



Coffee Break Training - Hazardous Materials

Bakken Crude in Transportation

No. HM-2014-1 June 23, 2014

Learning Objective: The student will be able to explain some of the hazards associated with Bakken crude oil in transportation.

Crude oil that is extracted and shipped from eastern Montana, western North Dakota, and parts of the Canadian prairie provinces is named Bakken crude. In recent months, it has become front page news as both an energy source and hazardous material. A train derailment in Lac-Megantic, Quebec, resulted in 47 deaths and nearly wiped out the small community's downtown area, while incidents in North Dakota, Alabama and Virginia have fueled first responder concerns.

The U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) has been working with government agencies, shippers, first responders and private sector groups to address the hazards associated with the raw product in transportation.

Bakken crude is considered a "light, sweet crude" because of its low sulfur content. Light, sweet crude oil is typically assigned a DOT Packing Group I or II classification in accordance with federal regulations. These packing groups mean that the material's flash point is below 73 F (22.7 C); for Packing Group I materials, the boiling point is below 95 F (35 C). This means the materials pose significant fire risk if released from the package during an accident.

In 2013, an early PHMSA study found that Bakken crude taken from cargo tanks en route to rail loading facilities was not properly classified. Consequently, PHMSA is reinforcing the requirement to properly test, characterize and classify, where appropriate, sufficiently volatile gaseous constituents (such as propane and butane) before and during transportation.

According to PHMSA, the volume of crude oil moving by rail has quadrupled in less than a decade due to increased production. Transportation by rail has increased, and in some cases, single-unit trains of 100 or more cars are used to transport crude oil. PHMSA reports that rail accidents have declined by 43 percent, and incidents involving hazardous materials are down 16 percent in the last 10 years.

If confronted with a spill or fire involving Bakken crude, first responders should remember that the product is a Class B flammable or combustible liquid, and they should take all precautions appropriate to the scope and size of the incident. These precautions may include isolation and evacuation, depending upon the amount of product involved and exposures that may be threatened. Adequate supplies of Class B firefighting foam may not be available for many hours into an incident.

For more information, consider enrolling in the National Fire Academy course "Hazardous Materials Operating Site Practices" (R0229) (<http://usfa.fema.gov/nfa/catalog/>) available at the National Emergency Training Center or through your state fire service training organization.



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