Safety Issues: Transportation of Crude Oil and Hazardous Liquids By Rail

Crude & Hazardous Liquids by Rail Safety 2015
Houston, TX
August 26, 2015

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Cause of Railroad Accidents

- Signal
- Mechanical
- Track
- Operations

Accident
Safety Issues

• Tank Car Integrity
  • Puncture resistance
  • Thermal resistance
  • Fittings protection

• Railroad Operations
  • Route planning and route selection
  • Hazardous materials classification

• Emergency Response
  • Planning
  • Response capability
  • Awareness and training
Conrail train derailed while operating over a movable bridge.
NTSB Investigation
Paulsboro, NJ – November 30, 2012

• Rupture of DOT 105 tank car, release of approx. 20K gallons of vinyl chloride
• Significant HAZMAT exposure event
Safety Issues

- Inadequacies in training and qualifications for movable bridges.
- Failure of the Incident Commander to implement established hazardous materials response protocols.
BNSF crude oil unit train strikes a derailed BNSF grain train.
• Major release of crude oil (approx. 476K gallons) and significant fire event.
• Evacuation of approx. 1,400 residents.
Safety Issues

• Integrity of rail car axles
CSX crude oil unit train derailment.

- 17 tank cars derailed
• Environmental Impact
  • Release of crude oil into the James River
• Local evacuation of residents
Safety Issues Under Consideration

• Track safety standards
Safety Issues Under Consideration

- Tank car integrity
NTSB Investigation - Open
Mount Carbon, WV – February 16, 2015

CSX crude oil unit train derailed.
Environmental Impact

- Release of crude oil into the Kanawha River

Significant Fire Event
Safety Issues

- Tank car integrity
Recent NTSB Investigations
Heimdal, ND – May 6, 2015 (Open)

BNSF crude oil unit train derailment.
Safety Issues Under Consideration

- Integrity of rail car wheels
Cause of Railroad Accidents

- Signal
- Track
- Mechanical
- Operations
- Accident
NTSB Investigation
Red Oak, IA
NTSB Investigation
Mineral Spring, NC
NTSB Investigation
Chicago, IL
Risk Mitigation Strategies

- Positive Train Control (PTC)
- Cab signals/Automatic Train Control
- Enhanced track inspection technology
- Improved wheel and axle inspection and defect detection
Safety Stakeholders

Tank Car Manufacturers

Producers

Railroads