APCO Institute, Inc.
351 N. Williamson Blvd.
Daytona Beach, FL 32114-1112

386-322-2500
386-322-9766 fax
www.apcoinstitute.org

Hazardous Materials (HAZMAT) Incidents

Incidents involving hazardous materials are some of the most complex types of calls that today's public safety industry personnel handle. The complexities arise from the logistics involved in a typical response and operation – multiple units, from multiple disciplines functioning on a scene that may expand and contract as the weather changes.

Hazardous materials may present a fire hazard, an explosion threat, a chemical gas threat or other risks to those in the area. With this in mind, it is important for telecommunicators to pose specific questions regarding the potential for hazardous materials that may be present during the calltaking phase. Confinement and containment are the first lines of defense in minimizing the risks to both life and the environment during the early stages of a hazardous materials event. Both natural and synthetic methods can be used to limit the release of hazardous materials.

If the reported incident is taking place in a building the Telecommunicator should attempt to obtain information from the caller about the contents of the building and the area surrounding the building. If the caller is knowledgeable, the Telecommunicator should ask if there are any materials in or around the building that could be considered hazardous.

Asking about the type of business in the building can indicate the presence of hazardous materials. Manufacturing plants typically house flammable liquids, cleaning fluids, oils and fuels and other materials that can pose significant hazards under certain circumstances. Even retail stores can have hazardous materials on the premises. All of this information must be conveyed to the responding units. The caller should also be directed to meet the responders and point out the location and nature of stored hazardous materials, if safe to do so.

Identification Placards

One method used to determine the identity of a substance is by using placards. Federal law requires that when hazardous materials, over a certain quantity, are being transported, identification placards must be displayed on the vehicle. These placards have an identification number for the material and are color coded for easy reference.

If possible, ask the caller what the placard looks like and determine the number on the placard. Make certain that the caller is not placed in danger in order to read the

placard! The number and color combination on the placard can be referenced in the North American Emergency Response Guidebook (NAERG). The NAERG is published by the United States Department of Transportation and is used as a reference during HAZMAT calls. It contains hazardous material information categorized by material name and by reference number, and guidelines that explain how to handle the substance, including isolation distances if necessary. Your agency should have a copy of this guide on hand at each console. Using the NAERG, the Telecommunicator can determine the exact substance and the hazards that are present. All of this information must be relayed to the responding units as soon as possible!

Classes of Materials:
The United States Department of Transportation categorizes hazardous materials into nine classes. They are:

- Class 1 – Explosives -
- Class 2 - Gases
- Class 3 - Flammable liquids
- Class 4 - Flammable solids
- Class 5 - Oxidizers and organic peroxides
- Class 6 - Poisonous materials
- Class 7 - Radioactive materials
- Class 8 - Corrosive materials
- Class 9 - Miscellaneous

On the Scene
Similar to the “A, B, C or D” designation given to the sides of a structure, HAZMAT incidents are also arranged by geographical reference. Called “zones”, they are determined by the area and the substance involved. The zones are typically formed in the shape of a circle and spread out from the location of the material involved.

The “hot zone” is the area immediately surrounding a hazardous materials incident and the involved material itself. The hot zone extends far enough away from the material to prevent further exposure and adverse effects from the materials to personnel outside the zone.

The “warm zone” begins where the hot zone stops and progresses away from the area immediately surrounding the material itself. This area is where personnel and equipment decontamination take place. Decontamination is the removal of the hazardous material from items or personnel that have come in contact with it. Typically, this involves a simple soap and water rinse; it prevents further spread of the contaminant outside the hot zone. The warm zone also includes control points for access and egress to the hot zone and assists in reducing the further spread of contamination

The “cold zone” begins where the warm zone ends and continues to progress away from the material. The cold zone typically contains the command post, the staging area

for resources and other support functions used to control the incident and helps to prevent further spread of the material involved.

CHEMTREC
For HAZMAT incidents the Telecommunicator may be asked to call the Chemical Transportation Emergency Center (CHEMTREC) at (800) 424-9300 (outside the continental U.S. call (202) 483-7616) for additional information on the substances identified by the placards. CHEMTREC, established in 1971 by the chemical industry, is a public service hotline, available 24 hours a day and 7 days a week for emergency responders to obtain information and assistance for incidents involving hazardous materials.

In addition to providing advice, CHEMTREC will also contact the shipper responsible for the material for more detailed information and on-scene assistance when feasible. When calling CHEMTREC, the Telecommunicator will need to provide the following information:

- Agency name and call-back telephone number
- The location and nature of the problem
- The name or ID number of the materials involved
- Any shipper or manufacturer information available
- The container type (including physical description)
- Any rail car or vehicle numbers visible
- The carrier name, if known
- Who it is being shipped to, if known
- Local conditions (including weather conditions and forecasts and the geographical area of the incident scene)

The weather and geographical information will be needed to determine the appropriate response to the incident. Weather effects on the incident could include gusting winds blowing gas clouds into populated areas or rain washing the contaminate into water systems. Geographical conditions could include valleys that dense gases can accumulate in causing a build up of gas and increasing the potential for explosion or a densely populated area would increase the risk of injuries to the public at large.

While hazardous materials events are complex and demand increased attention to detail on all involved, using a systematic response both in the Communications Center and in the field will ensure the safety of the responders and the community they protect. Always follow your agency's policies and procedures for response to these types of calls and refer to your supervisor with questions.

About the Author:
Bob Smith is the Operations Manager for the APCO Institute. You can email him at smithr@apco911.org.

Resources

- *2004 North American Emergency Response Guidebook*, US Dept of Transportation
- *The Common Sense Approach to Hazardous Materials*, Frank L. Fire, PennWell Publishing
- *Public Safety Telecommunicator 1*, 6th Edition, APCO Institute
- www.chemtrec.org CHEMTREC website

Quiz

CDE Article – Hazardous Materials (HAZMAT) Incidents

Name: _____ Date: _____

Agency: _____

Address: _____

_____

_____

Phone: _____

Fax: _____

Email: _____

1. Confinement and _____ are the first lines of defense in minimizing the risks to both life and the environment during the early stages of a hazardous materials event.

   a. Extinguishment
   b. Postponement
   c. Containment
   d. Deployment

2. Asking about the type of business can indicate the presence of hazardous materials.

   a. True
   b. False

3. The NAERG is published by:

   a. The US Department of Transportation
   b. The Federal Aviation Administration
   c. The US Coast Guard
   d. The US Department of the Interior

4. Hazardous materials are categorized into _____ classes.

   a. Four
   b. Eight
   c. Nine
   d. Twelve

5. HAZMAT incidents are arranged by geographical reference called:

   a. Areas
   b. Zones
   c. Sides
   d. Lanes

6. _____ and geographical information will be needed to determine the appropriate response to the incident.

   a. Time
   b. Weather
   c. Resource
   d. Travel

7. Weather effects on the incident could include gusting winds blowing gas clouds into populated areas.

   a. True
   b. False

8. Geographical conditions could include valleys that dense gases can accumulate in causing a build up of gas and increasing the potential for explosion.

   a. True
   b. False