to Rob's letter.

FRA working on allowing State Inspectors/Managers access to FRA reports



# SNF/HLW Rail Shipment Inspections

## CURRENT TRANSPORTATION ISSUES

**August 10, 2010**

Transportation & Storage Subcommittee met in Wiscasset Maine

**June 30, 2010**

Senate Majority Leader Harry Reid of Nevada vows to block construction

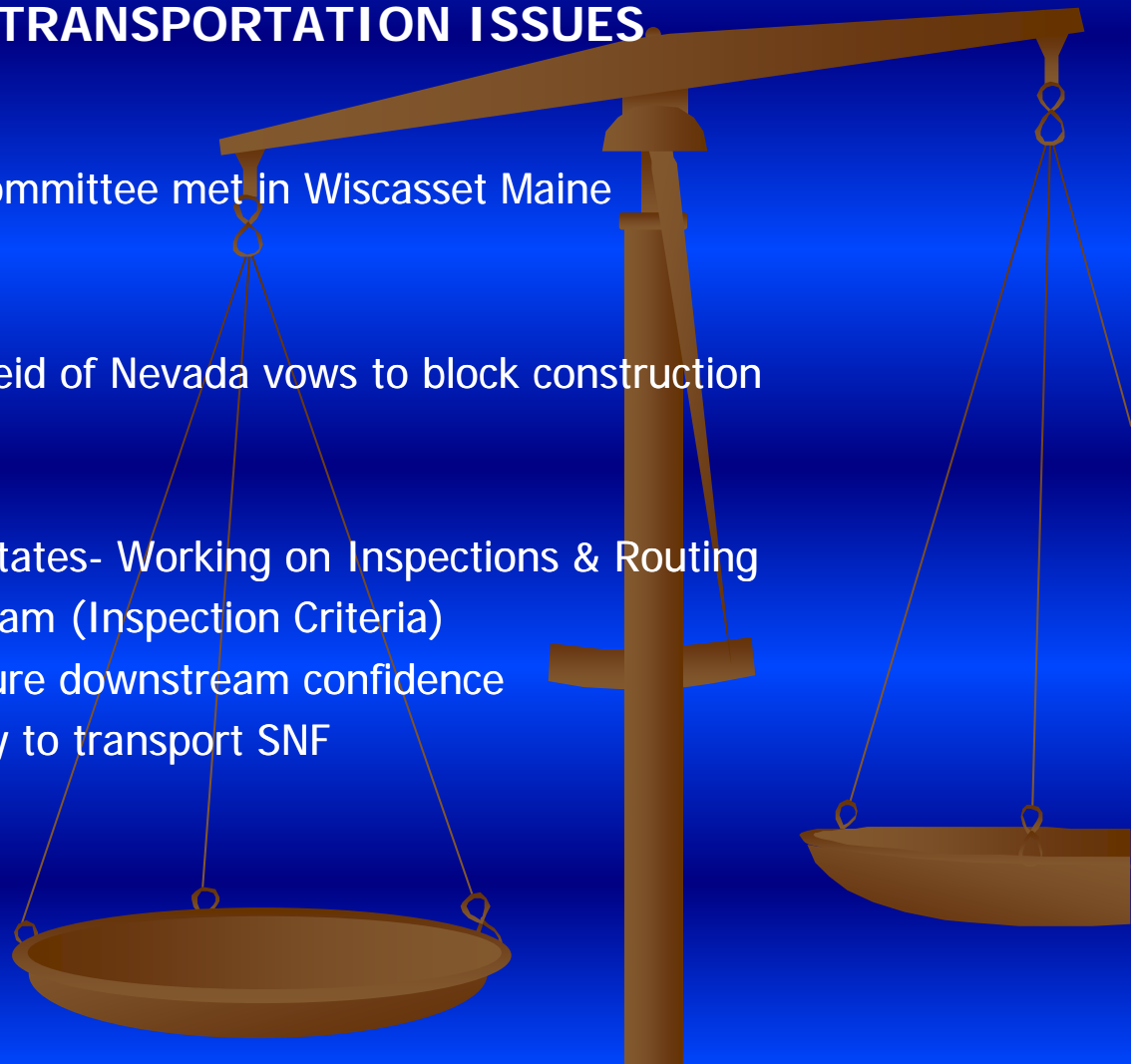
**2010**

Northeast/Midwest CSG, FRA, States- Working on Inspections & Routing

National Inspection Program (Inspection Criteria)

Inspection Report to ensure downstream confidence

Short line Railroads ability to transport SNF



# SNF/HLW Rail Shipment Inspections

## CURRENT TRANSPORTATION ISSUES

### Purpose:

Develop an inspection standard and provide uniform criteria for use by FRA and FRA State Certified Inspectors involved in MP&E and HAZMAT inspections.

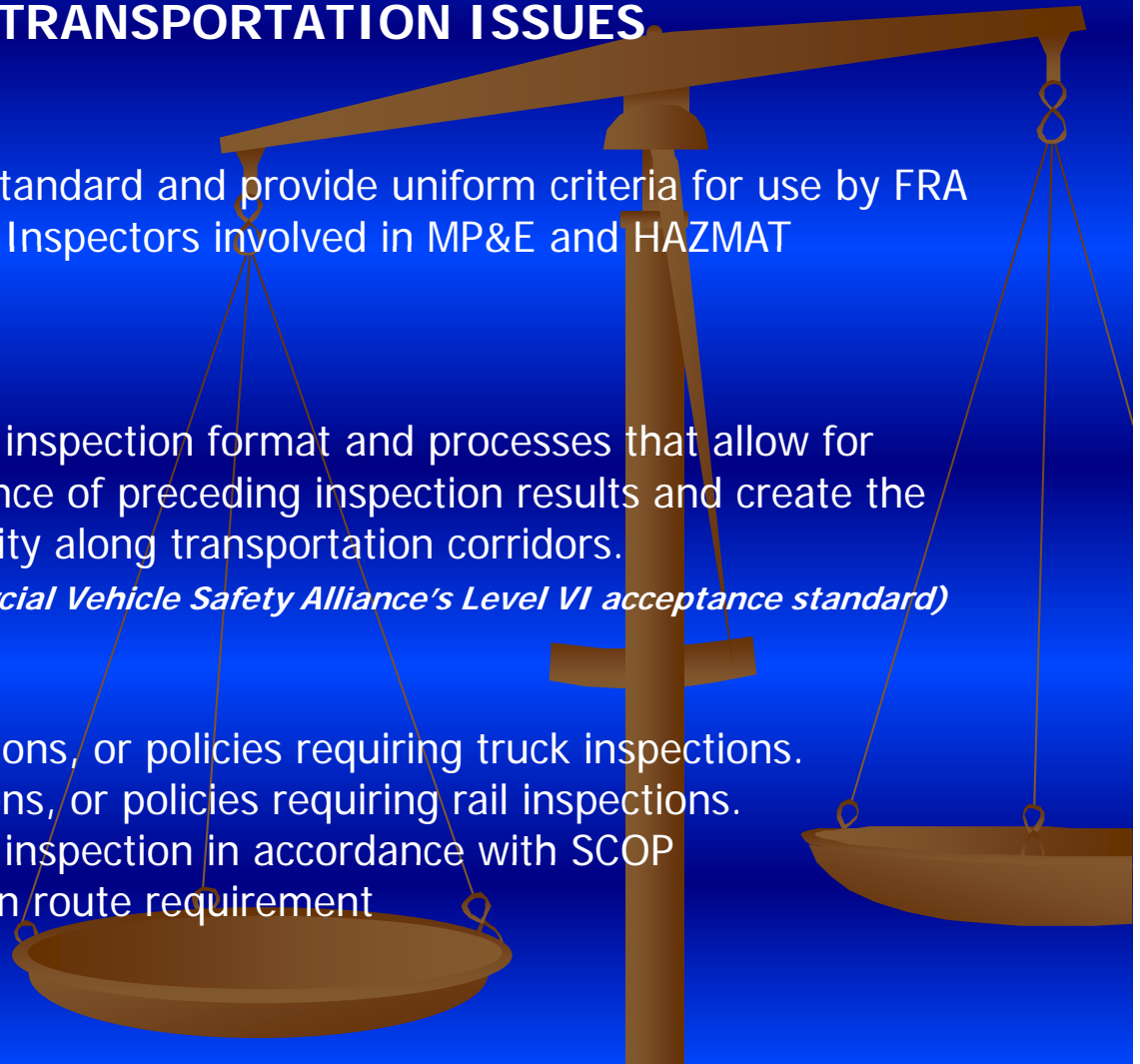
### Intended Result:

Installment of standard inspection format and processes that allow for availability and acceptance of preceding inspection results and create the opportunity for reciprocity along transportation corridors.

*(Modeled after the Commercial Vehicle Safety Alliance's Level VI acceptance standard)*

### Current Procedures:

15 states have rules, regulations, or policies requiring truck inspections.  
6 states have rules, regulations, or policies requiring rail inspections.  
FRA conducts point-of-origin inspection in accordance with SCOP  
1,000 Mile Air Brake Test – en route requirement



# SNF/HLW Rail Shipment Inspections

## CURRENT TRANSPORTATION ISSUES

### Rail Inspections Development:

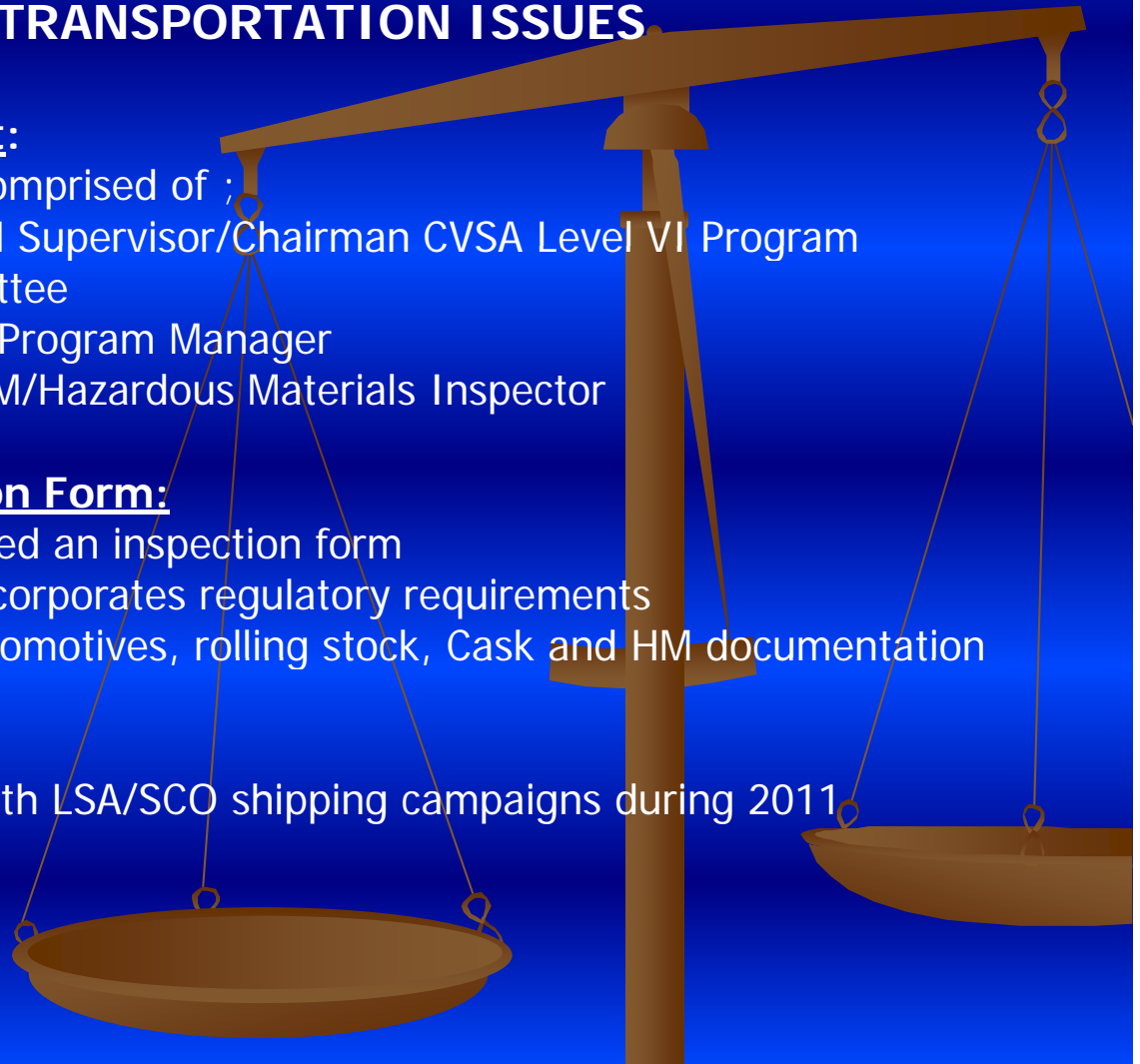
A working committee comprised of ;  
Carlisle Smith – OH, HM Supervisor/Chairman CVSA Level VI Program  
Committee  
Pat Edwards – PA, FRA Program Manager  
Mel Massaro – FRA, RAM/Hazardous Materials Inspector

### SNF/HLW Shipment Inspection Form:

The committee developed an inspection form  
The Inspection Form incorporates regulatory requirements  
The Form addresses locomotives, rolling stock, Cask and HM documentation

### Rail Inspection Field Testing:

Planning field testing with LSA/SCO shipping campaigns during 2011





# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: LOCOMOTIVE

*Inspections must be performed by qualified/certified inspectors*

Inspection type:  Origin  \* En Route  Destination  
 Location of inspection: \_\_\_\_\_  
 Date and time: \_\_\_\_\_  
 Shipment type:  SF  HLW  TRU  HRCQ  Other  
(check all that apply)  
 Origin/destination: \_\_\_\_\_

Locomotive number(s): \_\_\_\_\_  
 Shipper: \_\_\_\_\_  
 Reference number (assigned by shipper): \_\_\_\_\_  
 Carrier: \_\_\_\_\_  
 FRA inspector(s): \_\_\_\_\_  
 State inspector(s): \_\_\_\_\_

Please see reference guide for specific items under each general category.

### Items from Blue Card, Form FRA F6180-49A

49 CFR	Item Category	Defect Found?		Locomotive Number(s) (if defect found)
229.23	Periodic Inspection; General	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> NA
229.25	Tests: Every Periodic Inspection	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> NA
229.27	Annual Tests	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> NA
229.29	Biennial Test	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> NA
229.31	Main Reservoir Tests	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> NA
232.105	General Requirements for Locomotives (annual)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> NA

### Daily Inspection Items

*Critical En Route Inspection Items		Defect(s) Found <input type="checkbox"/> Yes
49 CFR	Item Category	Locomotive Number and Description of Defect Found
229.11	Locomotive Identification	_____
*229.13	Control of Locomotive	_____
*229.21	Daily Inspection	_____
*229.41	Protection Against Personal Injury	_____
*229.43	Exhaust and Battery Gases	_____
*229.45	General Condition	_____
*229.46	Brakes: General	_____
229.47	Emergency Brake Valve	_____
229.49	Main Reservoir System	_____
229.51	Aluminum Main Reservoir	_____
229.53	Brake Gauges	_____
*229.55	Piston Travel	_____
*229.59	Leakage	_____
*229.61	Draft System	_____
*229.63	Lateral Motion	_____

Locomotive p. 1

# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: LOCOMOTIVE

49 CFR	Item Category	Locomotive Number and Description of Defect Found
*229.65	Spring Rigging	
*229.67	Trucks	
*229.69	Side Bearings	
*229.71	Clearance Above Top of Rail	
229.73	Wheel Sets	
*229.75	Wheels and Tire	
*229.83	Insulation or Grounding of Metal Parts	
229.85	Doors and Cover Plates Marked "Danger"	
*229.87	Hand Operated Switches	
*229.89	Jumpers; Cable Connections	
*229.89	Motors and Generators	
229.93	Safety Cut-Off Device	
229.95	Venting	
*229.97	Grounding Fuel Tanks	
*229.99	Safety Hangers	
*229.101	Engines	
*229.115	Slip/Slide Alarms	
*229.117	Speed Indicators	
*229.119	Cab, Floor and Passageways	
229.121	Locomotive Cab Noise	
*229.123	Pilot, Snowplow and End Plate	
229.125	Headlights and Auxiliary Light	
*229.127	Cab Lights	
229.129	Locomotive Horn	
*229.131	Sanders	
229.135	Event Recorders	
*229.137	Sanitation, General Requirements	
223.11	Glazing Requirements for Existing Locomotives	
223.13	Caboose Glazing Standards	
224.103	Characteristics of Reflective Sheeting	
224.105	Sheeting Dimension	
231.29	Road Locomotive With Corner Stairways	
231.3	Road Locomotives Used in Switching Service	
231.31	Locomotive Coupler Height	
232.105	General Requirements for Locomotives	
	Other FRA or State Safety Regulations	

Locomotive p. 2

# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: LOCOMOTIVE

**Note:** Upload This Inspection Document with FRA Inspection Form F6180.96, to: (E-mail Address)

Comments and/or defect specifics:

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Signed by: \_\_\_\_\_

Name and organization (print): \_\_\_\_\_

Cell phone #: \_\_\_\_\_

# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: FREIGHT

*Inspections must be performed by qualified/certified inspectors*

Location Type:  Origin  \*En Route  Destination  
 Location of inspection: \_\_\_\_\_  
 Date and time: \_\_\_\_\_  
 Shipment type:  SF  HLW  TRU  HRCQ  Other  
 (check all that apply)  
 Origin/destination: \_\_\_\_\_  
 Locomotive number(s): \_\_\_\_\_  
 Escort car number: \_\_\_\_\_

Shipper: \_\_\_\_\_  
 Reference number (assigned by shipper): \_\_\_\_\_  
 Carrier at Time of Inspection: \_\_\_\_\_  
 FRA inspector(s): \_\_\_\_\_  
 State inspector(s): \_\_\_\_\_  
 Cask model number(s): \_\_\_\_\_  
 Cask serial number(s): \_\_\_\_\_  
 Security seals on cask: \_\_\_\_\_

Please see reference guide for specific items under each general category.

### Motive Power & Equipment

*Critical En Route Inspection Items		Defect(s) Found <input type="checkbox"/> Yes
49 CFR	Item Category	Car Number and Description of Defect Found
*215.103	Defective wheel	
*215.105	Defective Axle	
*215.115	Defective Roller Bearing	
*215.117	Defective Roller Bearing Adapter	
*215.119	Defective Freight Car Truck	
*215.121	Defective Car Body	
*215.123	Defective Couplers	
*215.127	Defective Draft Arrangement	
215.301	Stenciling	
224.103	Characteristics of Reflective Sheeting	
224.105	Sheeting Dimension and Quantity	
*Part 231	Safety appliance standards	
*Part 232	Brake System Safety Standards	
*232.409	End-of-Train Device	
*	Other FRA or State Safety Regulations	

**Note:** Upload This Inspection Document with FRA Inspection Form F6180.96 to: (E-mail Address)

# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: FREIGHT

Comments and/or defect specifics:

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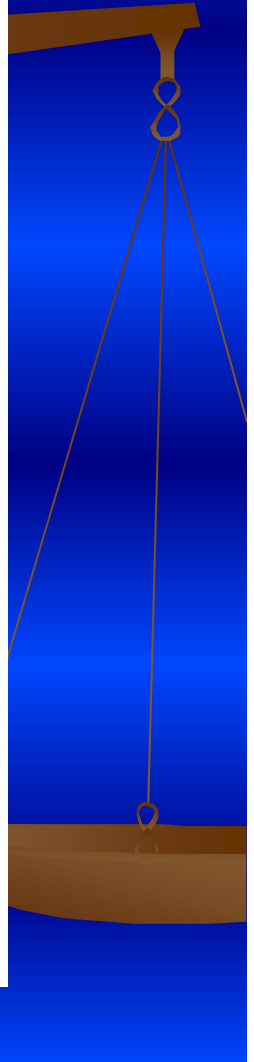
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Signed by: \_\_\_\_\_  
Name and organization (print): \_\_\_\_\_  
Cell phone #: \_\_\_\_\_



# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: FREIGHT

### Hazardous Materials

#### Shipping Paper (172.101, 172.200, 172.402-403, 172.436-440, 173.403)

Shipping name:	
ID number:	
Total quantity and unit of measurement:	
Radionuclides that represent 95% of total radioactive material:	
Physical and Chemical form:	
Activity (must be noted in SI units):	TBq   Ci
Highway route controlled quantity (if applicable):	
Exclusive use shipment (if applicable):	
Label type – category of label:	
SCO I or II or LSA, if appropriate:	
Transport Index – assigned to each package if labeled as a Radioactive Yellow II or III:	Yes   No
Fissile excepted- if appropriate:	Yes   No
“Warning- Fissile material controlled shipment ...” if applicable:	Yes   No
Package identification – Entry of NRC or DOT certificate identification marking:	Yes   No
Instruction for exclusive use – if applicable:	Yes   No
Certification signature:	Yes   No
Shipping paper match label:	Yes   No
Rail route plan available on-site:	Yes   No
Emergency response information available:	Yes   No
Emergency response telephone number available:	Yes   No
Hazardous substance notation (RQ) present, if applicable:	Yes   No
CSI label present (if applicable):	Yes   No

#### Labeling (172.403, 172.436-440, 173.433-435)

Label type	
Labels legibly marked w/ contents, (radionuclides) activity, and transport index:	Yes   No
Label on two sides:	Yes   No
CSI label when applicable:	Yes   No

#### Markings (172.301, 172.310)

Gross weight – for packages of over 110 pounds	Yes   No
Type B packages shall have “Type B” shall be marked on the outside of the vehicle:	Yes   No
Type B, B(U), B(M) must be marked with the radiation symbol:	Yes   No
Package identification markings – outside of package shall be marked with identification markings indicating package certificate number:	Yes   No
Proper shipping name and UN number:	Yes   No
Name and address of consignee/consignor:	Yes   No
Security seal on package for Type B packages – reference 10CFR 71.43(b):	Yes   No
“RQ” for shipments that meet the definition of a hazardous substance:	Yes   No

#### Cask Placarding (172.504, 172.505, 172.527, 172.556)

When placards on required must be on all 4 sides:	Yes   No
UN I.D. number (not allowed for domestic shipments of Class 7 materials):	Yes   No

# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: FREIGHT

Comments and/or defect specifics:

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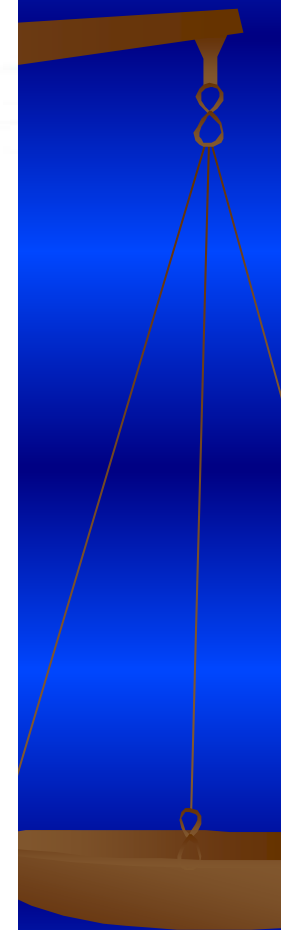
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Signed by: \_\_\_\_\_

Name and organization (print): \_\_\_\_\_

Cell phone #: \_\_\_\_\_



# SNF/HLW Rail Shipment Inspections

## SPENT FUEL/HIGH-LEVEL WASTE SHIPMENT INSPECTION: FREIGHT

### Cask Radiation Levels

Instrument type:	
Instrument serial number:	
Background radiation level (mR/h):	

Comments and/or defect specifics:

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### Cask Radiation Levels (173.441)

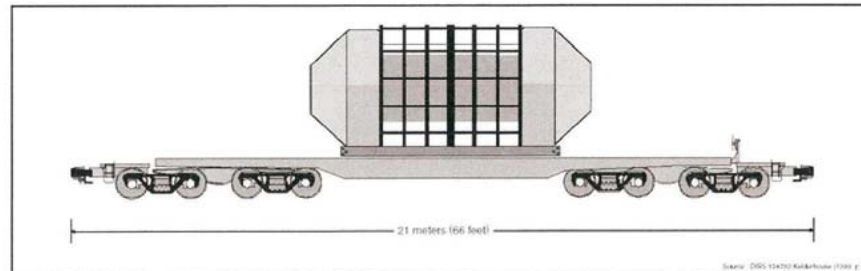
Put number on drawing to show where reading was taken

	Beta/gamma (mR/h) or SI units		Neutron - unit ( )	
	State	Shipper	State	Shipper
1. Cask surface				
2. 1 m from cask				
3. Conveyance surface				
4. 2 m from conveyance				
Locomotive Passenger				

### Contamination Levels (173.443)

	Maximum dpm		Average dpm	
	State	Shipper	State	Shipper
Alpha				
Beta/Gamma				

Signed by: \_\_\_\_\_  
 Name and organization (print): \_\_\_\_\_  
 Cell phone #: \_\_\_\_\_





# SNF/HLW Rail Shipment Inspections

## SAFETY INSPECTIONS

### Origin/Enroute Inspection of Rolling Stock, Cask and HM Documentation

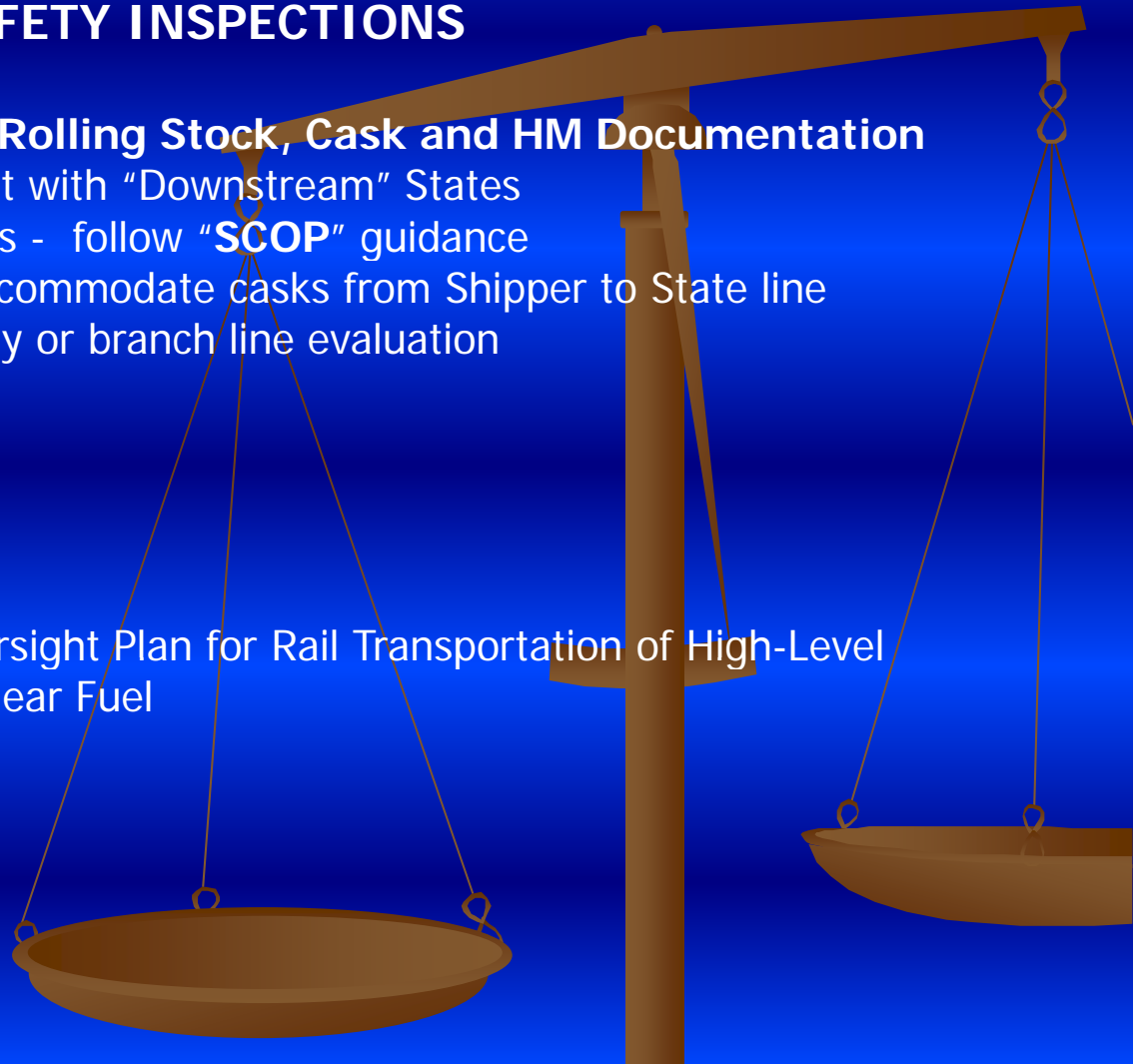
Communicate Document with "Downstream" States

Other Safety Inspections - follow "**SCOP**" guidance

Ensure all tracks can accommodate casks from Shipper to State line

Need for Short line study or branch line evaluation

"**SCOP**" – Safety Compliance Oversight Plan for Rail Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel



# Evaluation of Shortline Railroads

The Ginna NPP/Ontario Midland Railroad and Vermont NPP/New England Central Railroad studies facilitated by:

Lee Finewood – DOE

Cort Richardson – NE CSG

Mel Massaro – FRA

Presented by: Mel Massaro  
Federal Railroad Administration

