



# Natural Resource Damage Claims: A primer on this potential liability for the Railroad Industry

Jody Kubitz, PhD and Brian Reilly

# Outline

Background Information

Overview of NRDA process

Response considerations to minimize liability

Case Study of a rail car spill

# Domestic Crude Oil Production has Recently Surpassed Imports

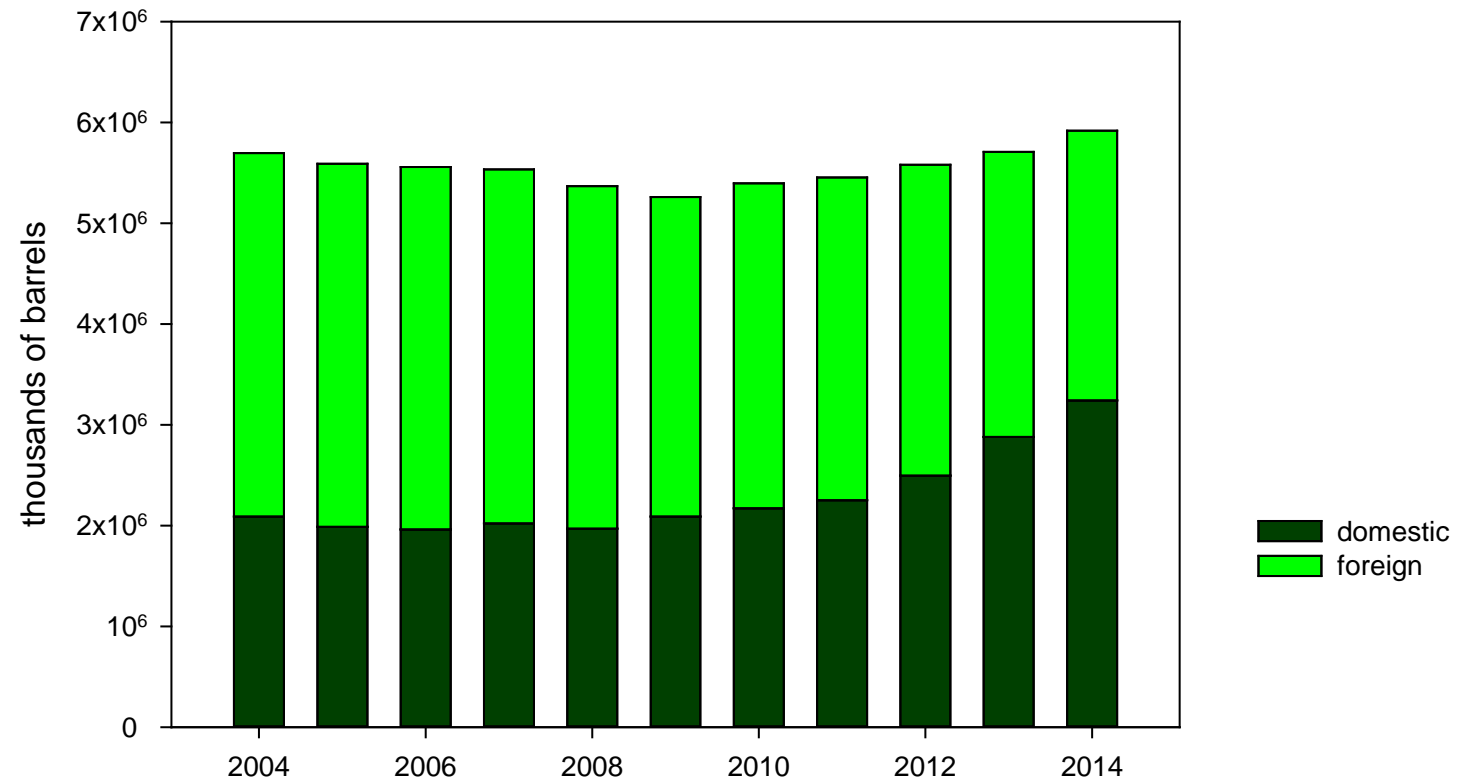
Crude Oil use by US refineries has remained between 5 and 6 billion barrels per year for the past decade

Domestic oil production has increased from 2 billion barrels to more than 3 billion barrels per year

In 2014, US refineries received more domestic oil than foreign oil

The US transportation industry has responded to the demand to move oil to refineries

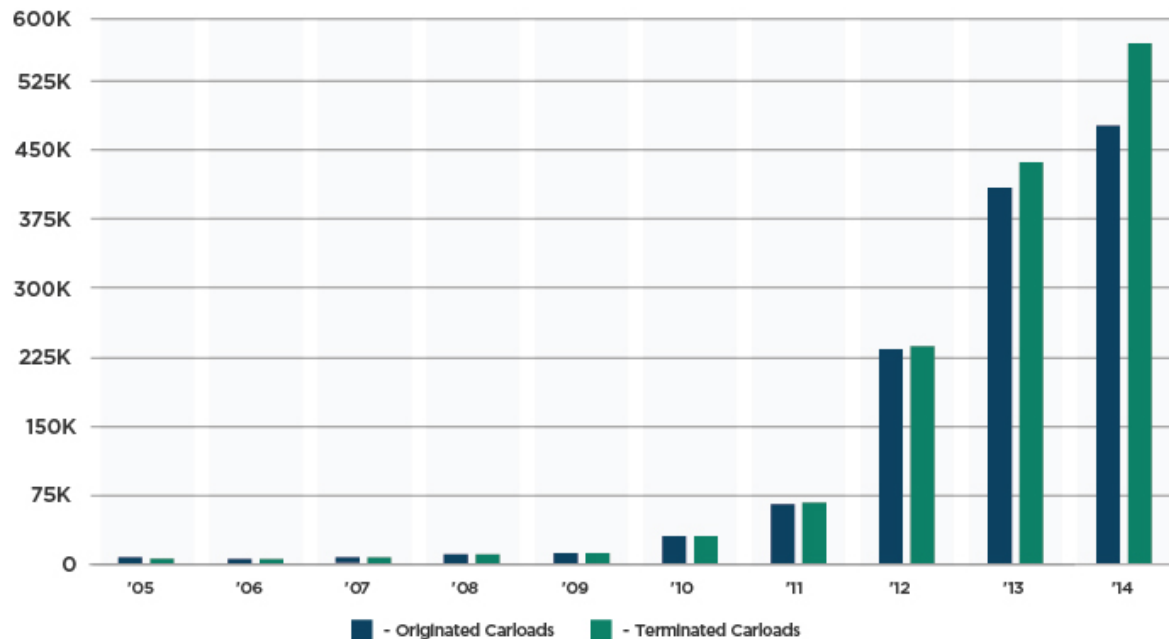
US Refinery Crude Oil Receipts  
US Energy Information Administration Data



# Oil Transportation by Railroads has Increased

## RAILROADS MOVING MORE CRUDE OIL

Originations vs. Terminations, 2005-2014



America's freight railroads are supporting the nation's energy renaissance by moving domestic energy resources such as crude oil. In fact, rail shipments of crude oil have skyrocketed in recent years with railroads originating a record 493,146 carloads in 2014. In light of increased volumes of crude oil moving by rail, freight railroads have implemented new operational protocols and advocated for stronger tank car design standards, while federal regulators have issued new regulations to help ensure this important commodity is moved safely.

Notes: Data are for U.S. Class I railroads  
Source: Association of American Railroads



Increases in domestic crude oil production from shales (and oil sands in Canada)

Domestic oil sources are underserved by pipelines, tankers & barges

Railroads are connecting interior oil fields to refineries

Railroads have flexible operations



# East, West and Gulf Coast Refineries are Largest Markets for Oil by Rail

## Energy Information Administration (EIA) Data for 2014

### East Coast (7 refineries, 1.27 million bbl/day capacity)

- 22% of its crude oil by rail
- 125,000 rail cars/year

### West Coast (25 refineries 3.24 million bbl/day)

- 6% of its crude oil by rail
- 70,000 rail cars/year

### Gulf Coast (43 refineries, 9.25 million bbl/day)

- 0.6% of its crude oil by rail
- 25,000 rail cars/year

Midwest and Rocky Mountain Refineries have been small markets (< 600 rail cars)

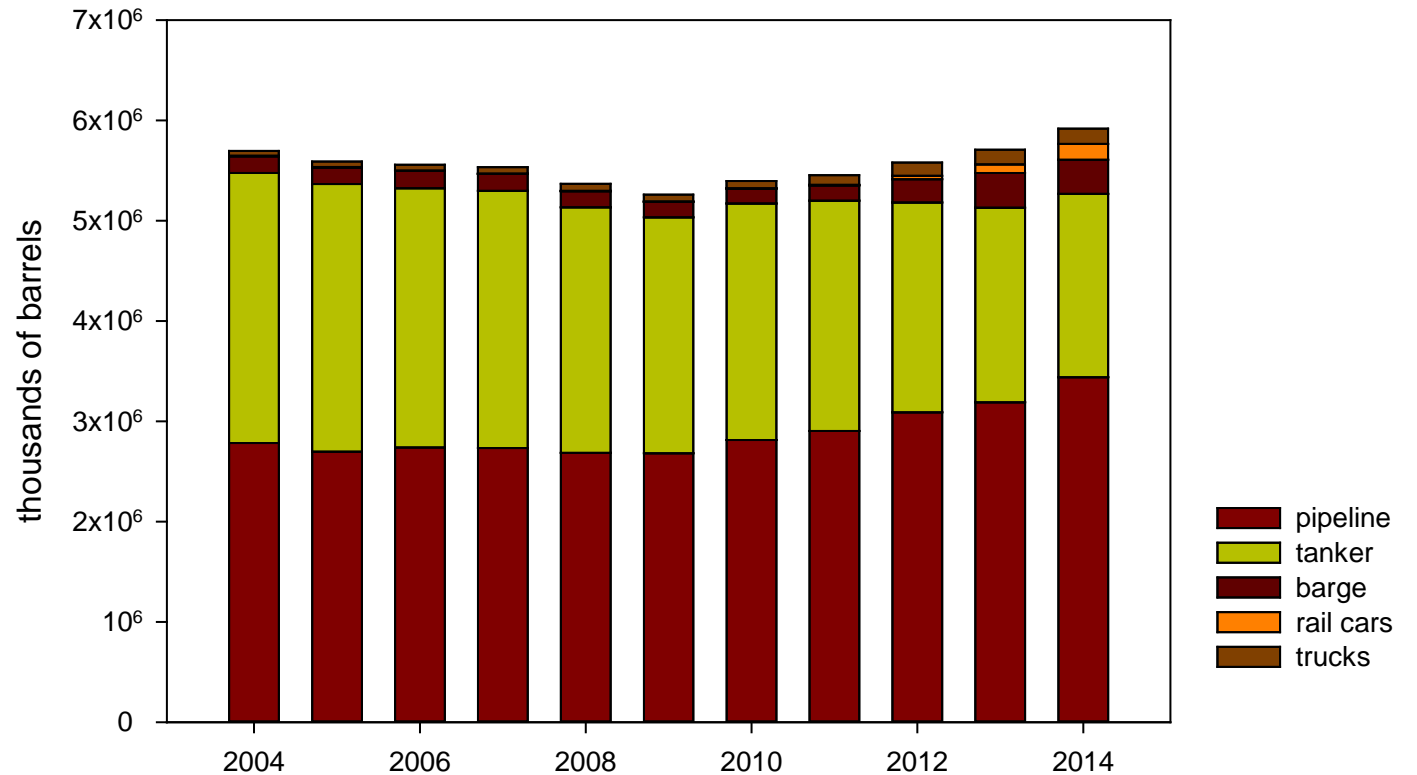


# Oil by Rail has Increased, but Remains Small Relative to Pipeline and Tanker Transport

Railroads presently transport 5 to 10% of the total crude oil volume in the US

Crude from Canada is about 12-15% of rail's share (<2% of total)

US Crude Oil Refinery Receipts  
US Energy Information Administration Data

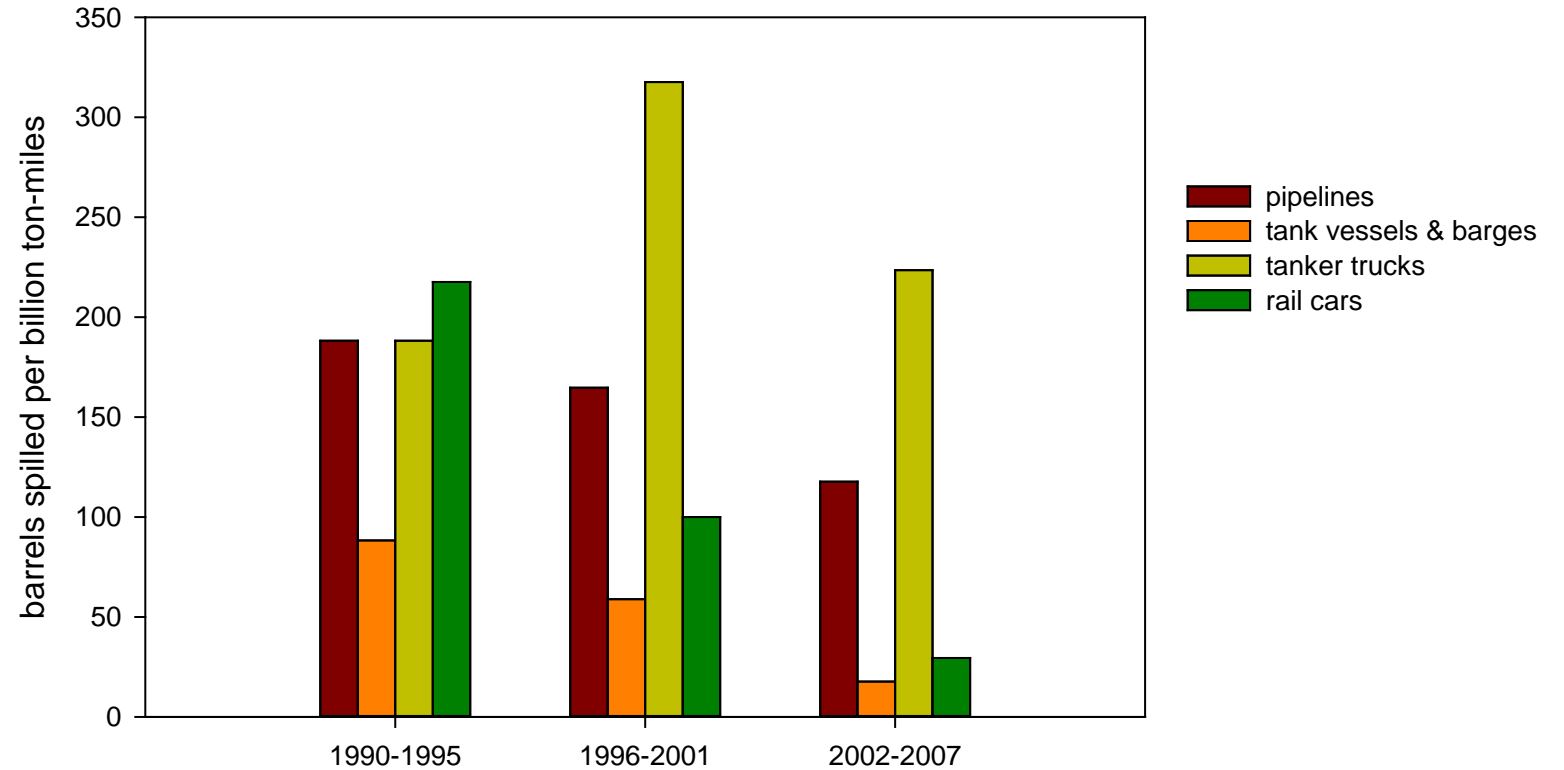


# Oil by Rail Safety is Comparable with other forms of Transport

Crude Oil and Petroleum Product Spills during Domestic Transportation  
Congressional Research Service Report 43390 (2014)

Pipelines, tank vessels/barges and rail spill rates have all declined

Tanker trucks spill rates show no consistent trend



# Potential for accidental releases is expected to increase

## Railroad safety record is impressive:

- “99.997% of hazardous materials go from origin to destination without any accidental release” - Ed Greenberg, Railroad Association, 2013
- 78 releases from 2.4 million rail cars
- Each rail car has a 0.00003 probability of accidental cargo release during transit.
- One of every 33,000 hazmat rail cars can be expected to have an accidental release during transit.

## Public Scrutiny of Oil & Railroads has Increased

- Climate Change
- Recent Accidents
- Legislative & Regulatory Changes

## With Increased transport comes the potential for more frequent crude oil spills:

- In 2008, 9,500 rail cars: 1 car involved in a spill every 3.5 years
- In 2013, 435,560 rail cars: 13 tank cars per year



# Outline

√ Background Information

Overview of NRDA process

Response considerations to minimize liability

Case Study of a rail car spill

# Natural Resource Damage Assessment (NRDA)

Process often used to estimate liability resulting from spills

Goal is to make environment and public “whole”

- Restore injured natural resources
- Compensate for interim lost services

Restoration, rehabilitation, replacement or acquisition

Statutory Authorities

- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) - “Superfund”
- Clean Water Act (CWA)
- Oil Pollution Act (OPA)
- State Statutes



# NRDA is a form of Toxic Tort Litigation

Separate from, and in addition to, Penalties and Fines from Regulatory Agencies

Government Trustees are the Plaintiff

- Burden of proof
- Rebuttable presumption of injury
- Flexibility and Discretionary

Compensatory, not Punitive

- Make the public whole
- One full recovery (double-counting is prohibited)
- Cost of assessment can not be grossly disproportionate in comparison with damage

“Injury” is disrupting or harming a natural resource

“Damage” is the monetary value of the injury



# Natural Resources

## Owned by the public

- Air, surface water, ground water, sediment & sometimes soil
- Fish, wildlife, birds, insects, etc.
- Cultural resources (recreational & historic sites)

## Managed in trust by Government Trustees:

- Federal Departments of: Agriculture, Commerce, Defense, Energy, Interior
- Tribes (Federally-Recognized)
- States: Governor and/or appointee
  - State Department of Natural Resources
  - State Environmental Protection Agency

## Provide Valuable Services

- Active: fishing, hunting, birdwatching, etc.
- Passive: existence, bequest, etc.



# NRDA terminology applied to an automobile accident

Incident: a vehicle is struck from the rear by another driver; no one involved requires medical attention

- Injury = a crushed rear bumper cover and bent lift gate
- Damages = cost to repair your vehicle and provide transportation while it is in the shop
  - Primary Restoration = repairs to the accident-affected parts of your vehicle
  - Compensatory Restoration = rental vehicle during repair process
- Baseline condition = every imperfection with your vehicle that existed before the accident

Similarities to a NRDA case:

- Damages = cost of restoration
- Restoration is to baseline, not pristine, conditions
- The parties don't need to agree on the value of the vehicle, just the repair/restoration outcome

# Timing of NRDA Events

Activities commence upon discovery of a release (e.g., sampling, documentation)

- Trustees can initiate NRDA process concurrently with emergency response efforts
- Under CERCLA, the statute of limitations is 3 years after the record of decision (remedy selection) is signed

NRDA process can continue for several months or years following the release

- Formal NRDA's cease following public review and comment of the Restoration Plan
- Informal NRDA's can be incorporated into settlement of the Incident response



# Outline

- √ Background Information
- √ Overview of NRDA process

Response considerations to minimize liability

Case Study of a rail car spill

# Strategic Emergency Response Support can Minimize NRDA Liability

Provide technical support to the Environmental Unit during cleanup activities

- Identify resources at risk, sensitive areas
- Mapping and trajectory modeling
- Shoreline assessment & prioritize response activities
- Review cleanup strategies & monitor outcomes
- Develop cleanup criteria & manage signoff process
- Permits
- Cultural/historical resource protection
- Waste disposal planning/tracking; develop mass balance
- Ephemeral data collection for both site closure and liability assessment purposes
- Documentation of response activities

***Incident might be entering a NRDA if:***

- ***Fish or wildlife kills occur***
- ***A fish consumption advisory is issued***
- ***Natural Resources Staff (Trustees) are active in response***





# Managing through an Injury Assessment is a Balancing Act

**Be Responsive:** listen to Trustee Concerns & call for Backup

Track down existing information

- Safety Data Sheets
- Resources at Risk
- Baseline Conditions

**Stay in Control:** conduct studies for severity, area and duration of injury, if warranted

- Studies need to have clear application to settlement
- Studies need defined scope of effort
- Compare post-spill condition to baseline
- Data Quality Objectives process is useful for designing studies

Make sure that response actions don't cause more injury & damage than the release



# Best Practices During Response will Minimize your Liability

Make sure response actions (e.g., tree removal for site access, soil compaction, bank erosion, etc.) don't cause more injury than the oil exposure –

Be surgical when you can.



# Example Best Practices for Response: Access to remote areas

Avoid cutting mature trees; use plank mats; use smallest equipment that can accomplish the job safely and efficiently

Return on Investment: rapid recovery that minimizes total cost



# Example Best Practices for Response: Access to Remote Areas

Avoid cutting mature trees; use plank mats; use smallest equipment that can accomplish the job safely and efficiently

Return on Investment: rapid recovery that minimizes total cost



# Damage Control through Restoration Selection

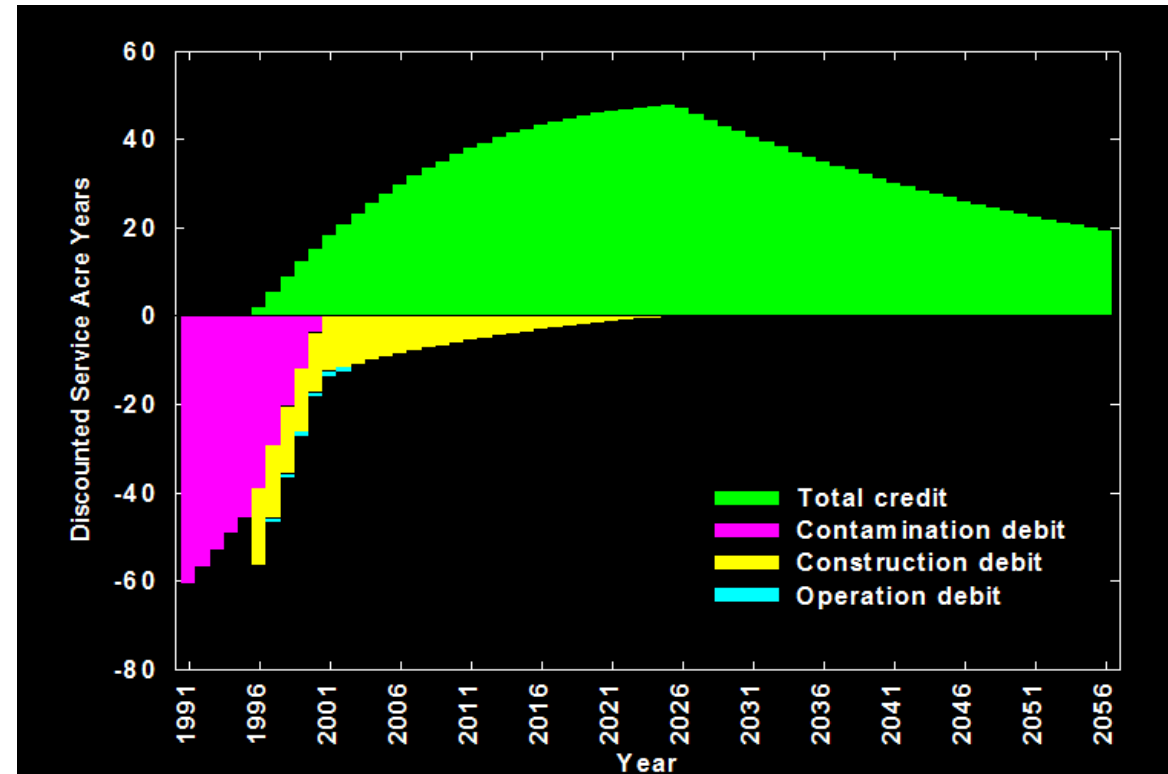
Identify reasonable range of restoration alternatives and projects

- Primary Restoration  $\approx$  Remediation = return to baseline condition
- Compensatory Restoration (Projects):
  - Conserve or Acquire a threatened resource
  - Enhance an impaired resource
  - Nexus between injury and restoration
  - Cost to Value ratio

Determine or negotiate appropriate scale of Compensation

- Services over time
- Value of Services

Restoration Plan is subject to public review



# Outline

- √ Background Information
- √ Overview of NRDA process
- √ Response considerations to minimize liability

## Case Study of a rail car spill

# Recent NRDA case from a railroad accident & spill

## Derailment in the Mississippi River watershed

- Mississippi River watershed includes several of the shale oil/gas fields
- Railroads are transporting >125,000 tank cars per year across this watershed to East Coast refineries

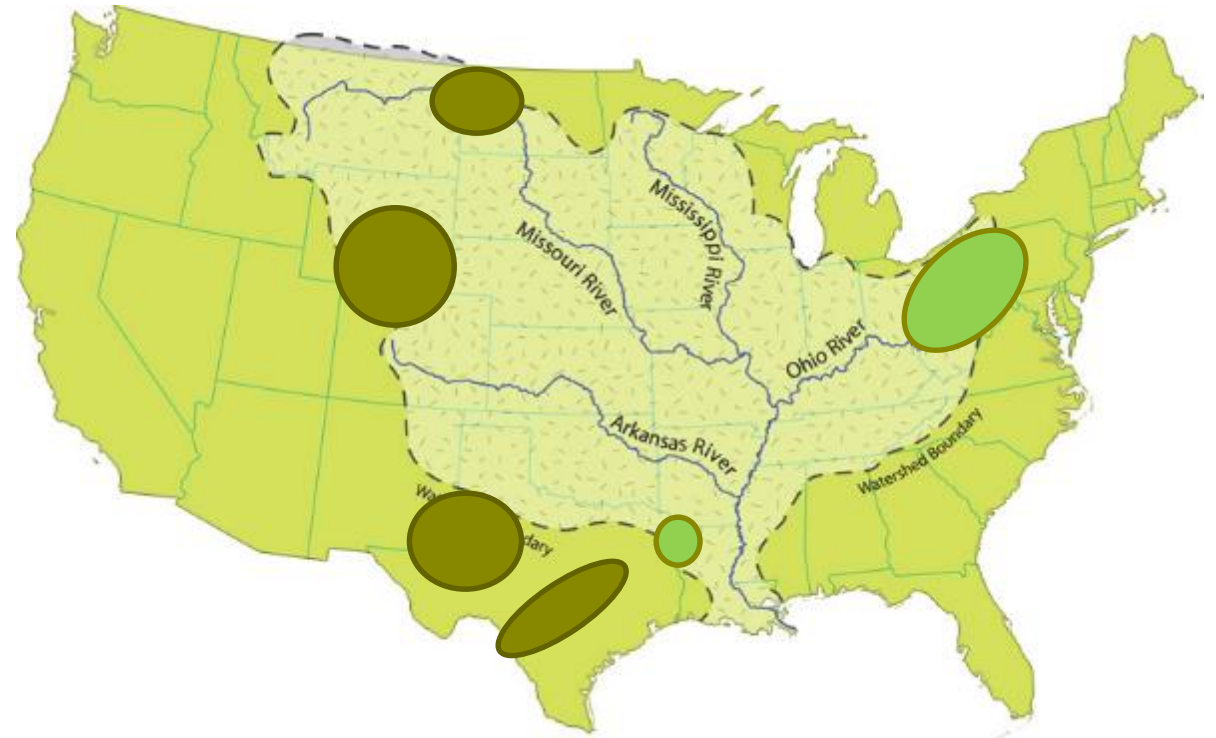
## 13 tank cars lost product & caught fire

- 8 to 9 tank car volumes of cargo burned
- 2 to 3 tank car volumes reached a stream
- ~2 tank car volumes recovered

## Fish kill reported in the receiving stream

- 50 river miles
- 70,000 fish

Total cost of accident estimated at ~\$8 million



map source: *nps.gov*

# Trustee's NRDA Claims

## Attorney General filed a NRDA Suit under a State Laws

- Substantial Danger to the Environment, Public Health and Welfare
- Air Pollution
- Water Pollution
- Water Pollution Hazard
- Restoration of Aquatic Life and Wildlife
- Common Law Public Nuisance

## NRDA settlement costs included:

- \$341,561.61 paid to State Response Agency
- \$20,000 paid to Responding County
- \$275,700 for Compensatory Restoration Projects
- \$637,261.61 plus fish restoration project

## Timeline:

- NRDA Complaint filed 20 days after accident
- NTSB report completed in ~3 years
- NRDA Case settled in ~6 years

## INVESTIGATION AND MONETARY VALUES OF FISH AND FRESHWATER MUSSEL KILLS

Robert I. Southwick and  
Andrew J. Loftus, editors

American Fisheries Society  
Special Publication 30



# Compensatory Restoration Project A

## State oversight of the Catfish Structure project

- Place 20 catfish spawning and nursery structures in the river where fish kill occurred
  - ~55 river miles downstream of accident
  - ~60 river miles downstream of accident
  - ~70 river miles downstream of accident
- Enhance flathead catfish population in the receiving stream by providing structures they need (that have become rare)
  - Adult catfish spawn in the simulated hollow log (corrugated plastic culvert)
  - Hatchling catfish will seek refuge from predators in the simulated tree branch “sweeps” (PVC pipes)

\$5,700 for State oversight, plus cost to construct & install



Image provided by: *State Natural Resources Agency*

# Compensatory Restoration Project B

## Oxbow Restoration in a State Fish & Wildlife Area

- Adjacent to the affected stream, ~100 river miles downstream of accident
- Enhance the water control structure between the river and oxbow (9)
  - Improve fish spawning
  - Improve fish nursery
  - Increase bird nesting habitat
- Protect habitat quality
  - Prevent fish entrapment
  - Minimize erosion at connection
  - Decrease siltation in spawn/nursery area
- Flood storage

\$150,000 for State to complete project



image provided by: *State Natural Resources Agency*

# Compensatory Restoration Project C

## Wetland Restoration in a State Natural Area

- Tributary of affected stream, joins ~45 river miles downstream of accident
- Excavation and 10:1 slope with native wetland planting
  - Flood storage
  - Improve water quality downstream
  - Restore aquatic habitat
- Educational benefits to resource owners (public)
  - Project visible from interpretive center
  - Demonstration of newer restoration method
  - Reconnection of stream & floodplain habitats

\$120,000 for State to complete project



Image provided by: *State Natural Areas Agency*

# Thank You

- √ Background Information
- √ Overview of NRDA process
- √ Response considerations to minimize liability
- √ Case Study of a rail car spill

[Jody.Kubitz@cardno.com](mailto:Jody.Kubitz@cardno.com)

[Brian.Reilly@cardno.com](mailto:Brian.Reilly@cardno.com)

[Angie.Morrow@cardno.com](mailto:Angie.Morrow@cardno.com)

Emergency Spill Response  
+1-800-475-5886