



Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada



Presentation to CTLA 2014 Lac-Mégantic derailment

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Halifax, NS, 26 September 2014

Canada

Outline

- About the TSB
- What happened that night?
- TSB recommendations
- What needs to change?
- Conclusions



About the TSB

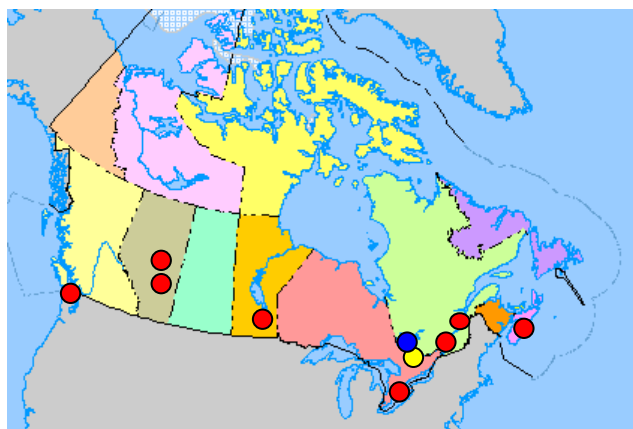
Mission: To advance transportation safety in the marine, pipeline, rail, and air modes of transportation that are under federal jurisdiction by:

- conducting independent investigations
- identifying safety deficiencies
- identifying causes and contributing factors
- making recommendations
- making our reports public



TSB Offices

- Head Office is in Gatineau, Quebec
- The Engineering Laboratory is in Ottawa, Ontario
- Regional offices are located across the country to allow investigators to quickly reach the scene of an accident:



- Vancouver, British Columbia
- Calgary, Alberta
- Edmonton, Alberta
- Winnipeg, Manitoba
- Toronto, Ontario
- Montréal, Quebec
- Québec, Quebec
- Halifax, Nova Scotia

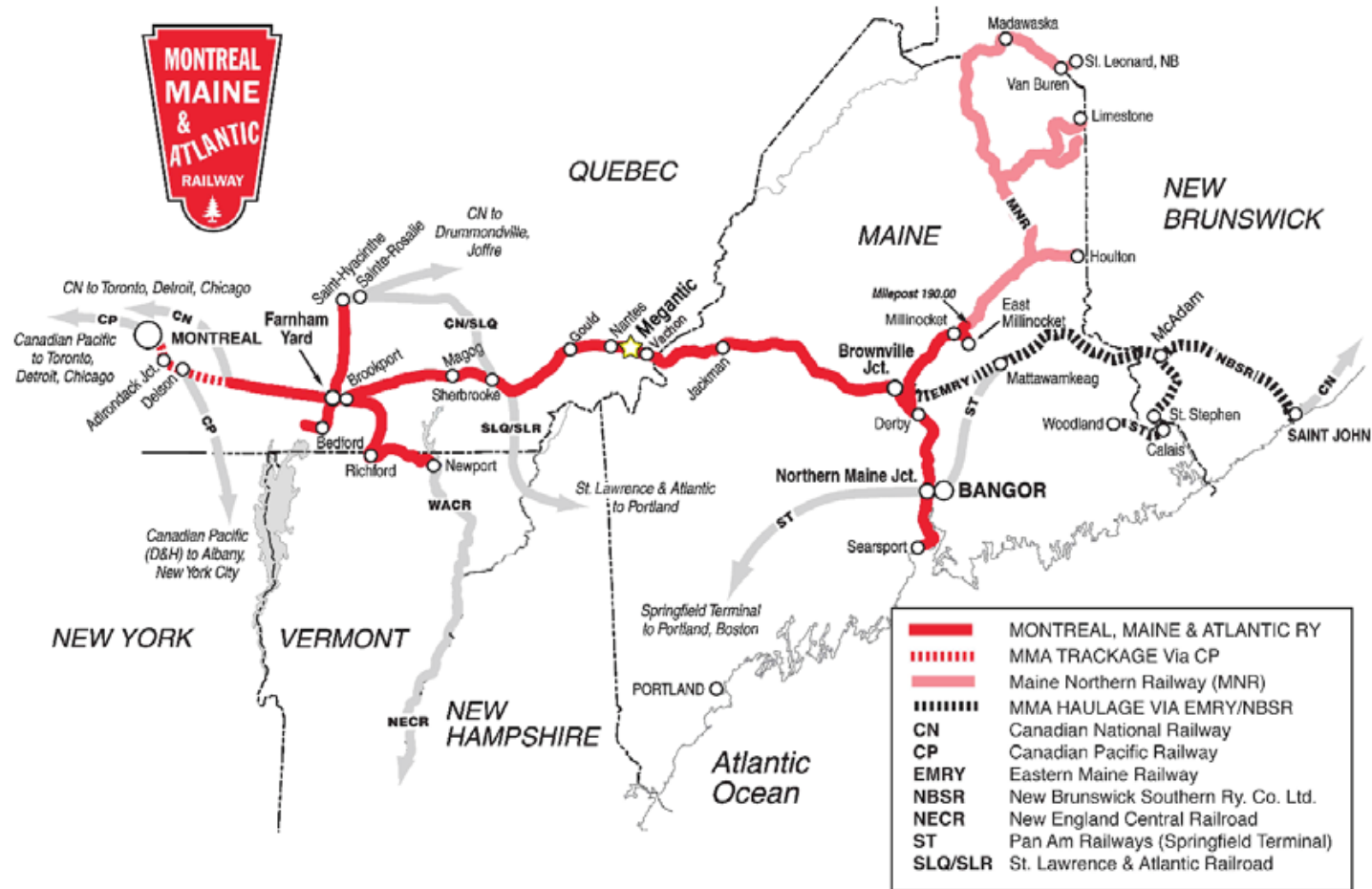


The accident



MMA territory

MONTREAL, MAINE & ATLANTIC RAILWAY LTD.



Train securement in Nantes



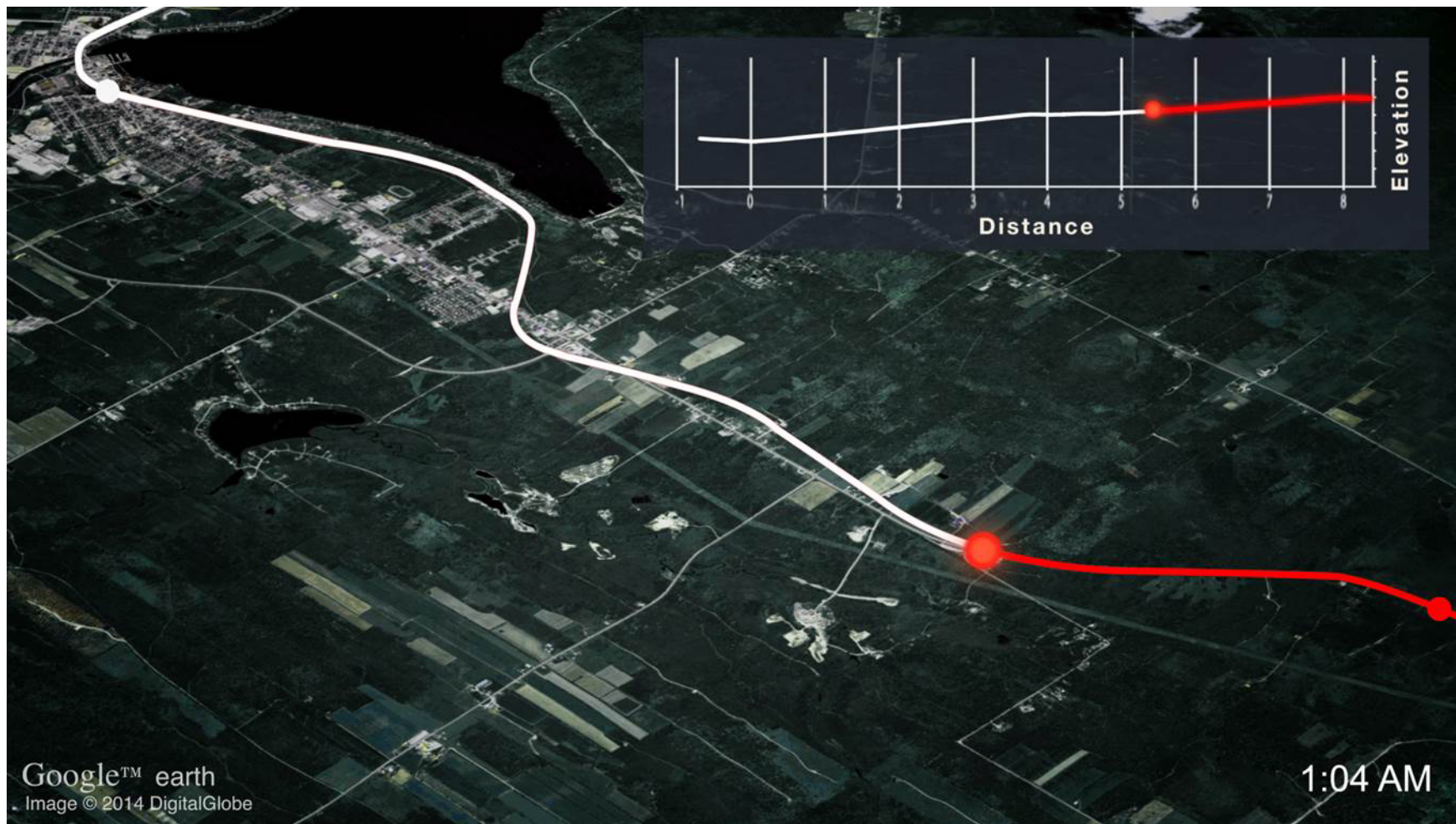
Brakes



Why did the train run away?



Path of the train



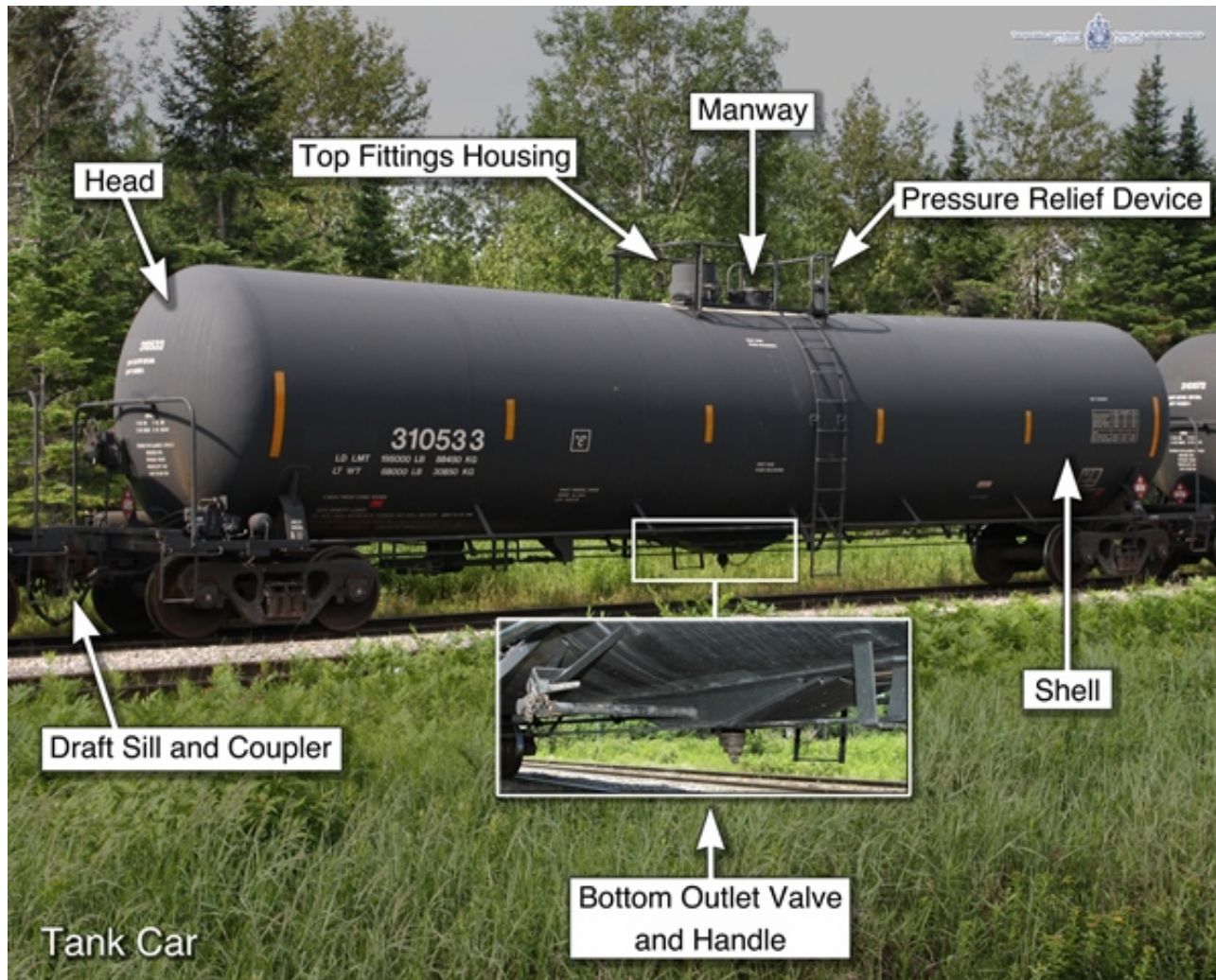
Animation — Sequence of events in the Lac-Mégantic derailment and fire



Why was there so much damage?



Tank cars



How could this have happened?

- What is SMS?
- MMA's safety culture
- Transport Canada oversight



Montreal, Maine & Atlantic Railway



TSB recommendations

	Recommendation	Status
<p>R14-05 (August 2014)</p>	<p>Transport Canada must take a more hands-on role when it comes to railways' safety management systems—making sure not just that they exist, but that they are working and that they are effective.</p>	<p>NEW!</p>
<p>R14-04 (August 2014)</p>	<p>Canadian railways must put in place additional physical defences to prevent runaways.</p>	<p>NEW!</p>
<p>R14-03 (January 2014)</p>	<p>Emergency response assistance plans must be created for routes where large volumes of liquid hydrocarbons, like oil, are shipped.</p>	<p>Fully Satisfactory (June 2014)</p>
<p>R14-02 (January 2014)</p>	<p>Railway companies should conduct strategic route planning and enhance train operations for all trains carrying dangerous goods.</p>	<p>Satisfactory Intent (June 2014)</p>
<p>R14-01 (January 2014)</p>	<p>Enhanced protection standards must be put in place for Class 111 tank cars.</p>	<p>Satisfactory in Part (July 2014)</p>



“This must never happen again.”

To prevent an accident like this from reoccurring, the combined efforts of the following parties are necessary:

- Transport Canada
- railway companies
- shippers
- tank car manufacturers
- refineries in Canada and the United States



“What needs to change? The entire way we look at blame.”

- Pointing fingers doesn't prevent the next accident.
- For complex systems, relying only on a **rules-based culture** isn't enough.
- What's needed are **defences in depth**.



Conclusions

- This accident had 18 causes and contributing factors.
- Complex systems require more than just relying on rules-compliance; they need defences in depth.
- TSB will continue to monitor the implementation of recommendations—and report publicly on any progress.





Questions?



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