



Operation Safe Delivery:

A Comprehensive Federal Action Plan To Address The Safe Transportation of Bakken Shale Crude Oil and Other Flammable Liquids

Tim Butters

Deputy Administrator

Pipeline and Hazardous Materials Safety Administration

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PHMSA's Mission

To protect people and the environment
from the risks inherent in the transportation
of hazardous materials by all modes of transportation.

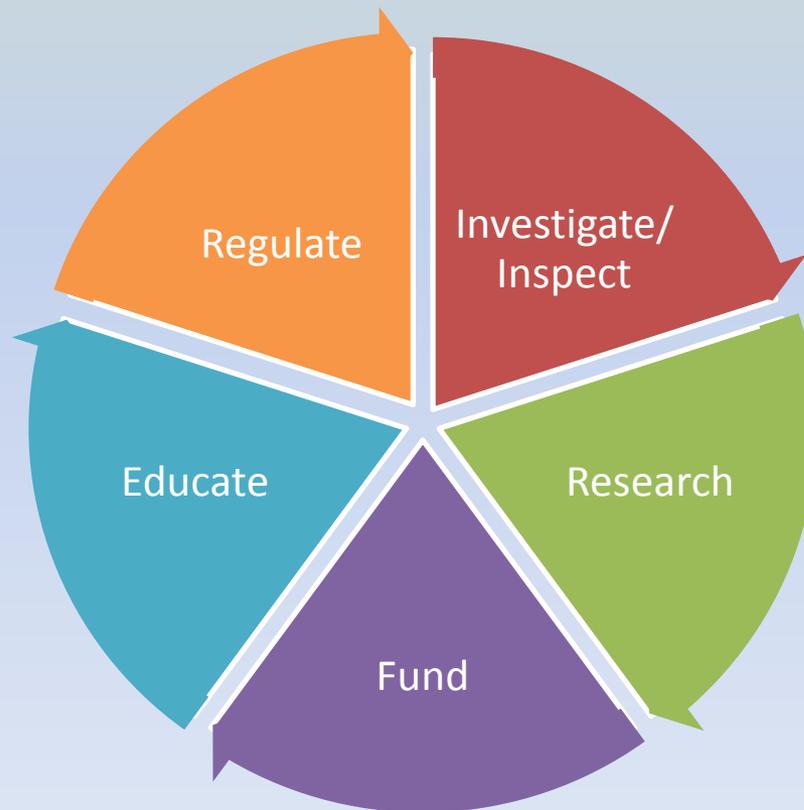


What We are Trying to Prevent





Components of PHMSA's Strategy





Pipeline and Hazardous Materials Safety Administration

Protect people and the environment from the risks of hazardous materials transportation.

- Safe transportation of more than 1 million daily shipments of hazmat by air, rail, highway, and water.
- Safety of over 2.6 million miles of hazardous gas and liquid pipelines.

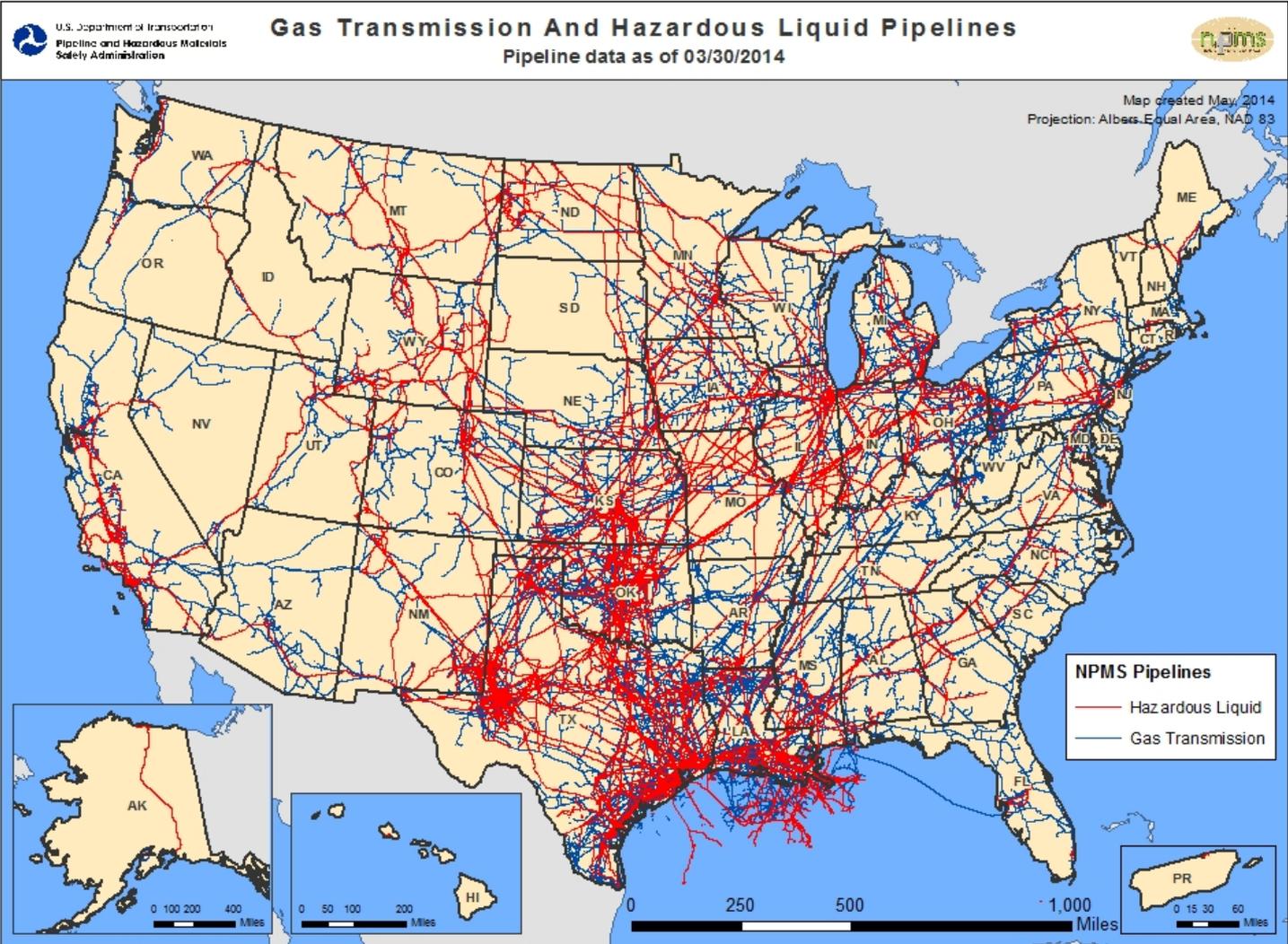




Regulating Hazardous Materials

- The 5 “C’s”
 - ✓ Classification
 - ✓ Container
 - ✓ Communication
 - ✓ Compliance
 - ✓ Consequence
- Who, what, where and how
- In cooperation with FRA, FMCSA, FAA, US Coast Guard

US Hazardous Liquid and Gas Transmission Pipeline Network

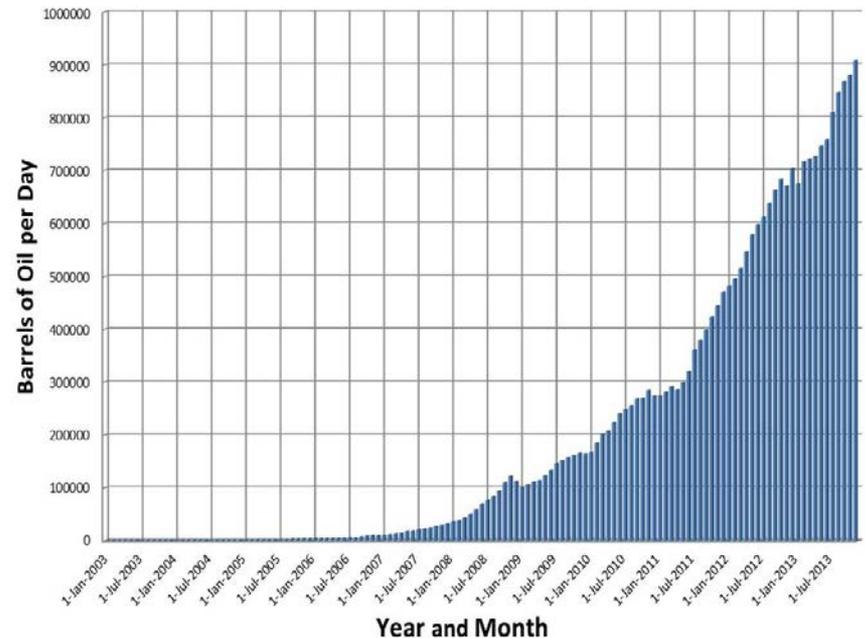




US Energy Production

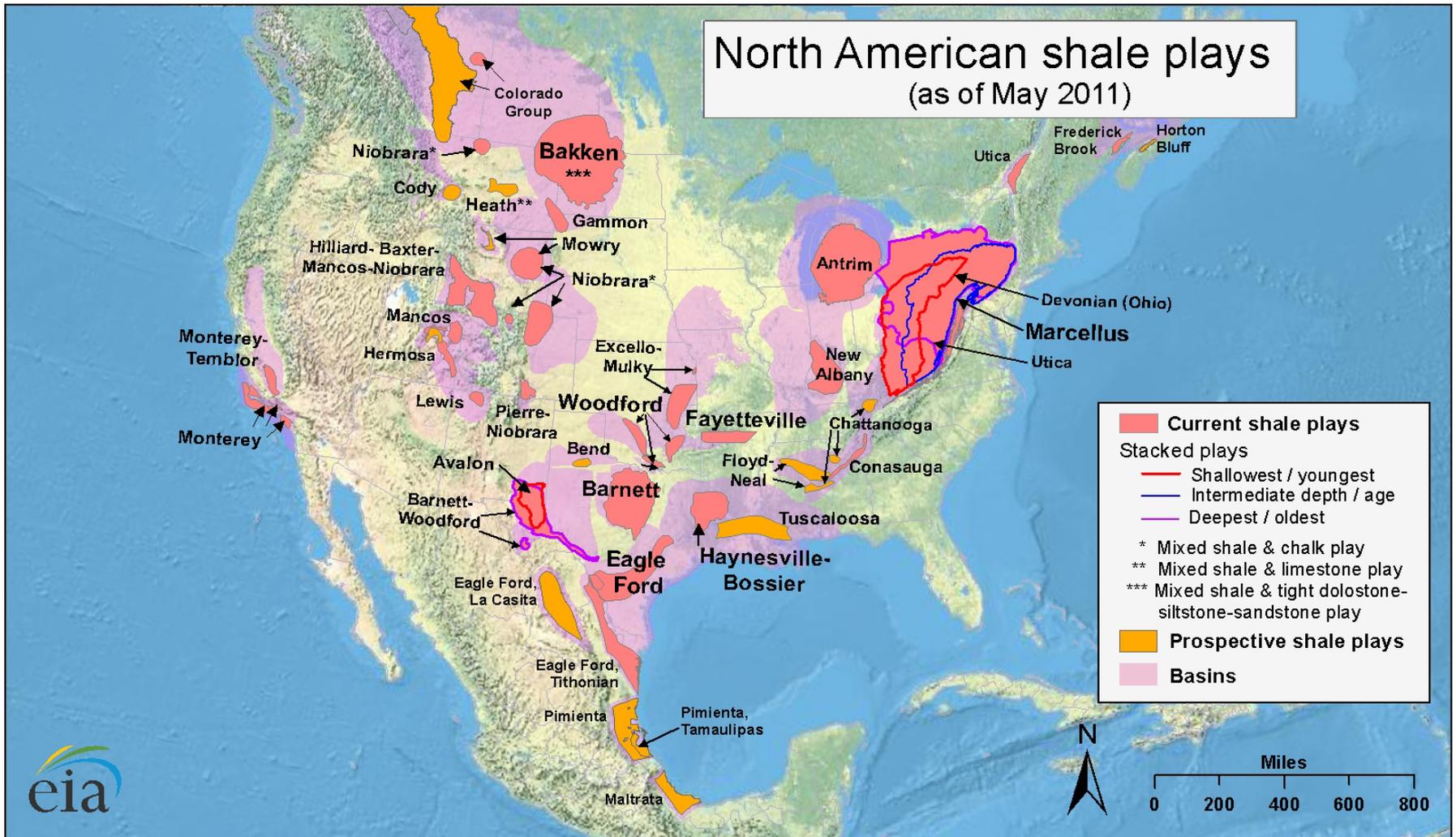
- Growth of domestic natural gas and crude oil production is revolutionizing the US energy economy.
- During December 2013, over 11 million barrels daily were produced.
- In 2013 the Bakken play produced over 10% of all US oil.
- In November 2013, over 10,022 Bakken wells produced 29 million barrels of oil, over 900,000 barrels of oil daily.

Table 1: Bakken Oil Production in North Dakota 2003-2013



Unconventional Oil and Gas

A Game Changer

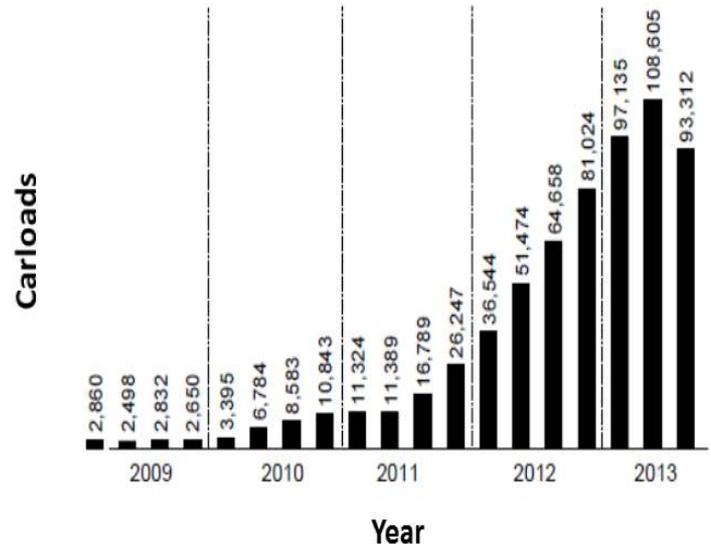




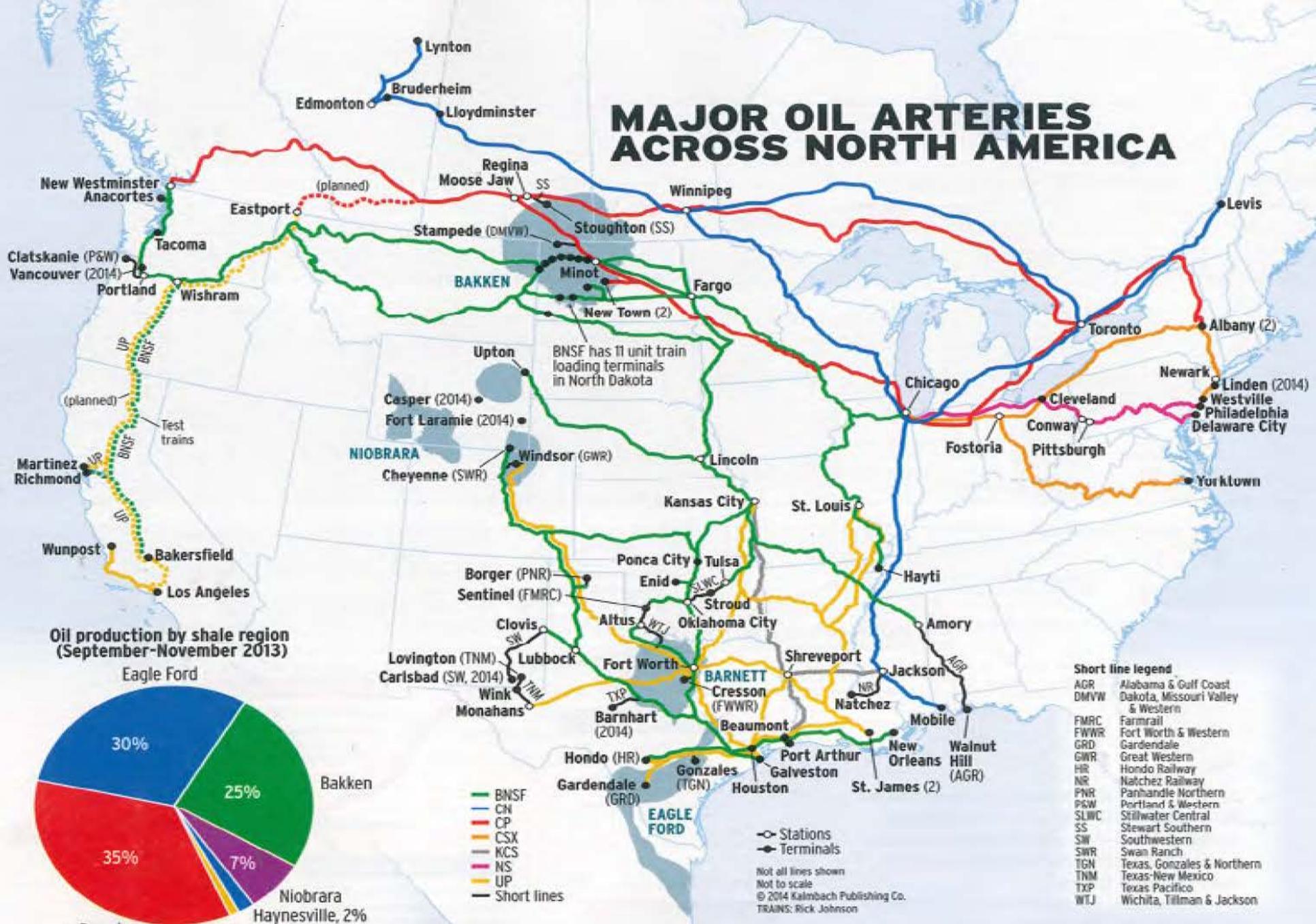
Crude Oil Transport

- Increased energy production equals increased transport by all modes.
- The volume of crude oil moving by rail has quadrupled in less than a decade – now 725K bbl daily.
- Rail volume has increased, but accidents have declined by 43 %.
- Hazmat related incidents are down 16 %.
- Sharp increase in use of unit trains - 100 cars or more of a single commodity.

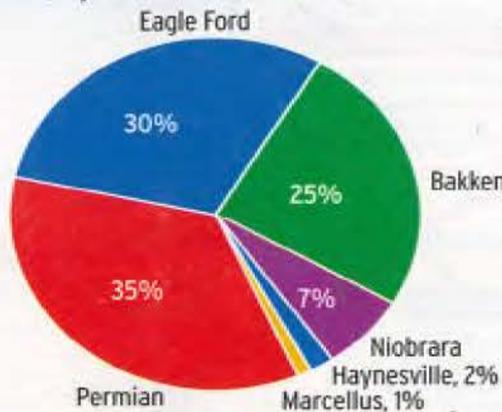
Table 2: Originated Carloads of Crude Oil on Class 1 Railroads



MAJOR OIL ARTERIES ACROSS NORTH AMERICA



Oil production by shale region (September-November 2013)



Short line legend

AGR	Alabama & Gulf Coast
DMVW	Dakota, Missouri Valley & Western
FMRC	Farmrail
FWWR	Fort Worth & Western
GRD	Gardendale
GWR	Great Western
HR	Hondo Railway
NR	Natchez Railway
PNR	Panhandle Northern
P&W	Portland & Western
SLWC	Stillwater Central
SS	Stewart Southern
SW	Southwestern
SWR	Swan Ranch
TGN	Texas, Gonzales & Northern
TNM	Texas-New Mexico
TXP	Texas Pacific
WTJ	Wichita, Tillman & Jackson

○ Stations
● Terminals

Not all lines shown
Not to scale
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TRAINS: Rick Johnson



Recent Bakken Crude Oil Derailments

- *Lynchburg, VA*

April 30, 2014 – 17 of 105 cars of Bakken Oil unit train derailed

- *Plaster Rock, NB*

January 7, 2014- 16 cars derailed, 8 were hazmat

- *Casselton, ND*

December 20, 2013 - 20 of 106 crude oil tank cars derailed

- *Aliceville, AL*

November 8, 2013 - 25 of 90 crude oil tank cars derailed

- *Lac-Megantic, QE*

July 6, 2013- 74 cars derailed of runaway train resulting in 47 fatalities





Operation Safe Delivery

Comprehensive approach to address risks, prevent derailments and reduce consequences of flammable liquids by rail.

- ✓ Product testing and analysis
- ✓ Inspections and enforcement
- ✓ Rulemaking
- ✓ Voluntary Actions
- ✓ Partnerships
- ✓ Public Outreach
- ✓ Aggressive Actions
- ✓ Emergency Response



Emphasis on prevention and mitigation.



Regulatory Actions

- **September 6, 2013: Advanced Notice of Proposed Rulemaking (ANPRM)** to improve the crashworthiness of DOT 111 tank cars.
- **December 5, 2013:** Comment closing date – over **150,000** comments were received.
- **May 2014: NPRM** - improvements to rail operational procedures, tank car. Under review by OMB/OIRA

[ANPRM – NPRM – FR / 3-4 year process]



Non-Regulatory Actions

- **August 2013:** The FRA issued **emergency order** for railroads to properly secure rolling equipment.
- **August 2013:** PHMSA and FRA issued **safety advisory** recommending railroads take additional action to eliminate risk.
- **November 2013:** PHMSA and FRA issued a **safety advisory** reinforcing the importance of proper characterization, classification, and selection of a packing group for Class 3 materials.
- **January 2014:** PHMSA issued a **safety alert** advising Bakken crude oil may be more flammable than traditional heavy crude oil.
- **February 2014:** Secretary of Transportation issued an **Emergency Order** requiring shippers of petroleum crude oil to ensure crude oil is properly analyzed and classified prior to transportation.
- **May 7, 2014:** DOT issued a an **Emergency Order** requiring railroads to provide local communities with information regarding transportation of Bakken crude oil and a Safety Advisory regarding the use of DOT 111 rail cars. (See FAQ's)



Enhanced Enforcement

- **Operation Classification:** Unannounced inspections and testing of crude oil samples to verify classification.
 - **August 2013:** Launch of “Operation Classification.”
 - PHMSA tested for vapor pressure, boiling point and other characteristics on 14 samples.
 - Coordinating efforts with Transport Canada and North Dakota.
 - **February 2014:** PHMSA has initiated a notice of proposed violations (NOPV) against 3 shippers with additional actions pending.



The Secretary's Call to Action

- In January, 2014, Secretary Foxx issued a **Call to Action** to rail company CEOs and energy association leadership.
- January 16, 2014, Secretary Foxx met with petroleum and railroads industry to discuss crude oil safety.
- 30-day proposed changes focused on:
 - *Proper product classification and characterization*
 - *Operational controls to lessen the likelihood of accidents*
 - *Tank car improvements – AAR Tank Car Committee Action*
 - *rail track inspections and integrity*
- Voluntary improvements were identified (February 2014).
- PHMSA and FRA are continuously engaged with stakeholders to ensure progress and effectiveness of safety improvements.



Industry Actions

- Association of American Railroads - Letter of Agreement To DOT includes
 - HazMat Routing Considerations
 - Speed Restrictions, distributed power and operational controls
 - Rail inspection and maintenance
 - Emergency response assessment and training
- API/Oil & Flammable Liquid Shippers –
 - Development of analysis and classification best practice methodology
 - Sharing of crude oil testing/analysis data and methodology



Next Steps

- Consider other regulatory actions and will explore all regulatory options and new authority.
- Continue to work with shippers and carriers to address safety gaps and issues
- Continue Operation Classification and enhance outreach efforts to better educate the regulated industry, emergency responders and the public about crude oil and rail safety.



Operation Safe Delivery Website – www.phmsa.dot.gov

About PHMSA

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Operation Safe Delivery: Enhancing the Safe Transport of Flammable Liquids

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Call to Action

In response to recent accidents involving crude oil shipments by rail in the U.S. and Canada, U.S. Transportation Secretary Anthony Foxx has issued a "Call to Action," calling on rail company executives, associations, shippers, and others to discuss how stakeholders can prevent or mitigate the consequences of rail accidents that involve flammable liquids. [See recent Call to Action letter from Secretary Foxx.](#)

Nearly a million shipments of hazardous materials move throughout the U.S. each day. While most of these shipments reach their final destinations without incident, accidents can and do occur. DOT remains committed to the safe transport of flammable liquids by all modes of transportation, including the nation's 140,000 mile freight railroad network.

Action Plan



PHMSA Oil Sample Analysis Bakken vs Other Crudes

- Appears to be several variations of Bakken Crude oil
- Lower flash points and boiling points
- Higher vapor pressures (Reid)
- Higher C1-C4 Content (methane, ethane, propane, butane and other isomers)
- Product may be changing as it moves through the transportation system



Emergency Response Issues

- Lack of information – commodity flow and product
- Most local fire departments not capable of effectively responding to unit train incidents
- Bakken crude oil is not an exotic product – it is a flammable liquid – no new special curriculum is needed
- Closer cooperation between shipper, railroads and local responders is needed
- Single training program will not succeed – needs to reflect local risks and capabilities
- Industry may need to provide response resources



Emergency Preparedness and Response Actions To Date

- February 10 – Emergency Response Stakeholder Engagement meeting
- Multiple workshops/briefings and training to public safety groups in North Dakota & Williston Basin
- Briefing key emergency response stakeholders – IAFC, NASFM, NAFTD
- Coordination with industry stakeholders – AAR, API, AFPM, ILTA
- May 29 – Lessons Learned Roundtable – Richmond, VA
Casselton, ND – Aliceville, AL – Lynchburg, VA – Cherry Valley, IL
- Draft Lessons Learned Roundtable Report
- Development of response guidance document
- Industry may need to provide operational response resources
- Establishment of WH federal interagency working group (DHS/NPPD, FEMA, EPA, DOI, DOE, DOT/PHMSA & FRA)



Other Items to Consider

- Future regulatory and non-regulatory actions
 - Intersection with pipeline oversight
 - Agency reauthorization topics
 - Seeking information from industry
- Updated information on our website
- Inter-agency coordination to share data, promote public awareness, provide additional training, and engage industry



Resources

- Stay connected with PHMSA:
 - Website: www.phmsa.dot.gov
 - Twitter: @PHMSA_DOT
- **Operation Safe Delivery** web page will be continuously updated to provide progress reports on industry commitments as part of the “Call to Action” and additional Departmental activities related to rail safety initiative.

QUESTIONS

