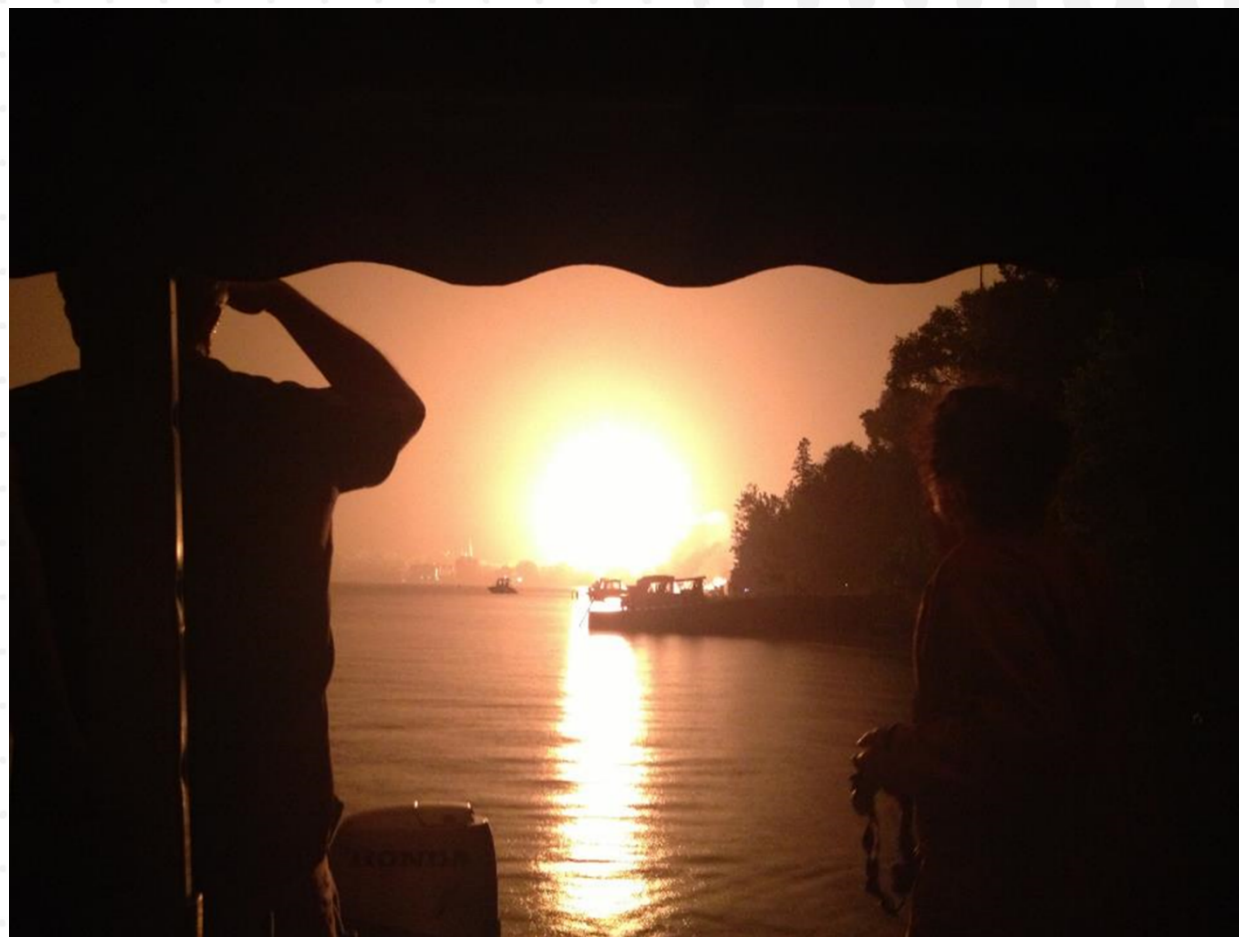


"Lessons Learned from the Lac Mégantic Train Derailment Disaster"



Jean-Claude Morin
President MD-UN Inc.



www.md-un.com



URGENCE
1 888 922-3330

- ✓ MD-UN is verified by CERCA, the Canadian Emergency Response Contractors Alliance, under the TEAP II Assessment.
- ✓ MD-UN is presently listed as the primary responder to more than 75 ERAP's



North America's worst rail disaster



Lac-Mégantic

July 2013

Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada



www.md-un.com



URGENCE
1 888 922-3330

TIMELINE

- 1:16 – First call made to 911
- 1:17 – Fire Department Dispatched
- 1:18 – General call made to all Lac Mégantic Fire Personnel
- 1:20 – Confirmation of fire
- 1:21 – Request assistance from Nantes
- 1:21 – Second call made to Lac Mégantic Fire Personnel
- 1:21 – Request for assistance from Lambton, Saint-Romain, Audet, Lac-Drolet and Saint-Augustin de Woburn
- 1:25 – Request from Appel au SSI Sherbrooke, Victoriaville and St-Georges-de-Beauce for Aerial Apparatus
- Canadian Border Services notifies that US fire companies are at the boarder willing to give aid.
- Six American Cities respond from across the border to offer 2 Arial Apparatuses as well as 4 Pumpers



City of 6,000 citizens



A disaster without comparison



- Substantial loss of life
 - 47 people dead
 - 7 missing
- Soil treatment and clean-up still ongoing





- **72 tank cars involved**
- **9 were removed intact**
- **65 directly impacted**
- **3 held their containment**





www.md-un.com



URGENCE
1 888 922-3330

Who is in charge?

- Fire Department(s)
- Provincial Police - Sûreté du Québec (SQ)
- Royal Canadian Mounted Police (RCMP)
- Sécurité Civile (SC)
- Environment Québec (MDDELCC)
- Environment Canada (EC)
- Transportation Safety Board (TSB)
- Transport Canada (TC)



Lessons learned the hard way

- Many different specialized teams were involved: hazardous waste management, contaminated soil remediation, water treatment, plus first respondents such as firemen, policemen, transport inspectors, etc.
- All have priorities that need to be graded as to who has precedence.
- Results of inquiries need to be shared and standardized.





Responsible Parties:

- **Montreal Main Atlantic Railway (MMA)**
- **Response Resources:Emergency**
- **Response Contractor (1)**
- **Support Contractors(42)**
- **Technical Specialists (3)**
- **Industry Resources**



THE NEED FOR UNIFIED INCIDENT COMMAND STRUCTURE:

- **Language Barrier**
- **Site wide OHS plan and management**
- **Training and preparedness planning**



MMA was helped by:

- CN
- CP
- RAC
- Insurance
- Meredith
- Golder
- CTECH



The importance of knowing your team's strengths and weaknesses



MD-UN temporary office

- 3 teams covering two 12 hour shifts
- 1 team from QUANTUM MURRAY
- 20 workers



Chimneys were installed to avoid explosions





www.md-un.com



URGENCE
1 888 922-3330

Water treatment

All water treatment plants were flooded; one site obtained permission to temporarily store contaminated water because of water storage space shortage issues following the disaster.

SANEXEN

July 9th: 36,260 liters of water treated daily

July 22nd: 1,090,000 of water treated daily

For a total of: 7,442,762

By the end of the clean-up, over 18 million liters of contaminated water had been pumped.





52,000 liters pumped from the river

**It takes only 1 liter of hydrocarbon to pollute
1 million liters of fresh water**



SUMMARY TABLE

Estimated Amounts of Crude Oil Involved in Lac-Mégantic (October 7, 2013)

Petroleum burned or spilled in the environment	Petroleum transported by rail	7 679 000 liters
		⊖
	Petroleum contained in the 9 wagons left intact	961 000 liters
		⊖
	Petroleum contained in the crashed wagons, that could be recuperated and transported	740 000 liters
Contaminated water recuperated		⊖
	Petroleum burned or spilled in the environment	5 978 000 liters
	Estimated amount of petroleum that reached the Chaudière river	100 000 liters
	Contaminated water recuperated in the Chaudière river	52 000 liters
	Contaminated water recuperated in Lac-Mégantic's (water system, lake and soil)	39 001 000 liters



**We were given
3 weeks to clean up
the Water Treatment
Center**

**The procedure
ended up taking
5 weeks...**





www.md-un.com



URGENCE
1 888 922-3330

THE IMPACT ON:

Lives

Properties

Environment



Many technical challenges



**Setting up a town, within a town...
basic necessities had to be brought in
for everyone who came to work!**



12 hour shifts – 7am to 7pm

- 810 meals served every day under big top/cafeteria
- 65 trailers, fifth wheels as well as cottage rentals
- chemicals toilets and showers
- laundry service for all workers



We set up our own warehouse for personal basic supplies for workers



Some much needed help and supplies:

- MSI Accounting company
- Dispatch
- Security
- Water treatment
- Fuel for equipment
- Truck repair and service
- Personal Protection Equipment
- Basic supplies (sleeping bags, pillows, towels, clothing, etc...)





Space was an issue...



www.md-un.com



URGENCE
1 888 922-3330



www.md-un.com



URGENCE
1 888 922-3330

Hydro-cutting cars



www.md-un.com



URGENCE
1 888 922-3330





Plan d'urgence

Intervention

Formation

Planification



www.md-un.com



URGENCE
1 888 922-3330

We prioritized local businesses and companies from Lac Mégantic and its surrounding communities



Lac-Mégantic Juillet 2013 www.md-un.com



So many other jobs required attention...



Other leaks...



www.md-un.com



URGENCE
1 888 922-3330



TSB Investigation Report

63 derailed tank cars — DOT-111

- 59 tank cars (94%) of the 63 derailed were breached
- Tank car shells — 37 cars
- Tank car heads — 31 cars
- Top fittings and protective housings — 20 cars
- Pressure relief devices — 12 cars
- Bottom outlet valves — 7 cars
- Thermal tear — 4 cars
- Manway covers — 2 cars



Equipment brought in:

- 20 vacuums
- 30 tank trucks
- 9 Baker tanks (for settlement)
 - 5 four wheelers
 - 3 side by side ATV'S
 - 2 boats
- 1 emergency shower
- excavators



Baker Tanks





www.md-un.com



URGENCE
1 888 922-3330

SIMEC\ECRC were called for 1,200 feet of boom;
12,000 feet were used



Inspections were done with cameras for all underground water and sewer systems



Balloon was carried over 800 m away because of the rain



Topography was used whenever there were any precipitations



Golder

- 1200 soil tests and analyses
- 127 water tests and analyses
- 24 recovery trenches
- 320 exploration trenches
- 116 boreholes
- 84 observation wells



Site security

Gas detection by CTEH, WCB (CSST)

- MD-UN
- Ville de Lac Megantic
- MMA
- SQ
- RSR



Since then, Transport Canada has formed a committee and subcommittees to standardize the Incident Command System



Let's keep the good relations established
between the companies that collaborated in
Lac-Mégantic; we learned each other's
strengths and worked together as one team.









www.md-un.com



URGENCE
1 888 922-3330

Getting the job done

July 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6  Train Derailment
7	8	9	10 	11	12	13 First access to the site
14 	15	16	17	18	19 	20
21	22	23	24	25	26 End of wrecking operations	27
28	29	30	31			



Crude oil transportation by tank cars in Canada

500 cars in 2009

160,000 cars in 2013

DOT-111 Tank car

An investigation done by the FAA 20 years ago is the reason critics call the DOT-111's *Bomb Trains*

A report in 1991 listed all of the DOT-111's weaknesses, the cost to upgrade a DOT-111 tank car is 20 to 30k

A CPC-1232 tank car costs 120k

Over the last 5 years, 5 DOT-111 have exploded:

- July 6th 2013 – Lac Mégantic, Quebec
- November 8th, 2013 – Aliceville, Alabama
- December 30th, 2013 – Casselton, North Dakota
- January 7th, 2014 – Wapske, New Brunswick
- April 30th, 2014 – Lynchburg, Virginia



Planning for the Worse... but Expecting the Best

- Let's not forget that while we feel protected, accidents will still happen.
- Let's ensure our governments and responsible parties invest the time and money needed to have the best trained teams ready and that they are given the latitude to do their job to the best of their abilities.



Worst case scenarios can become reality

