Oil Train Safety and ER Planning Session

Tim O’Brien
Director, Hazardous Materials Management
First Responder Training

- TransCAER
  - Commodity
  - Preparedness assistance
- Security Emergency Response Training Center (SERTC)
- Public/Private Partnerships
  - Regional Training Centers
  - Joint Training Events
- Crude By Rail
  - On Line
  - Fire House
  - Hands On (SERTC)
Railroad Emergency Response Plans

- Hazardous Materials ER Plan
  - Core plan
  - Cover system and facilities
  - Includes oil spill response

- OPA-90 Plans
  - Covers facilities which have > 1M gallons of oil storage
  - Specific drill requirements

- Geographic Response Plans

- State Specific Response Plans
  - MN, CA, WA

- Federal Oil Spill Response Plan
  (Awaiting Final Rule)
  - OPA-90 type drill requirements
  - State reporting of HHFT traffic
U.S. Crude Oil Movement Update

Tons Originated by U.S. Class I Railroads

Crude petroleum

Data include the U.S. operations of CN and CP. © 2014–2017, Association of American Railroads.
Rail Transports Hazardous Materials Safely

• Since 1980, railroads reduced rates for employee injuries, train accidents and grade crossing collisions by 80%

• In 2016 BNSF moved hazardous materials 99.997% of the time without an accidental release
Prevention: Reducing Risk

Human Factor
• Training
• Remote monitoring
• Positive Train Control
• Self reporting protocol

Equipment/Mechanical
• Ultrasonic inspection
• Detector network - dragging equipment
• Technology
  • Thermal/infrared scanning for warm bearing detection

Track/Signal
• Enhanced track inspection training
• Continued elimination of jointed rail
• Strong capital program for tie renewal
• Technology - ground penetrating radar and enhanced geometry testing

Our ongoing focus is on instilling a culture of commitment and compliance — a culture that is sensitive to exposure and risk.
Unmanned Aerial Vehicles (UAV’s)

BNSF is one of only a few companies in the United States – and the first railroad – to take the lead in the use of Unmanned Aerial Vehicles (UAVs)

Supplemental track and structure inspection
- Small multi-rotor aircraft
- Operations governed by FAA Section 333 Exemption

Track integrity flights for key train operation
- Larger fixed wing aircraft
- Initially governed by FAA Research Agreement (CRDA)
Prevention: Positive Train Control (PTC) Deployment Will Enhance Safety

PTC is a digital wireless communication technology

BNSF’s PTC System
Mitigation: New Tank Car Standards
Mitigation: New Tank Car Standards

Tank Cars for High-Hazard Flammable Trains (HHFT)

New tank cars built after Oct. 1, 2015, must meet enhanced DOT 117 design or performance criteria for HHFT:

- Increased thickness from 7/16 inch to 9/16 inch steel
- Thermal protection required
- Jacketing with minimum 11-gauge steel and weather-tight
- Full-height Head Shield - 1/2-inch thick
## Mitigation: New Tank Car Standards

<table>
<thead>
<tr>
<th>Material</th>
<th>Jacketed or Non-jacketed Tank Cars</th>
<th>DOT-111 not authorized on or after:</th>
<th>DOT-111 CPC-1232 not authorized on or after:</th>
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<tbody>
<tr>
<td>Unrefined petroleum products – Class 3, PG I (e.g., Crude Oil)</td>
<td>Non-jacketed</td>
<td>January 1, 2018</td>
<td>April 1, 2020</td>
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<td>Ethanol</td>
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</table>
Tank Cars in Crude-by-Rail Service on BNSF

Source: BNSF internal data
Geographical Response Plans (GRP’s)

- Region 10 RRT/NWAC—Responsible for Plan Development
  - 38 Current Public GRP’s
- BNSF GRP Development
  - Upper Deschutes River (OR - draft)
  - Lake Pend Oreille (ID)
  - Kootenai River (ID/MT)
  - Lake Almanor/Feather River (CA)
  - Middle Fork Flathead River (MT)
  - Wind River (WY)
  - Upper Mississippi River (MN)
  - Upper Colorado River (CO)
HazMat By Rail Plan

Government | Industry | Community

Ordo Ex Chaos
Need for a Columbia County Plan

• 11 EHS sites
• 51 miles of mainline railroad
• 65 miles of State Highway 30
• 7 multi-use Ports and industrial parks
Hazardous Materials Emergency Preparedness Grant Program

Public – Private Partnership through LEPC

Ordo Ex Chaos
Continuous Improvement

- Engage your citizens, public sector, and industry partners through your LEPC.
- Exercise.
- Stay abreast of the evolving threats, hazards, and industry safety enhancements.
- Update your plan.
For More Information

Steve Pegram
Director
Columbia County Office of Emergency Management
503.366.3934
steve.pegram@co.columbia.or.us.
Pacific Northwest Disaster Resilience Symposium
PNWER Annual Summit
Panel: Oil Train and Emergency Response Planning
Portland, Oregon – July 24, 2017

Marc Grignon
Regional Director, Surface, Pacific Region, Transport Canada
Timely, Effective and Harmonized Regulatory and Legislative Process/Instruments implemented

Following the tragic train derailment in Lac-Mégantic, Québec, on July 6, 2013, Transport Canada quickly implemented the following:

Within a month of the incident:
• Issued an Emergency Directive requiring the securing of unattended locomotives and number of crew for trains carrying dangerous goods

Within six months of the incident:
• Issued Protective Directions 31 and 32
• Engaged technical and industry experts to make recommendations
• Approved updated Canadian Rail Operating Rules
• Published proposed regulatory changes to adopt new standards for DOT-111 tank cars

Within a year of the incident:
• Completed stakeholder consultations on a comprehensive review of the liability and compensation regime for Rail
• Issued an Emergency Directive requiring railway companies to immediately implement key operating practices
• Issued Protective Directions 33 and 34
• Announced a TDG Emergency Response Task Force
• Published amendments to the Transportation of Dangerous Goods Act that update the DOT-111 tank car standard
Tailored Approach

**Public:** Focus on safe people and safe operations, knowing who is regulated and who is moving what types of dangerous goods and where.

- Protective Direction
- Reporting – Part 8 of the Transportation of Dangerous Goods Regulations
- Consultations
- Consultation tool – Let’s Talk Transportation of Dangerous Goods

**First Responders/Communities:** Focus on minimizing damages and responding effectively in case of a spill. Activities include measures to reduce impacts of incidents and support firefighters and first responders’ need for information, communication, and coordination.

- Emergency Response Assistance Plans (ERAP)
- Emergency Response Task Force (ERTF)
- Steering Committee on First Responders Training
- GPAC Sub-committee on Emergency Response
- Exercises Vulcan & Athéna
- 2016 Emergency Response Guidebook (published every 4 years)
  - Video: Overview of the Emergency Response Guidebook
- Videos aimed at First Responders
- CANUTEC – The Canadian Transport Emergency Centre

**Safety Awareness Materials and FAQ**
Harmonization

Engaging Internationally

• The United Nations Sub-Committee of Experts on the Transport of Dangerous Goods (UNSCETDG)
• The International Civil Aviation Organization (ICAO) Dangerous Goods Panel (DGP)
• The International Maritime Organization (IMO) Sub-Committee on Carriage of Cargoes and Containers (CCC)
• The International Atomic Energy Agency (IAEA) Transport safety Standards Committee (TRANSSC)

Canada/U.S. Collaborations

• Canada-U.S. Regulatory Cooperation Council (RCC)
• TC-117 standard
• Protective Direction 37

Safety Research and Analysis

• Crude Oil Sampling and Analysis
• Expanded Crude Oil Sampling and Analysis
• Behaviour of Tank Cars Carrying Crude Oil and other Flammable Liquids Exposed to Fire Conditions
• Risk Evaluation of Tank Car Breach: Focus on Top Fittings Protection
Future Outlook

Transportation of Dangerous Goods Regulations (TDGR)
- Regulations Amending the Transportation of Dangerous Goods Regulations (Marine Provisions – Part 11)
- Canadian Update (including Parts 2 & 5)
- Emergency Response Assistance Plans – Part 7
- Training – Part 6

Rail Safety
- Railway Safety Act Review launched on April 26, 2017
- Mandating Voice and Video Recorders on Locomotive Cabs

Canada’s Oceans Protection Plan