

# TerranearPMC Safety Share

## Week of July 29, 2013 – Tragedy in Paradise

In the background of the controversy of the Zimmerman/Martin murder trial and the crash landing of the Boeing 777 Asiana Flight 214, in San Francisco, the small town of Lac-Mégantic in Quebec, Canada, suffers from the tragedy of a runaway train that was going too fast and resulted in dozens of missing persons. According to reports, many people were simply vaporized due to the extreme heat that was instantaneously generated from the chemical fire, initiated by the train's derailment.

Lac-Mégantic is a sleepy community in the Estrie region of Quebec, Canada. It is located on Lac Mégantic, a freshwater lake after which the town was named and normally would be considered paradise. Shortly after midnight on July 6, a train owned by the rail company, Montreal Maine and Atlantic (MM&A) that had five engines and seventy-three tanker cars carrying light crude oil, jumped the track, sparking an explosion. At least 33 people are dead. Another 30 or so are missing. In addition the town has been devastated with many homes and businesses destroyed while a being left in an environmental nightmare.

Present-day accident theory advocates that it is never just a single incident that is a sole cause of an unwanted event; but rather a chain of occurrences – and often minor ones – that when placed in a specific sequence, a tragedy unfolds. From the 1912 sinking of the Titanic to the massive explosion that leveled a Texas fertilizer plant this past April, huge technological catastrophes are almost always the climax of a series of human error, that by themselves, typically go unnoticed.

The following is a timeline of the events, which can help provide an understanding of the cause and contributing factors of the disaster in Lac-Mégantic.

Friday (7/5) 11:25 pm: The engineer parks the train at the town, Nantes, approximately 11 miles outside of Lac-Mégantic, where there was to be a crew change, while he retired to a nearby hotel for the night. The train is left on the main track because another train is parked in the siding (an area designated for non-operating trains so the main line is not blocked). According to the *Canadian Rail Operating Rules*, a sufficient number of hand brakes must be applied to prevent it from moving. Therefore, the engineer was required to perform some basic duties, including applying the handbrake on the lead locomotive and then repeating this process on the other four locomotives followed by setting handbrakes on some of the tank cars (a specific number was not provided). Applying handbrakes is a labor-intensive operation, especially for this train with a span of almost one mile. This operation requires the engineer to climb onto a step on the tank car and manually turn the handbrake (which resembles a large wheel). The approximate time it takes to apply a handbrake is 2 -3 minutes, starting from the car furthest downhill and going uphill consecutively, from car-to-car. If performed properly, there should be a block of locomotives and tank cars with each of their handbrakes set. In addition to handbrakes, it is MM&A policy to keep one engine running as this allows the air brake system to continue to operate (this is a

pneumatic system that is applied to the engine wheels). The taxi driver that normally picks up the engineer and drives him to his hotel notices that there is more smoke than usual coming from the train. The taxi driver also notices oil droplets forming on his car. Although the taxi driver mentions this to the engineer while driving to the hotel, the engineer states that he is following company policy.

11:30: A Nantes resident calls 911 after seeing a parked locomotive on fire. Firefighters arrive on the scene and extinguish the fire (Nobody from MM&A was present). The cause of the fire is reportedly a ruptured oil/ fuel line on the only locomotive left running (so the airbrake system would continue to operate). According to railroad experts, a fire on a locomotive can disrupt the air-brake system.

Saturday (7/16) 12:56 am: Firefighters leave the scene. Nearby residents are startled by strong vibrations and notice the train moving down the track without any lights on.

Saturday (7/6) 1:15 am: The first report of an explosion is reported in Lac-Megantic. Initial reports indicate that 30 buildings are destroyed. Much of the town is flooded with crude oil with multiple fires raging throughout the community.

The initial investigation report by MM&A suggested that the engineer set handbrakes on all five locomotives and 11 tank cars; yet there was not another knowledgeable employee on hand to help the engineer lock down the train. Setting handbrakes is not a one-person task.

From Nantes to Lac-Megantic, the tracks are on a grade of 1.2; meaning that for every 100 meters of distance, the vertical drop is 1.2 meters. That grade is steep enough that under railway guidelines, it is recommended that 30 of the 73 handbrakes on the cars should have been set.

So what caused this catastrophe? What caused such an event that took the lives of so many people and all but destroyed an entire community? If only the train was parked on the side rail during the stopover in Nantes. If only the engineer took the time to investigate the excessive smoke so he could have identified the ruptured oil line, and therefore, prevent the airbrake system to be compromised. If only the train was properly braked (requiring the right number of employees and cars to be braked). And, if only the check/inspection was performed on the train after the initial fire in Nantes was extinguished. If only one of these conditions was corrected, then possibly Lac-Megantic would still be that sleepy little town, where its citizens would only know of a peaceful existence; fishing in a lake and enjoying their daily activities in paradise.

Accidents and, indeed, catastrophes, just don't happen arbitrarily. They occur through a series of events which, when lined up in a specific sequence, can be manifested in a most monstrous manner. By just correcting one event within a series of occurrences, a missing step can stop a fatal chain reaction, much the same as removing a single domino from a designed configuration and thereby stopping an elaborate visual spectacle.

**Your own safety is at stake when your neighbor's wall is ablaze.**

Quintus Horatius Flaccus (aka Horace -Roman poet)