



## Watchlist Fact Sheet – Rail

### Transportation of flammable liquids by rail

The increase in the transportation of flammable liquids—such as crude oil—by rail across North America has created emerging risks that need to be effectively mitigated.

#### Background

In recent years, the growth in the transportation of crude oil and ethanol by rail across North America has increased exponentially. According to the Railway Association of Canada, oil shipments moved by Canadian Class 1 railways went from 500 car loads in 2009 to 160 000 in 2013. In the United States, crude oil shipments have increased from 10 800 car loads in 2009 to about 400 000 in 2013.<sup>1</sup> Continued growth in the shipment of crude oil is expected.

The Transportation Safety Board of Canada (TSB) is concerned that current railway operating practices, combined with the vulnerability of the tank cars used to transport such products, are not adequate to effectively mitigate the risk posed by the transportation of large quantities of flammable liquids by rail. Federal regulators in Canada and the United States have been actively monitoring the situation and making adjustments to rules and regulations, but new regulations are not yet in place.

The Lac-Mégantic derailment in July 2013, and other recent derailments (in Plaster Rock, New Brunswick; and Clair, Saskatchewan),<sup>2</sup> have demonstrated that there can be significant risk to people, property and the environment when trains carrying large volumes of flammable liquids derail.

As part of its investigation into the Lac-Mégantic accident,<sup>3</sup> the TSB called for strategic route planning and safer operations of all trains carrying dangerous goods in Canada. It wants railways to carefully choose the routes on which crude oil and other dangerous goods are to be carried, and to make sure that train operations over those routes will be safe.<sup>4</sup>

The vulnerability of Class 111 tank cars has been recognized for years.<sup>5</sup> The Board called for tougher standards for all Class 111 tank cars,<sup>6</sup> not just new ones, to reduce the likelihood of product release during accidents. In Lac-Mégantic, investigators found that even at lower speeds, the unprotected Class 111 tank cars ruptured, releasing crude oil which fuelled the fire. As such, until a more robust tank car standard with enhanced protection is implemented for North America, the risk will remain.

In addition, the emerging risks must be dealt with as a North American transportation issue, because these products are transported across borders by rail operators. A number of accidents investigated in the United States by the National Transportation Safety Board have also highlighted the vulnerability of Class 111 tank cars.<sup>7</sup>

#### Solution

Railway companies must conduct route planning and analysis, and perform risk assessments to ensure that risk-control measures are effective.

Additionally, flammable liquids must be shipped in more robust tank cars to reduce the likelihood of a dangerous goods release during accidents.

<sup>1</sup> Sources: Railway Association of Canada and Association of American Railroads

<sup>2</sup> TSB rail investigations R14M0002, and R14W0256

<sup>3</sup> TSB Rail Investigation Report R13D0054

<sup>4</sup> TSB Recommendation R14-02 (Satisfactory Intent)

<sup>5</sup> TSB Recommendation R07-04 (Satisfactory in Part)

<sup>6</sup> TSB Recommendation R14-01 (Satisfactory in Part)

<sup>7</sup> New Brighton, Pennsylvania (October 2006); Cherry Valley, Illinois (June 2009); Tiskilwa, Illinois (October 2011); Columbus, Ohio (July 2012); and Casselton, North Dakota (December 2013)