

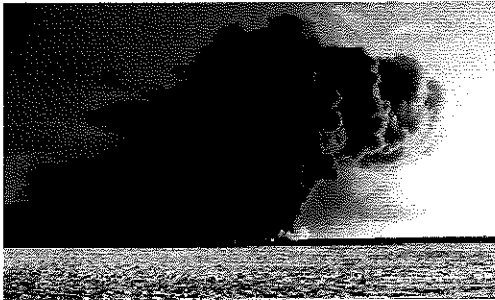
NTSB Safety Compass

RAIL SAFETY

As Rail Hazmats Rise, So Must Safety

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(<http://www.nts.gov/investigation/s/Pictures/la-apphoto-train-derailment-fire2-jpg-20131230.jpg>)

Scene of the Casselton, ND derailment and fire. (Photo: Ken Pawluk / AP / December 30, 2013 / latimes.com)

Increasing concerns about the transportation of crude oil and other hazardous materials through American communities have brought rail tank car safety to the forefront, and recent derailments have provided a fresh reminder of the need to improve the safety of transporting these materials by rail. Since 2006, a rapid increase in rail transport of flammable liquids has led to a growing risk to life, property, and the environment. Two commodities in particular, crude oil and ethanol, have led a massive surge in hazardous materials traffic, and a corresponding rise in the number of derailment accidents involving these products. The sharp and continuing upward trajectory of these shipments emphasizes the urgency of a commensurate response in safety measures, which is why the issue of Improving Rail Tank Cars (http://www.nts.gov/safety/mwl/Pages/mwl15_2015.aspx) is included on our 2015 Most Wanted List (<http://www.nts.gov/safety/mwl/Pages/default.aspx>).

Last week, on February 16, 28 tank cars in a 109-tank car CSX crude oil train derailed near Mt. Carbon, West Virginia. Some of the highly flammable cargo released and ignited. One home was destroyed, at least one person was injured, and residents in a half-mile radius were evacuated. The accident came just two days after a February 14 crude oil unit train derailment and fire about 50 miles south of Timmins, Ontario. While the causes of these accidents have yet to be determined, much more needs to be done to heighten safety in this environment of rapidly increasing hazmat rail transport.

The United States now leads the world in crude oil production growth, and in Montana's and North Dakota's Williston Basin Bakken Region, output now exceeds a million barrels per day. In response, America's railroad shipment originations have increased from 10,800 crude-loaded tank cars in 2009 to more than 491,000 in 2013. Ethanol shipments have surged as well following the provision in the 2005 Energy Policy Act for incremental increases in the production of ethanol for motor fuel blending. In 2013, ethanol was the second most transported hazardous commodity by tank car with over 291,000 shipment originations.

Over the years, NTSB investigations have raised several concerns about the three major aspects of this problem. First, safer operations, to reduce the likelihood of derailment. Second, if there is a derailment, better tank car accident performance, including the lack of puncture resistance, poor thermal resistance — that is, ability to withstand a pool fire without energetic rupture — and inadequate top and bottom fittings protection. And finally, if there is a derailment and a release of hazardous material, more robust emergency response.

In June 2009, a deadly derailment in Cherry Valley, Illinois, resulted in 13 breached ethanol tank cars, a post-accident fire, one death, several injuries, and the evacuation of 600 residences within a one-half mile radius. As a result of this accident, the NTSB issued comprehensive safety recommendations urging the Pipeline and Hazardous Materials Safety Administration (PHMSA) to require newly manufactured and existing tank cars authorized for transportation of volatile ethanol and crude oil to have enhanced tank head and shell puncture resistance systems, top fittings protection that exceeds existing design requirements for DOT-111 tank cars, and bottom outlet valves designed to remain closed when subjected to impact forces.

Meanwhile, the tank car industry recognized the need to reexamine existing standards for DOT-111 tank cars. In 2011, the Association of American Railroads (AAR) requested PHMSA to amend the Hazardous Materials Regulations with proposed standards for DOT-111 tank cars used for Packing Group I and II hazardous materials, the two highest categories of this kind.

In the absence of any federal rulemaking, the AAR issued casualty prevention circular CPC-1232 in 2011 to amend industry standards and specifications. It called for tank cars ordered after October 2011 for crude oil and ethanol to have marginally thicker normalized steel and half-height head shields. The AAR also required top fittings protection for cars ordered after July, 2010.

Prompted by an increasing frequency of accidents and the ongoing lack of regulatory action, the NTSB held a public forum on April 22-23, 2014, on rail safety and the transportation of crude oil and ethanol. It was clear from the proceedings that regulators, railroad industry, tank car builders, and tank car owners continue to disagree about the level of protection needed for both new tank cars and for retrofits to the existing DOT-111 fleet. Amid this lack of consensus, the safety risks continued to grow.

In August 2014, with the PHMSA notice of proposed rulemaking finally in place to mandate new standards and operational requirements for trains transporting large volumes of flammable liquids, there were approximately 15,000 tank cars built to the marginally improved CPC-1232 standard. Though proposals in the current rulemaking would make a significant improvement over CPC-1232, another 36,000 of these cars will be built for crude oil service by the end of this year. Unless swift regulatory action is taken, the effect of new tank car safety rules could be weakened by a vast new fleet of cars built to older and less-safe standards.

Last year, more than 2 million loaded tank car shipments of hazardous materials commodities originated in the U.S. and Canada. These frequently transport essential commodities such as fuels, lubricants, fertilizers, and chemicals that are staples of the national economy. To meet this need, the rolling stock is huge, with about 236,000 railroad tank cars in hazardous materials service throughout North America. Safety, however, has not kept pace with the sheer demand and vigor of the market, potentially placing many who live amid the complex rail network in danger. As noted above, this safety improvement effort must also include safer operations, to reduce the likelihood of derailment, as well as improved community knowledge and emergency response, but as part of that bigger picture, we strongly urge industry and regulators to take action and reverse the trend set by tragic accidents such as Cherry Valley, Illinois (<http://www.nts.gov/investigations/AccidentReports/Pages/RAR1201.aspx>); Lac-Mégantic, Que-

bec; Casselton, North Dakota (http://www.nts.gov/investigations/Pages/casselton_nd.aspx); Lynchburg, Virginia; and Mt. Carbon, West Virginia, by demanding the most robust tank cars available to lessen the consequences of rail accidents involving hazardous materials.

For more information on NTSB efforts to improve rail safety please visit our Most Wanted List Implement Postive Train Control in 2015 (http://www.nts.gov/safety/mwl/Pages/mwl4_2015.aspx) page and our website www.nts.gov (<http://www.nts.gov/>).

◀ CRUDE OIL ◀ TANKCARS

