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# DAYTON, OHIO REGIONAL HAZ-MAT RESPONSE TEAM NEWSLETTER

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This newsletter is a reprint, from July 2016 by Denny Bristow, with some current revisions. I felt that a review of this information was beneficial.

## **BLEVE or HIT?**

Many thanks to Phil Haskins, one of our good friends at the Public Utilities Commission of Ohio (PUCO), for sharing the following article from *The Transportation of Dangerous Goods Newsletter* published by CANUTEC. A few changes, have been made, to make it more relevant to the US.

The tragic events of the crude oil train derailment in Lac-Megantic, Quebec, Canada have demonstrated why it is important to promptly identify the type of incident that is occurring and what risks are associated with it. This incident took 47 lives.

In July 2013, fireballs engulfed the downtown area of Lac-Megantic. First Responders were overwhelmed. Of the train's 72 tank cars carrying crude oil, 63 had derailed and 62 had caught fire. Seeing the fireballs, many First Responders thought they were the result of **Boiling Liquid Expanding Vapor Explosions or BLEVEs**, when they were in fact caused by **Heat Induced Tears or HITs**. Both BLEVEs and HITs pose great risks and require specific fire response tactics that may be unfamiliar to many firefighters.

During a **BLEVE**, a fire impinged or damaged tank car fails to contain its internal pressure and explodes with a sudden product release.

This release, propels tank car fragments with great force and high speed over long distances. In addition, if the product is flammable (e.g. liquefied petroleum gas such as propane), there will also be a fireball and intense heat generated.

This catastrophic failure is more likely to occur on damaged **pressure tank cars**, whether under fire conditions or not. Review the case study on Kingman, AZ for a good example of how a BLEVE can go bad.



[kingmanhistoricdistrict.com](http://kingmanhistoricdistrict.com)

A **HIT** is a different type of tank car failure. Under the intense heat of a fire, **non-pressure tank cars** containing flammable liquids will tear, generally at the top, causing the product to suddenly vent at high speed, generating a fireball and an intense heat wave. Unlike BLEVEs, HITs rarely result in the projection of tank car fragments. HITs have been known to **occur within 20 minutes to several hours after a derailment** of tank cars carrying flammable liquids such as crude oil or ethanol.

Unlike a **BLEVE**, where all of the product is quickly released or consumed, a tank car with a **HIT** may still contain product that can burn or leak for 8 hours or more.

For rail incidents involving tank cars containing flammable liquids under fire conditions, the risk of **HITs** makes the response very complex and dangerous. **HITs** can ***occur without warning*** and produce a fireball, generate intense heat, and release toxic gases.

Responding safely to a flammable liquids rail incident requires specialized training, specialized equipment and a tactical approach. First Responders ***must first focus on securing the scene***; any other action could put both the responders and the public at risk.

#### **SIGNS THAT THE INCIDENT WILL LIKELY GROW INCLUDE:**

- ***Running or unconfined spill fires and releases.*** Spills may flow into storm drains and other underground structures, creating secondary spills and fires. Using large water streams for cooling may also spread the fire to unintentional areas.
- ***Direct flame contact on tank cars*** from either a pool of fire or torch fire.
- ***Heat induced blisters*** appearing on the tank car shell.
- ***Activation of pressure relief devices*** (PRD).
- ***Growth of fire area*** after First Responders arrive on-scene.

#### **REMEMBER:**

- 1-***The priority is to secure the scene.***
- 2-Refer to the **2024 Emergency Response Guidebook** for:
  - suggested general and specific isolation distances for spill or fire

situation to ensure the safety of responders and the public

- suggested fire extinguishing medium (e.g. dry chem, foam or alcohol-resistant foam)
- information on BLEVEs and HITs refer to page 357-359

3-***Call CHEMTREC*** to receive immediate help, best advice, and accurate information.

### **Training**

**Change in training dates.** I accidentally published the dates of the August training as the 12, 13, & 14 when they are actually the **5, 6, & 7** at Calamityville in Fairborn. **The Greene County LEPC Exercise** will be the 5th. Please make a note of it as we need as many Team Members as possible to participate. This training will be from 0900-1200hrs.

**Training for this month is July 15, 16, & 17 from 0900 - 1200hrs at the Task Force Building at Dayton Fire Department Training Center.**

We will be doing scenario-based training, this month, following our Top Ten List.

### **2024 Training Dates**

August – 5-6-7 – GCLEPC Exer Calamityville  
 September – 16-17-18 – Railroad  
 October – 21-22-23 – 52<sup>nd</sup> Civil Support Team  
 Sampling for the LRN  
 November – 18-19-20 – OEPA  
 December - No training

