THINK SAFETY

by

WILLIAM T. JONES
Chief of Safety

and

EDWARD McDONALD, #2
Batt. Chief, Safety Oper. Batt.

The modern world has made living much easier for us, due in large part to the benefits derived from new technology. In keeping stride with modern times, industry has used this technology to supply us with many new products. The development of these new products often involves the use of chemicals that can be classified as hazardous materials. These chemicals are used under strict controls, but at times a breakdown of the safety precautions does take place. And, being dramatic in nature, these hazardous material emergencies usually make the headlines.

With all of the discussion that takes place concerning the negative aspects of these incidents, one might feel that it is a hopeless situation. That is far from the truth. The professional fire officer, through his training, experience, and efficient utilization of the resources available to him, can safely deal with hazardous material incidents. Taking a systematic approach to these incidents can result in the control of the incident without injuries to members.

Although fire officers pride themselves on being decisive, snap judgments, without having the proper identification of the substance involved, can compound the problem. This is one time a wrong decision can be worse than no decision at all. While this might seem contrary to our normal aggressive approach at fire incidents, that is how we operate at a hazardous material incident. Our objective at this type of incident is to control the released material. This will minimize the risk to both civilians and firefighters. The control of the released material will be handled by the Hazardous Material Response Team (HMRT). Until the arrival of the HMRT on the scene, a cautious approach should be taken by the incident commander (IC).

PRE-PLANNING

Analyzing risks and formulating appropriate safety strategies must be done before incidents take place. Too often, problems are not identified until the incident takes place. Units must visit facilities that handle such chemicals. The managers and knowledgeable people on the premises should be consulted. They are the people that deal with the chemicals on a daily basis. They can give you information on the hazards of the chemical, and can pinpoint the storage areas. It would be difficult to remember all of the small businesses in your district that use and store chemicals; the larger warehouses and chemical manufacturing plants would be the ones on which to concentrate. The information that is gathered can be used to inform all members, and must be reviewed at company drills that are conducted on *Hazardous Material Tactics and Procedures.*

The following is an example of what took place at a large chemical plant. While visiting the complex, an officer of this Department noticed a large storage tank that was unmarked. He asked what the tank stored, and what would happen if water came in contact with its contents. The chemists stated that if water contacted the material, it would create a cloud of corrosive and toxic gas, which would then require the evacuation of some, if not all, of the area. The chemical that was being stored was phosphorous trichloride. This is the same chemical that spilled from a tank car in Somerville, Massachusetts, on April 3, 1980. That spill required the eventual evacuation of some 23,000 people, over an area of 1½ miles, with 418 people requiring treatment at nearby hospitals. The tank car contained 13,000 gallons of phosphorous trichloride, far greater than that stored at the plant in New York City, but it shows what is possible. The tank, at the aforementioned chemical plant, is now properly marked, and units in the district area are aware of the hazard.

TRAINING

The next step involves the training of personnel. All units must become thoroughly familiar with the contents of *Fire Tactics and Procedures—Hazardous Material 2.* They should understand the different classifications of hazardous materials, and the possible multiple hazards of each class. The methods by which we are exposed must be understood, and the means by which we can prevent exposure should be clearly discussed. The mandatory use of protective clothing and self-contained breathing apparatus (SCBA) must be emphasized. The means of identification should become second nature to all members. Initial units may have to wait for the Hazardous Materials Unit (Haz-Mat) to arrive in order to avoid exposing themselves to an unknown chemical. *The Department of Transportation Emergency Guidebook* MUST be carried on the apparatus and used at company drills. Examples of shipping papers and placards are shown in this book. Hazardous materials are listed according to numerical or alphabetical indexes. Each of the listed materials is assigned to a specific guide. *You must remember that the recommendations in the guide may not necessarily be adequate or applicable in all cases.* The book was developed for

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transportation incidents, but can be of assistance at facilities such as terminals and warehouses. The required type of protective clothing is given in each guide. Remember, this is a *guide* for initial response units. The HMRT has more extensive reference resources available to provide information on handling the incident.

The incident can be safely controlled by proper operating procedures. A company officer will usually arrive before the assigned chief. The company officer must exercise strong control over his personnel, if injuries are to be avoided. Our natural aggressive actions must be restrained. On arrival, if a suspected hazardous material is involved, the signal 10-80 should be transmitted. This will start in motion the response of the HMRT, and notifications to other resources by the dispatcher. The question the IC must ask himself is, "Will the commitment of my personnel favorably change the outcome, or will they become part of the problem?" Remember that initial units may not have the proper protective equipment available to them. The protective clothing we respond with is designed for thermal protection, not for protection against the corrosives or other chemicals we may encounter. Injuries are sustained by rushing in too far, too soon, just to do something. Members have been injured because they have done just that. There will be a period of time until the arrival of the HMRT, and this is the period that we must exercise caution and restraint.

Apparatus should be placed upwind and out of exposure danger. The area should be isolated, and entry denied to all. The yellow fire zone tape carried in battalion cars can be used to advantage. If there is danger from fumes or clouds, evacuation of that area should begin immediately, and all personnel must be wearing full protective clothing, including SCBA. While awaiting the arrival of the HMRT, try to gather information from representatives of the company; in the case of a transportation incident, the driver.

Remember, that while you may not have a large industrial chemical plant in your district, you may become involved in a hazardous material transportation incident. Bear in mind that phosphorous trichloride, or any other chemical that is transported in a tank truck will, undoubtedly, pass through a number of F.D.N.Y. company districts while enroute to its final destination. The key is to determine if a hazardous material is involved. If such is the case, then:

- Determine what the specific material is, and
- Consult the reference resources for the proper advice in mitigating the incident.

On arrival, the HMRT will assist the IC in bringing the incident to a safe conclusion. The HMRT officer will consult with, and advise, the IC of the hazards involved. The IC will then make his decision based on that recommendation.

The proper use of protective equipment, careful analysis of the information on the material involved, pre-planning, training, and control of the members on the scene can eliminate, or reduce, the risks involved at these incidents. ▲