Safety on Scene

Explosive Cargo Trucks – Emergency Response Considerations

The International Association of Fire Chiefs' Hazardous Materials Committee is publishing this safety brief as a reminder to emergency first responders about the safe and proper response to roadway incidents involving the transport of commercial explosives. Vehicle accidents involving explosives are infrequent but these low-probability, high-consequence events need to be emphasized in our hazardous materials response training.

Over 6 billion pounds of commercial explosive materials that are used in mining, construction, oil and gas recovery and other industrial purposes are transported on U.S. highways annually. According to DOT statistics, transportation incidents involving explosives that require emergency response occur several times a year. At times, a fire may occur in the cargo container during one of these events. In most cases, the fire just consumes the cargo without serious incident. However, there can be incidents where the burning cargo can undergo a deflagration-to-detonation reaction.

The actions taken by emergency first responders, especially when explosives are involved in a fire, are absolutely critical to the safety of the public and the emergency responders. A few simple guidelines and a proficient use of the 2012 Emergency Response Guidebook (ERG) can assist you in keeping your personnel and the public safe.

First and foremost: Never fight a fire that involves, or has the potential to involve, explosives! This includes fires directly involving or exposing bags, fiberboard boxes, cans, drums, cartridges, or any type of containers storing the explosives. The risk of detonation and its associated consequences far outweigh engagement of an offensive attack.

Secondly, always use the 2012 ERG in developing the initial incident action plan. Due to the unique characteristics of explosives, the execution of scene safety and management, product identification, hazard and risk evaluation and selection of personal protective equipment all can be initiated in a straightforward process early into the incident by utilizing the 2012 ERG. Referencing the placard table and key information within the guide will provide the Incident Commander with information needed for timely decision-making process.

Initial Actions

- Locate in a safe, defensible position, uphill, upwind keep response vehicles at a safe distance
- Establish command
- Conduct a size up and risk assessment
- Rapid rescue of viable victims
- Secure the scene
- Identify the product(s):
    - Placards, container labels, shipping documents, MSDS, or information from the operator
    - Type of container or packaging can provide valuable information. Use binoculars to read from a distance.
    - Observe the chemical or product itself. Note its changing conditions and physical characteristics.
    - If spilled from a vehicle, ask the driver to provide information about the substance or attempt to locate any warning placards that may be posted on the vehicle.
    - Additional information may also be found in the shipping manifest, consist or on the bill of lading.
- Contact the shipper or manufacturer by call the 24 hour emergency telephone number that is listed on the shipping document.

- Use your Emergency Operations Center (EOC) as resource.
- Consider the potential effects of weather such as wind, rain, heat, etc.

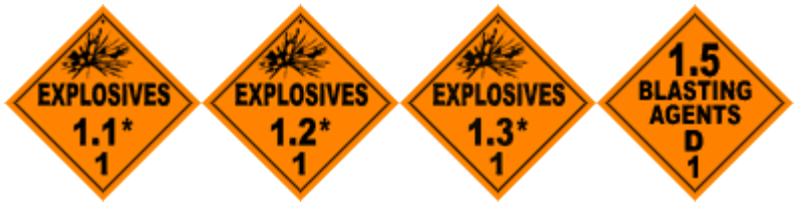
Specific consideration has to be given to a transportation incident involving explosive materials

The use of the 2012 ERG for transportation incidents involving explosives can be broken down into two hazard areas for response purposes. This is a quick overview; see the 2012 ERG for a detailed explanation. Rule of thumb: The lower the division number, the more dangerous the explosive.

Cargo that is placarded with Division 1.1, 1.2, 1.3 or 1.5(Mass explosion, projectile or fire) – *Guide 112*

- If cargo or container is on fire
  - Isolate and evacuate at least one (1) mile – this includes emergency responders
  - Let the fire burn
    - No offensive attack
    - Unmanned monitors can be used if they can be put in place safely and quickly
  - Do not move cargo or vehicle if cargo has been exposed to heat

"Do not fight fire when fire reaches cargo! Cargo may Explode"
ERG GUIDE NUMBER: 112



- If one of the vehicle components is smoldering or on fire (brakes, engine, tire, etc.)
  - Conduct risk assessment
  - Appropriate vehicle fire tactics using suitable suppression methods and agents

- Spill or leak of the explosive cargo
  - Conduct risk assessment
  - Use proper PPE
  - Isolate spill or leak area for 1/3 of a mile in all directions
  - Do not operate radio transmitters within 100 meters (330 feet) of electronic detonators.
  - Large spills (>55 gallons or >660 pounds): evacuate ½ mile in all directions

Cargo that is placarded with Division 1.4 or 1.6 (Minor or insensitive hazards) - *Guide 114*

- If cargo or container is on fire
  - Isolate and evacuate at least 1/3 mile – this includes emergency responders
  - Let the fire burn
    - No offensive attack
    - Unmanned monitors can be used if they can be put in place safely and quickly

"Do not fight fire when fire reaches cargo! Cargo may explode"

ERG GUIDE NUMBER: 114

- If one of the vehicle components is smoldering is on fire (brakes, engine, tire, etc.)
  - Conduct risk assessment
  - Appropriate vehicle fire tactics using suitable suppression methods and agents

- Spill or leak of the explosive cargo
  - conduct risk assessment
  - Do not touch or walk through spilled material
  - Use proper PPE
  - Isolate spill or leak area for 330 feet in all direction
  - Large spills (>55 gallons or >660 pounds): evacuate 800 feet in all directions

About the Institute of Makers of Explosives (IME)

The Institute of Makers of Explosives (IME) is the nonprofit association for the commercial explosives industry since 1913, advocating the safe and secure use of explosives. IME actively promotes safety and security in all aspects of the commercial explosives industry and recognizes emergency responders as a vital component of their mission. "Aside from us, the fate of the commercial explosives industry rests more in the hands of emergency responders more than anyone else," said Lon Santis, IME Manager of Technical Services says, "They are the last line of defense when everything else has gone wrong."

To help emergency responders and others, the IME produces booklets, videos, posters and other educational materials that are available at www.ime.org > Publications. In particular, the 28-minute video *Responding to Trucking Incidents Involving Commercial Explosives* was produced in cooperation with the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) specifically intended for emergency responders. It is available from IME and includes a 50-page Leader's Guide, and provides enough material allowing trainers to develop programs ranging from a 30 minute lunchtime session to a two-day, full-scale mock scenario.

"The number one rule of safety involving explosives is, *don't fight fires involving explosives*," says Santis. Be sure everyone in your department knows the rule.