

# Process Safety Forum

Safety Alert 008 – Issued on 12 November 2013

## Failure to recognise risk and implement effective controls

*On 6 July 2013, 43 people died in Lac Megantic, Quebec due to the derailment and subsequent fire of a train carrying crude oil*



### Background

A freight train, comprising of five diesel-powered locomotives hauling 73 car loads of crude oil each containing 113,000 litres, was parked overnight on a main, inclined railway line. The train driver could not park the train on the adjacent siding as it had been used to store empty boxcars.

The lone driver applied manual handbrakes on 10 of the 73 cars, and followed normal practice by shutting down four of the five locomotives and left one locomotive running to retain air pressure required for the airbrakes.

### What happened?

There was a fire on the Engine left running that the local fire brigade responded to. Part of their standard procedure was to switch off the locomotive – this is believed to have contributed to the air brakes failing, and the hand brakes were unable to hold the weight of the train on the incline. The train rolled down the incline gathering speed and derailed on a bend in Lac Meagantic. The derailment of the tankers and subsequent fire resulted in 43 fatalities.



### Why did this happen?

- **Inherent safety** - parking the train on a hill near a town exposed a large population to an unnecessary hazard.
- **Safety barriers** – The normal arrangements of only setting 10 out of 73 brakes for controlling the risks were inadequate as they did not take into account the failure of the engine and loss of the air breaks.

### What can we learn?

- **Human fallibility** - Design-out human error from processes wherever possible and when designing our controls consider the worst situation that could happen.

*\* Information obtained from media sources and published witness statements*

*The Process Safety Forum has been set up to provide an industry association platform whereby initiatives, best practice, lessons from incidents and process safety strategy can be distilled and shared across sectors, to influence our stakeholders (including the Regulators), and to drive the process safety management agenda. The Process Safety Forum consists of representatives from UKPIA, TSA, CIA, OGUK, CBA, RSSB, ENA, ECIA, UKLPG, BAMA, EIG, UKOPA, SWA and SDF. For further details contact:*

[PSF.Secretary@gmail.com](mailto:PSF.Secretary@gmail.com).