

Message from IARW

We are extremely pleased to provide you with the second edition of the *IARW Crisis Management Manual*. This updated version is the product of the collective knowledge and experience of people and organizations familiar with the refrigerated warehouse industry and its emergency response planning needs.

Because of the uniqueness of every business, a “one size fits all” approach to addressing all aspects of emergency response planning is not practical. What this manual offers is time-tested, common-sense framework on the development or updating of a crisis management program for your company. We encourage you to seek additional information and add relevant information to the manual for your own use.

An IARW service partner which specializes in crisis management is The Communications Workshop, LLC based just outside of Washington, DC. With the assistance of IARW and many of its members, the company has developed a crisis management training program tailored specifically for the cold storage industry. Your IARW staff is very excited about this program and encourages IARW members to take advantage of it. The one-day program is called *Coping With Crisis 101*. It is the only program of its kind in our industry. For more information on the program, contact Steve Bassett of The Communications Workshop, LLC at 301-483-0158 or your IARW headquarters staff at 703-373-4300.

The goals of this crisis management plan are to guide facilities in developing a crisis management plan if they do not already have one and to guide facilities in reviewing, critiquing and strengthening existing crisis management plans. Although we believe this manual offers sound advice for your consideration, we strongly encourage you to adapt your crisis management initiatives to your particular facility.

Finally, IARW is interested in your input regarding this manual and any additional information you find that might benefit other members. Please forward your comments and any such additional information to IARW for redistribution to other members and/or inclusion in future versions of this manual.

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Preface

At some time or another, nearly every warehouse manager can expect to be faced with the sudden challenge of responding to a fire, explosion, ammonia leak, hazardous materials spill, roof collapse, structural failure, rack collapse, hurricane, tornado, flood, power failure, transportation accident, forklift accident, bomb threat, terrorist attack, fatality, security breach, employee discord, workplace violence, litigation, government investigation, quality control issue, or management problem. The failure of management to react promptly, responsibly and appropriately in such circumstances can cause unnecessary human, property and business loss. Preventing a crisis is central to the crisis management process.

When preparing for a crisis, ask yourself these questions:

- What do I do as a first response?
- What do I tell the employees?
- What do I say to customers?
- How do I respond to the news media?
- What are my legal obligations?
- If there are fatalities, how will that be handled?
- How does insurance play a role?
- How do I minimize the company's loss?
- How do I preserve goodwill with customers and the public?

If a crisis hits your PRW, the reality is:

- You may receive negative publicity;
- There will be some level of government involvement;
- If fatalities are involved, you likely will be sued by victim's families;
- The potential loss of customers is very real;
- There may well be a political backlash;
- There will be some level of emotional trauma to employees.

Above all, **expect the unexpected!**

Responsible PRWs already have taken some steps to mitigate a crisis situation. If you manage a U.S. company with 10 or more employees then you are required by OSHA to prepare a written Emergency Action Plan. And, for some, that may be adequate. But, there is a lot more to crisis management than that. This updated *IARW Crisis Management Manual* takes you well beyond the requirements of OSHA and will help you develop a comprehensive and meaningful crisis management plan for your facility.

Effective crisis management can be viewed in three phases – prevention, preparation, and response. We'll start at the beginning.

Prevention

Who among us does not want to prevent a crisis from occurring? Of course, we all do. Prevention begins with the identification of potential crisis. That's where the vulnerability analysis comes in.

Hazard identification and vulnerability analysis are important initial steps in the emergency planning process. These tasks identify the credible perils or threats to the facility and assess the potential impact on personnel, property, the environment, and business operations. Incidents which could result in a large loss require the highest level of planning. Conversely, threats that are improbable and which have little potential for injury or damage do not require much attention. Most important, it gives management an opportunity to fix any problems it sees before they become a crisis.

The hazard identification and vulnerability analysis process can be as simple as identifying the threats to a facility or it can be a much more comprehensive analysis that lays the foundation for upgrading protection systems or adding redundancy in business operations. The hazard analysis must, however, provide sufficient information for management to determine what type of emergency organization or level of response should be provided.

HAZMAT

Safety, engineering, operations, or facilities personnel are probably the most qualified persons to identify threats or perils. Material Safety Data Sheets (MSDS's) can provide information on the hazards of materials. If the facility has provided MSDS's or inventory forms to local emergency planning committees in accordance with SARA Title III, then this information can be used in the emergency planning process. Insurance company reports can all be the source of information.

Drawings, maps, and charts of the facility and surrounding areas are also useful tools. Exterior operations, yard storage, and surrounding property should not be ignored. Neighboring facilities handling hazardous materials or an accident involving materials transported on highways or railroad tracks can present a significant exposure to your facility.

Inspections

Roof collapses are a surprisingly frequent occurrence, usually due to the weight of ice and snow. The best preventative is to spend the few extra cents per square foot it takes to for-

tify the structural members of the roof. This extra buttressing is also valuable when expansion plans require the running of ammonia lines across the existing roof.

Ice dams can cause unsupportable accumulations of ice, snow and water. Condensers and roof structures can provide a place for drifts to form. When a snow storm is forecast, take steps to ensure the removal of snow before it becomes too deep. A structural engineer can give a reliable estimate of the weight the roof can support and translate this value into a depth of snow of various densities. Careful monitoring can prevent excessive accumulation from causing a collapse.

Vulnerability Analysis

Threats which could cause injury to employees, damage to property, or harm to the environment must be assessed. The following are potentially exposed to these threats or perils and must be considered during the assessment process:

- Employees and other personnel (contractors, visitors, guests, etc.) in the building or area of the incident;
- Occupants of surrounding properties including the public at large;
- Machinery and equipment, including utility systems (water, gas, steam, heating, ventilation, cooling, or process control systems);
- Data processing and telecommunications equipment;
- Valuable papers, records, drawings, and computer media;
- Cash and financial assets;
- Buildings and other structures;
- Other property whether owned or leased;
- Continuity of business operations (e.g., manufacturing or production, ability to service customers, etc.);
- The environment including air, soil, ground water, rivers, streams, or other bodies of water.

The likelihood and degree of vulnerability will determine the required level of emergency planning. If an event is improbable but the potential consequences are great then emergency plans must address the threat.

For example, fire is a threat faced by all facilities although it may be a rare occurrence. Factors such as the quantity and flammability of contents determine to a great extent the threat to the facility and the degree of preparedness required. If there is a large quantity of flammable liquids or gasses, processes that have a high frequency of fires, or the contents of the facility are highly susceptible to damage from even a minor fire, then preparedness and response levels must be high.

The vulnerability analysis must determine the impact on the facility, personnel within the facility and around it, and the surrounding property as well. The impact on business operations is a critical factor since even a relatively minor incident may cause a considerable interruption to normal business operations. Consider the possible impact when a traffic accident knocks down a telephone pole carrying overhead power and telephone lines to your facility. The event could cause a power outage or interrupt communications with off-site computers. Any interruption of power could cause computer systems without backup power supplies to lose data. If the duration of the outage is short, then the impact is minor. However, if your business processes involve long-term batch operations that must be started over if there is any interruption, the minor outage could result in many days of business interruption until the process is restored.

An analysis of a hazardous materials spill must determine the area which could be affected by the spill or release. The size of the area may be restricted to the room or immediate area of the spill. If the quantity of materials typically handled is large, then the spill may affect the entire building, surrounding properties, rivers, and streams, or a wider area if a cloud of toxic vapors is released. Depending upon the scope of the release, only the employee handling the material would be affected, or a whole community could face evacuation if a major tank ruptured.

The bottom line is – have we done everything in our power as a company to prevent a crisis from occurring?

Preparation

The most important aspect of management of a crisis is preparation before the event. Preparation should include the formation of a crisis management committee composed of managers and supervisors, key employees, federal/state/local government agencies and disaster response personnel, local fire, police and other officials, communications specialists, customers, news media, contractors, engineers, legal counsel, insurance representatives, and even other PRWs in your local area.

The purpose of the committee is to utilize your internal and external expertise to develop guidance on how various emergencies which you may face should be handled. The three most significant questions for the committee to answer are – what is the crisis? What do we do about it? Who does it?

Long before a crisis occurs, plant management should develop and cultivate a relationship with local officials. While the fire department is probably most important, having a good working relationship with the mayor, public safety officers and the health department (or their equivalents) can make matters much less difficult when a catastrophe occurs.

Local officials charged with public safety tend to exercise their discretion by erring on the side of caution. In one case, the local officials faced with a fire involving urethane insisted that the area be evacuated and that debris be wrapped in plastic and disposed in a specially permitted toxic landfill. In another case involving a warehouse storing government cheese, local health officials issued an alert because cheese was a well-known food source for rats!

Fire departments are also not immune from committing errors because of a lack of information. One rural fire department, unfamiliar with insulated refrigerated warehouse walls, spent valuable time using a cutting tool with a six-inch reach to attempt to penetrate an eight-inch wall.

Many of these and similar problems could have been avoided by warehousemen taking responsibility for educating and informing their local public safety officials. While the warehouse engineer often has the greatest technical knowledge, senior management should be involved so that a personal relationship can be established. A warehouse burning out of control is not the time to make the acquaintance of the fire chief.

Fire officials should be supplied with the as-built plans of the plant or should know where they are stored off-site. They need to know the nearest source of water for pumping and where the outside shutoffs for ammonia valves are located. Most fire departments, even volunteer departments, will know what

questions to ask—the warehouseman can take responsibility for creating the opportunity.

Your legal counsel and insurance representative are two of your best friends during a crisis. If product is lost or damaged, the warehouse receipt establishes the relationship between the warehouse and the owner of the stored goods. A law suit brought may be fixed by the warehouse receipt. An attorney familiar with this area of law should be consulted.

As warehouses become larger and more efficiently utilized, and as the value of stored goods escalates, it is not difficult for a warehouseman to be storing goods having a value several times his net worth. The prudent businessman carefully evaluates his exposure and manages the risk by agreement with his customers and by proper insurance coverage. In all cases, a thorough inspection of the plant by a professional trained to identify risk factors should be arranged. The thoughtful advice of a good insurance broker is invaluable in the proper managing of risk decision making.

Additionally, lists of all people in the warehouse at any given time should always be available (for normal security, if for no other reason) and someone should be designated to retrieve the list when an emergency arises. Employees should be trained to meet at a central site where the roll is called by a responsible designee. Many brave firefighters have suffered attempting to rescue someone thought to be trapped in a building from which they had long since escaped. Knowing who is safe and who is missing allows management to respond to the inquiries of families and permits rescue operations to be properly directed.

Plant personnel should be thoroughly trained in the proper way to respond to anticipated conditions. Of greatest importance in a catastrophic situation is the protection of people in and around the plant.

Develop a Site-Specific Crisis Manual

A crisis manual does three things. It identifies potential crisis, lays out specific actions for addressing the crisis, and identifies those persons responsible for carrying out those actions. Whether it is a fire, explosion, ammonia leak, or other problem, your crisis manual must include specific steps/actions to address the crisis and the people within your company who will take those steps. In other words, what is the crisis, how are we going to solve it, and who is going to do it? These three simple common-sense questions mean everything when it comes to mitigating a crisis at your facility.

Emergency Response Teams

An important element in any plan is the identification of teams to carry out specific emergency procedures. In reality, it is not expected that a warehouse would have an adequate number of personnel to have 13 separate teams or to permit key personnel to serve on only one team. What is important is that a warehouse have specialists trained in each of these areas who likely would serve on multiple teams. The teams are:

- Evacuation Team
- Ammonia Team
- Fire Team
- Sprinkler Team
- Electrical Team
- Fluid/Gas Line Team
- Security Team
- First Aid Team
- Safety & Damage Team
- Administrative Control Team
- Readiness Team
- Salvage Team
- Communication/PR Team

The manual also should contain key contact information—telephone numbers (work/home/cell), addresses, etc.

Contact Information Required

- Key Management
- Other Key Staff
- Fire Department
- Police Department
- Insurance Representative
- Legal Counsel
- State Hotline for Ammonia Spills
- National Response Center for Ammonia Spills
(More than 100 lbs) (800) 424-8802
- Customers
- FEMA Office
- Security Service
- Salvage Company
- Builders/Architect
- News Media
- FEMA Headquarters/Washington, DC (202) 646-2500
- IARW Headquarters (703) 373-4300
- The Communications Workshop Crisis Management Hotline (301) 483-0158
- Other PRWs
- Local Hotels
- Airlines

- Ground Transportation (Limousine Companies, etc.)
- Clergy
- Multi-Lingual Specialists

As-Built Electrical and Mechanical Plans of Plant

If these plans are unavailable, consult with your fire department as to the information they would require. Remember that your plant engineer may not be available for consultation and those who constructed the building may be advised by their counsel or insurer not to furnish information following a loss.

Important items include the thickness of walls, the location of valves, the precise construction of roof-wall joints and interior wall-roof joints (important in forecasting fire spread) and the materials used in construction, particularly insulation. Petrochemicals and their synthetic substitutes may form hazardous compounds during combustion. Having information from the manufacturer available on-site about the precise nature of hazards that could be presented can allay groundless fears and permit appropriate precautions to be taken.

List of Customers and Inventories

Reconstructing inventory following a loss can be a daunting task in the absence of a recent listing. While it is impractical for many warehousemen to keep an updated parallel inventory off-premises, even one that is a week old is better than none at all. Once each week, a backup disk and hard copy of the inventory should be updated and stored off-site, replacing the one generated the previous week. (Certainly a copy of the source code for any programs used in conjunction with the company's computer system should be stored off-site as well.)

Back-Up Management

The Crisis Management plan should contain a section on back-up management. While unlikely, it is possible for an ammonia explosion or roof collapse or other disaster to render all upper management incapable of participation in decision making. If ownership of the company is in a family, it may fall to a spouse or other family member to make decisions. A good plan in this case would provide references to trusted friends or professionals who could be relied upon for advice. Naturally, the greater the communication before the event, the less difficulty will be encountered at the time of the crisis.

Insurance Specialists

An audit of insurance needs, carried out on an annual basis or when a major change is made, is almost a necessity. A trained specialist can inspect your facilities and provide advice on how to minimize risks.

A copy of your insurance policy or key coverage should be kept in the manual or information about the policy location. Insurance representatives' names along with home and office phone numbers should be included.

A summary of claims procedures should be included in the manual.

Security Services

If a security service is not currently used, it is advisable to make arrangements to call on one in the event of a crisis. Develop a security system to limit access to the plant except by authorized personnel. A name badge system with check-in and check-out procedures and a log will probably be best.

Generally, this security system should be an extension of current operating procedures. Security against theft, burglary, sabotage, or vandalism is a necessity in most locations. A copy of your crisis security program should be included in the manual.

Conduct quarterly reviews to be sure your security service is still available and that you have the updated list of person(s) to contact.

Salvage Company

Make a list of available companies with office and home phone numbers. You may want to prioritize this list to determine who will be called first. A copy of this list should be included in the manual.

Check these companies for fees, experience, compliance with local laws and codes, references, their ability to react quickly and support programs or services.

Conduct quarterly reviews to be sure your salvage company is still in business and that you have the updated person(s) to contact.

Computer Services and Data Processing

Most warehouses are computer dependent. If the computer is inoperable due to crisis, that becomes a crisis in itself.

Storing data and copies is normally a part of standard operat-

ing procedures. Where these records are stored and how to access them should be included in an appropriate section of your manual, in case all computer personnel are unavailable.

A list of internal data-processing personnel with home phones numbers should be part of employee lists.

A list of external computer service personnel with office and home phone numbers is a must. This should include any service that impacts the computer operations. Telephone contacts for electrical, satellite transmission, the cable company and emergency generators should be included.

A back-up system should be arranged for and specified in this section. If there is another IARW member nearby, you may want to support each other. Aggressive competition should not normally prevent mutually beneficial support.

Your computer vendor is an excellent source of additional information. Many of them offer training programs and materials.

Your data processing department should develop a detailed plan as part of this manual.

Emergency Storage

Make a list of alternate storage facilities with names, addresses, and office and home phone numbers of key officials should it be necessary to relocate product. Also compile a list of refrigerated trucking services with names, addresses and office and emergency phone numbers. Make arrangements with these companies to enact emergency procedures if needed. These arrangements may include rates, specifications, and sample documentation for your attorney to review.

Possible sources of emergency storage for your consideration include other IARW members, food wholesalers, refrigerated trucks or rail cars, governmental facilities, or customers' facilities.

Conduct quarterly reviews to determine that the facilities are still available and that you have the updated contact people.

Quality Control

In the event of a crisis, it may be advisable or even required by certain customers for you to have an independent control laboratory test the food products. Standard testing procedures conducted by an independent laboratory can determine physical, chemical, or contamination damages if any.

A list of laboratories with office and emergency phone numbers should be included in this section.

Quarterly reviews should be made to determine if the laboratory services are still available and to update contact information, if necessary.

Training

All personnel should be trained to react in an emergency. The organization and management style of each plant will dictate the precise mode of reaction, but there must be some clearly defined procedure for every employee to follow when he becomes aware of an incipient emergency. The procedure should provide steps for notifying plant management, engineering personnel, off-site management and the appropriate authorities.

Personnel should be trained in evaluating the seriousness of an occurrence. Fires are often underestimated by the discoverers who attempt to control it without the aid of the fire department. Similarly, plant engineers may attempt to control a serious ammonia leak until it has progressed to the danger point. It is far better to be embarrassed by calling the fire department too early than by calling too late. Any fire or failure of the ammonia containment system should be immediately called to the attention of the plant manager.

Care should be taken in designing the procedure so that no opportunity exists for individuals to incorrectly assume that someone else has called the police or fire department or other emergency personnel.

A training program covering how to handle ammonia spills and fires should be instituted, based on expert advice. While a description of the procedures to follow is beyond the scope of this article, a good training program should include the proper use of a fire extinguisher, CPR and an understanding of the properties of ammonia. Protective clothing, together with self-contained breathing systems, should be available, either owned by the plant or through the fire department.

Documentation

Another important element of emergency procedures is to have actual "Documentation of Preparation" for an emergency.

Your corporate or plant crisis management manual could be the most valuable volume in your business because in it you will keep documentation of your emergency preparation, which can be used later to establish your program of training and preparation. The documentation section of the manual details the photos, records, blueprints, etc., that should definitely be a part of your company's crisis management manual. For example, having names and dates of times when you invited a fire official to walk through your plant, provided him with blueprints marked with emergency controls, advised him of potentially toxic or dangerous substances on the property (ammonia, PCB transformers, tanks of compressed gas, insulation that is thermal sensitive), etc., could, if necessary, be used later to establish a positive position with the press, broadcast media, or even in court.

Crisis Management/Emergency Response Planning

Any situation that involves human safety, extensive product damage, disruption of business, or grounds for litigation is potentially a crisis. The purpose of your plan is to minimize the effects of the disaster through planning, training and preparation. A well-developed plan will allow you to be in control rather than having your actions and decisions controlled by circumstances. In short, it's action versus reaction.

While not the primary purpose, an additional benefit of having a professional crisis management plan with trained staff is to be able to present a positive image to prospective customers that demonstrates your commitment to effective management and service. In some cases, insurance rates have been influenced in favor of a company with a well-developed and well-administered crisis management plan. This crisis management manual is intended to be a resource for you and your organization and should also be customized to meet your needs.

Employers with 10 or more employees are required to prepare a written Emergency Action Plan by Occupational Health and Safety Administration standard 29 CFR 1910.38 *Employee Emergency Plans* and *Fire Prevention Plans*. Facilities that use, treat, store, or dispose of hazardous materials (TSD facilities) also must comply with environmental regulations including the *Resource Conservation and Recovery Act* (RCRA), the *Emergency Planning and Community Right to Know Act* (EPCRA) which is commonly referred to as Superfund Amendments and Reauthorization Act (SARA) Title III, the *Clean Water Act and Oil Pollution Act of 1990* (for oil spills); and the *Clean Air Act Amendments of 1990*. Each of these regulations requires various levels of emergency response planning.

National Fire Protection Association standards, unlike the federal laws and regulations listed above, are not mandatory *unless they are adopted into law* by a local or state jurisdiction or they are incorporated by reference into a federal regulation. However, since they are adopted as national "consensus" standards, they are still used by private industry, insurance companies, and the courts to assess a minimum level of compliance. Therefore, they should not be ignored even if they do not carry the force of law in your community.

Other regulations that must be considered include local or state fire prevention regulations or building codes. Fire prevention regulations, in particular, address *emergency* response planning, whereas building codes specify building design and construction features to protect life safety in the

event of a fire, earthquake, or other emergency incident.

Sole dependence upon public emergency services is not sufficient. They don't know as much about your facility as you do, and as a result cannot be expected to respond as efficiently and effectively without your active participation and support. The actions taken during the critical initial minutes of an emergency often determine the ultimate impact of the emergency.

Don't confuse an emergency action plan with a comprehensive crisis management plan. They are entirely different. A crisis management plan is broader and covers far more territory.

Your crisis management plan, when completed, will be a unique document. It should contain all the documentation and resources you need at your fingertips to guide you through almost any kind of an emergency.

A number of suggested formats are available for consideration. The self-evaluation checklist in Appendix A can, in fact, be used as a format for your plan, if you choose. Regardless of the format, never lose sight of who the audience is: The document is only as good as it's "usability." Keeping it simple has much merit. Creating an abbreviated document to describe your response plans, while appending the document with a wealth of support documentation (such as phone lists, lists of vendors and suppliers, diagrams, operational procedures, etc.) may be considered. Regardless of your final document, you must develop a plan that your people can understand and use. Be creative!

Writing the Emergency Response Plan

The emergency response plan should be written as succinctly as possible. It should be well organized with a table of contents and tabs or page dividers, so information can be found quickly. Supporting information should be included in the appendix, or references should be made to other documents. The suggested components of a written plan include:

A. Introduction

- Policy Statement & Objectives
- Organizational Statement
- Definitions of Emergency Situations

B. Emergency Organization

- Organization of the Team
- Command Structure (Incident Command Structure)
- Responsibilities of Members
- Safety and Protection of ERT Members
- Emergency Operations Center
- Coordination with Outside Authorities

C. Communications

- Emergency Alarm System
- Radio Communications
- Notification of Personnel On-Site and Off-Site
- Media Relations

D. Emergency Procedures

- Evacuation
- Medical Emergencies
- Fire and Explosion
- Hazardous Materials Incidents
- Severe Weather
- Natural Disasters (Hurricanes, Tornadoes, Earthquakes)
- Bomb Threats
- Security Threats (Strike, Civil Disorder)
- Utility Outages
- Mechanical Breakdown
- Water Leaks
- Salvage and Property Conservation

E. Training Requirements

F. Distributing and Updating the Plan

- Recordkeeping Requirements

G. Appendix

- Diagrams and Instructions for Fire Protection and Life Saving Systems
- Diagrams and Instructions for Building Mechanical, Process, Utility, Waste Treatment, and Drainage Systems
- Site Diagrams
- Spill Control Equipment

- Other Equipment Referenced in the Plan
- Resource and Vendor Listings

The following is an expanded look at some of the key components of the Emergency Response Plan:

A. Introduction

The introductory section should include the policy statement and organizational statement. Definitions and examples of the types of incidents which warrant declaration of an emergency should be provided where not obvious. In most cases, it is apparent to everyone that there is an emergency—a fire, for example. However, a problem with a refrigeration system or chemical process which could result in the release of hazardous materials may not be perceived as an emergency requiring action by the ERT. A small spill of hazardous materials may not be considered an emergency by technicians that use the chemicals daily. However, it may be an emergency because of the potential for spreading toxic vapors or gases or because the spill ran into floor drains. By deciding in advance what constitutes an emergency, there will be less confusion and indecision when an incident occurs.

B. Emergency Organization

A more detailed description of the emergency organization including names, titles, command structure, and responsibilities must be included in this section. This section should not duplicate the organizational statement but should provide enough information to eliminate confusion and any disagreements during an emergency. Coordination with all of the public agencies that may respond to the facility should be defined in this section.

Protection of the safety and health of all members of the ERT is an important responsibility of the emergency coordinator, and it is the responsibility of each and every member of the team as well. The use of personal protective equipment (where required by specific procedures), supervision of activities to ensure no one is left unaccounted, and other precautions should be included in the written plan. OSHA standards on fire brigades, *HAZWOPER*, and personal protective equipment as well as NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, specify requirements and provide guidance on these topics.

EMERGENCY OPERATIONS CENTER

An emergency operations center (EOC) is a communications office staffed with qualified personnel who gather, retrieve, analyze, process, and display information to coordinate the response to an emergency. Depending upon the size of the facility, the EOC can be a small office, conference room, or trailer. About 25 square feet of floor space should be allocated for each person expected to occupy the room.

The EOC should be equipped with telephones, two-way radios (if available), cell phones, weather radio, AM/FM radio, television, and fax capabilities. Copies of the emergency plan; telephone notification lists or directories; maps; diagrams and instructions for all fire detection, suppression, and communications systems; building plans; and plans for heating, ventilation and air conditioning (HVAC), water, sewer, gas, and electrical systems should be kept in the EOC in an accessible location. In addition, descriptions and specifications of occupancy hazards and processes should be maintained by the EOC. This could include copies of material safety data sheets, process flow diagrams, and related documentation.

If emergency power is available, the EOC should be connected to the backup supply. If not, adequate portable lights should be available along with sufficient additional batteries to power the lights for 24 to 48 hours. Provision should be made for rest, food, water, and bathroom facilities, if the EOC will be occupied for extended periods.

The EOC should be located where it is protected most from natural hazards such as flood, windstorm, and earthquake. It should also be away from any hazardous operations. Interior or basement rooms, trailers at the perimeter of the site, or adjacent buildings are possible locations. A primary location and at least one alternate should be arranged in the event the primary EOC is uninhabitable because of the emergency.

C. Communications

Effective emergency communications are vital. The emergency coordinator and public agencies responding to the scene require accurate information to make decisions. Inaccurate information or information that is incorrectly relayed from the scene to the EOC can prove disastrous as the emergency coordinator directs personnel and equipment.

EMERGENCY ALARM SYSTEMS

An emergency alarm system is required by OSHA standard

¹ The ADA does not require installation of emergency alarm systems. Rather, it specifies requirements when such systems are installed.

1910.38 *Employee Emergency Plans and Fire Prevention Plans*. The system must comply with OSHA Standard 1910.165 *Employee Alarm Systems*. Where emergency alarm systems are provided, they must also comply with the *Americans with Disabilities Act (ADA)*.¹ The alarm system must provide warning for necessary emergency action and provide sufficient reaction time for safe escape. It must be capable of being heard above ambient noise levels by all employees, and be distinctive and recognizable as a signal to evacuate the work area. The ADA requires visual as well as audible alarm indication.

Employees must be trained on the preferred method for reporting emergencies and the evacuation procedures in the event the alarm sounds.

In buildings, such as high-rise buildings, that have complex fire detection, alarm, and communication systems, personnel who operate the systems must be adequately trained on how to use the system especially when coordinating evacuation.

RADIO COMMUNICATIONS

Two-way radios are invaluable tools for effective communications. Where portable radios have multiple channels, the emergency plan should specify the proper emergency radio frequency or channel to be used. For large-scale incidents, multiple channels may be used for command, evacuation, and support functions.

Radio systems should be tested to identify “dead” spots or areas where radio communications may be impossible due to building construction or other conditions. In addition, provision for extra batteries and chargers should be addressed in the plan. The EOC, security office, or other central location may be the most suitable place to maintain this equipment.

NOTIFICATION OF THE EMERGENCY RESPONSE TEAM

The emergency plan must address procedures for notifying members of the ERT both on-site and off-site, such as after normal business hours. Telephone numbers for work, home, and any pagers or radios that can be used should be compiled in a master list that is updated regularly.

A telephone operator or receptionist can handle notification for small facilities. Where there is a constantly attended security office, responsibility for notification can be assigned to those personnel.

Access to the fire alarm control or enunciator panel should be considered when assigning notification responsibilities. Information on the nature of any alarm must be quickly relayed

to the emergency coordinator and public fire department regardless of whether the fire alarm system automatically notifies the fire department.

NOTIFICATION OF OTHER PERSONNEL

Procedures for notifying the appropriate public agencies must be specified in the emergency plan. The personnel, emergency services, and other public agencies notified will vary greatly depending upon the type of emergency. For example, a HAZMAT spill may require notification of the public fire department, local emergency planning committee, state environmental authorities, the U.S. Coast Guard, and the National Response Center. The criteria for spills requiring notification should be written into the emergency response plan. The types of materials spilled or released, threshold quantities (i.e., the minimum amount spilled or released triggering the notification requirement), and any other regulatory requirements should be listed.

The following personnel, agencies, and contractors should be included on notification lists:

- Members of the ERT;
- Department managers (engineering, safety, security, maintenance, housekeeping, operations, transportation, etc.);
- Executive management (facility, division, corporate);
- Public relations, or media relations staff or outside consultants;
- Insurance (risk management/insurance department, insurance companies claims departments, brokers);
- Fire department;
- Police (local, county, state police);
- Medical services (plant doctor, consulting physician, local hospitals or outpatient clinics, corporate attorney
- Poison control, suicide prevention, paramedics, ambulance services);
- Environmental authorities (local emergency planning committee, state emergency response commission, U.S. EPA, National Response Center, U.S. Coast Guard);
- Utility companies (electricity, water, gas, steam, telephone);
- Contractors (elevator, plumbing, sprinkler, HAZMAT cleanup, smoke/fire restoration, electrical).

NEWS MEDIA RELATIONS

It is essential that a trained media/communications specialist

represent your company with the news media. That could be an employee who has been trained by communications professionals on the art of media relations or it could be an outside contractor. It is always best for the company spokesperson to be someone within the company rather than an outsider. But, ensure that your spokesperson/media relations specialist is well trained before permitting them to speak with reporters. For additional information on media relations and media training, contact IARW Strategic Partner Steve Bassett at The Communications Workshop, LLC at (301) 483-0158.

Procedures for handling news media should be considered. It is often best to make preliminary statements from prepared scripts rather than ignore the news media. Additional information can be gathered and provided as the situation progresses.

Management should decide in advance who will be authorized to speak with the news media. If there is a public affairs department or an outside public relations firm, procedures for notifying them must be established. The person assigned to speak with the news media should be known to all company employees and be introduced in advance to the media, if possible. An outline of a press release prepared in advance can help to ensure that factual information about the facility, its operations, and risk prevention and control measures is released to the news media.

The following general guidelines can be applied to most emergency situations:

Establish a location where the media can be contained safely away from the emergency. An office, trailer, or other room equipped with telephones that can hold the anticipated number of media representatives should be identified.

Provide only the facts such as where the emergency occurred, how it was discovered, and how it was controlled. Emphasize the positive impact of loss prevention measures, protection systems, and the efforts of the emergency organization.

Do not reveal names of the injured or deceased. Medical and police procedures as well as common courtesy and sensitivity require that next of kin be notified well in advance of the media.

Comment or speculation regarding issues which are the responsibility of agencies such as the police department, fire marshal, or medical examiner (e.g., responsibility for a crime, cause of fire, cause of death, etc.) should not be made. Rather, these questions should always be referred to the proper authorities for comment.

If the designated spokesperson does not feel it is appropriate to comment on a specific issue or respond to a question, he or she

should never respond, “No comment.” Instead, the spokesperson should state that the information is not yet available, but will “try to find out and get back to you shortly.”

Never permit emergency response personnel such as fire or police to speak for your company and always have a company representative with them when they address the news media.

Appendix A includes a sample news release developed by The Communications Workshop, LLC that can be used as a framework for you and your communications specialists.

Planning the Emergency Response Teams

Assessment of Available Resources

The planning process should inventory the available resources which could be deployed during an emergency. These resources include capable personnel, equipment for incident control or cleanup, and systems designed to prevent or control an emergency situation. The number of personnel who would be capable of responding to emergencies and their level of education and training should be inventoried. Facilities that operate more than one shift must determine the number of personnel available on all shifts. Emergency plans must reflect changes in available manpower such as during a strike or work stoppage where management or supervisory personnel are the only persons available.

The capabilities of the public emergency service must be assessed because the availability or lack thereof will determine the functions and level of response of the ERT. For example, if there are no local emergency medical services, then these services must be provided at the facility according to OSHA regulations. If the public fire department has a well-equipped and qualified hazardous materials response team, then the facility's hazardous materials response plan can be limited to notification, evacuation, and coordination with public authorities.

Assessment of community emergency services must consider the availability of personnel and equipment; the availability of aid from other company facilities or neighboring communities; the level of knowledge or expertise of the responders—not only about emergency response practices but also of your facility's hazards; and the time it will take for the emergency services to respond to your site.

Consideration must be given to the location of the nearest fire stations, hazardous materials response team, and emergency medical services. What is the distance to the nearest station? What is the estimated response time considering traffic congestion or the demand on these services? Many hazardous materials response teams are organized to serve a large geographic area and may be located a great distance from your facility. In addition, once they arrive at your location, they must assess the hazards of the situation and don protective clothing before taking any action to stop a leak or clean up a spill.

Are there any conditions that would hamper access to your site such as bridges with weight restrictions or low clearance which would require fire apparatus to travel a more circuitous route to your facility? Are there any roads subject to flooding which would restrict access in the event of a flood?

The capabilities of the public emergency services are an important factor when determining the function of the ERT. Is the fire department fully paid and well staffed such as in a large city, or is it a volunteer department that may not be able to muster sufficient members during business hours? Are the emergency medical services capable of treating the types of injuries that could occur at your location? Is the local fire department equipped to rescue an injured employee from a confined space, crane, high lift, or process structure many feet above ground level? If they are not, then you must provide equipment or establish procedures to handle this type of an emergency.

Functions of the Emergency Organization

The emergency organization must handle many different types of situations identified during the hazard identification and vulnerability assessment process. These may include fires, natural hazards (flooding, earthquake, hurricane, tornado, or winter storms), hazardous materials spills, rescue of trapped or injured employees (such as in a confined space or machinery), medical emergencies, and security threats (bomb threats, strikes, etc.). Response to these different situations requires the ERT to fulfill a number of major functions which are shown in **Figure 1**.

Figure 1. Emergency Response Functions



The level of response and the type of organization required depend upon the following factors:

- Severity of hazards;
- Capabilities and response time of public emergency services;

- Number and capabilities of employees who could serve on the ERT;
- Management commitment and availability of resources to equip and train members of the ERT;
- Regulatory requirements.

Regulatory requirements dictate the capabilities and training for personnel who respond to fires and hazardous material spills or releases. The physical capabilities of members of the team; protective equipment that must be worn; and the education, training, and exercises that must be conducted are spelled out in OSHA standards 1910.156 (*Fire Brigades*), 1910.120 (*Hazardous Waste Operations and Emergency Response*), 1910.146 (*Confined Space Entry*), and 1910.1030 (*Bloodborne Pathogens*). Inadequately trained or equipped members of an ERT can be seriously injured or worse. Therefore, management must review these requirements and commit the necessary resources prior to organizing a team.

Firefighting

There are many different options to consider when deciding the level of firefighting that the ERT will perform. Each of these options has personnel, training, and equipment requirements, which are shown in **Figure 2**. Options range from no firefighting to establishing an interior structural and advanced exterior fire brigade that is organized, trained, and equipped like a municipal fire department. If you decide not to organize a fire brigade, you can still allow all or designated employees to fight a fire. In this case no medical evaluations are required, no protective clothing is permitted, and training and drills are only required annually.

If you decide that a formal fire brigade is needed to respond to fires in the workplace, then the level of response must be decided. OSHA recognizes two levels of response—incipient stage and interior structural firefighting. (For a definition of “incipient stage” see the Table below) Since this doesn’t adequately address the potential hazards of major fires on the exterior of a building, the National Fire Protection Association revised NFPA Standard 600, *Industrial Fire Brigades*. NFPA 600 provides five different options for incipient stage and advanced response to interior and exterior fires. Industrial fire brigades organized to respond to advanced interior or exterior fires or respond off-site fall under the scope of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

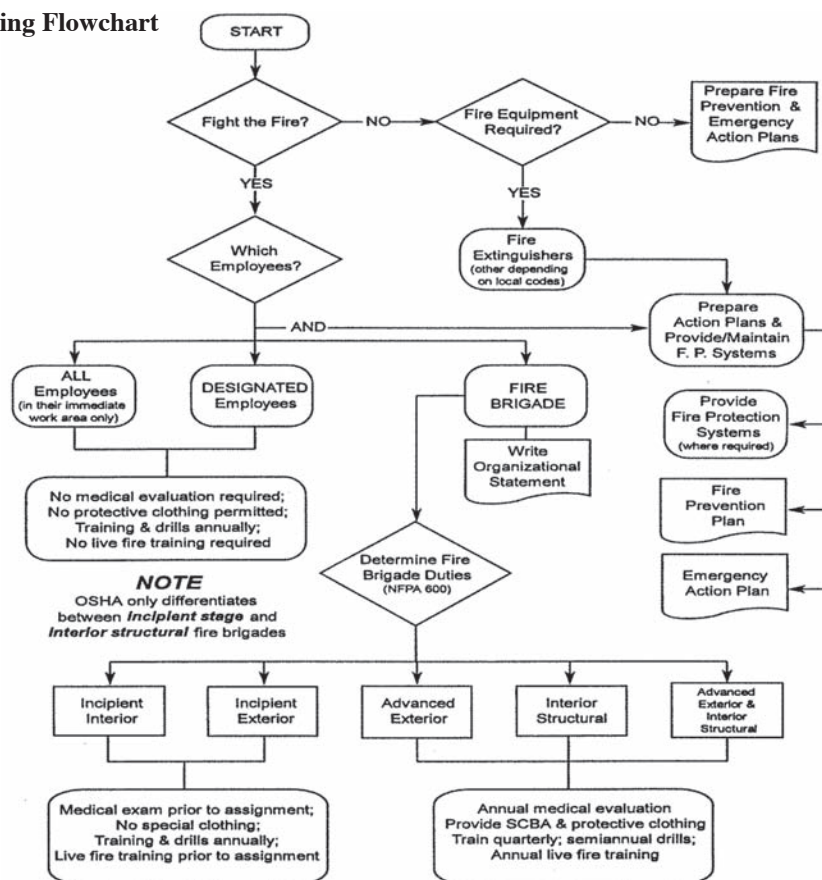
Incipient Firefighting	Incipient firefighting is performed inside or outside of an enclosed structure or building when the fire has not progressed beyond incipient stage.
Incipient Stage	Incipient stage refers to the severity of a fire where the progression is in the early stage and has not developed beyond that which can be extinguished using hand portable fire extinguishers or handlines flowing up to 125 gpm (typically in 1½ inch hoses).
A fire is considered to be beyond the incipient stage when:	The use of protective clothing or self-contained breathing apparatus is required or a fire brigade member is required to crawl on the ground or floor to stay below smoke and heat.

NFPA Standard 600 “Industrial Fire Brigades” 1992 Edition, Section 1-5

The decision-making flowchart depicted in **Figure 2** requires only three decisions (shown in diamond shaped boxes) for choosing the type of response to fires in the workplace—do you fight the fire; which employees fight the fire; and what duties will the fire brigade (if organized) perform. The medical examination, protective clothing, training and live fire drill requirements are summarized below each choice.

Regardless of whether any employee will fight a fire, emergency action and fire prevention plans must be prepared.

Figure 2. Decision-Making Flowchart



Organizing the Emergency Response Team

The emergency response team (ERT) may be very small if there are limited personnel available and the capabilities of the public emergency services are adequate. For a facility with significant hazards located in a remote area, the team may be very large and involve many departments and personnel. Whether small or large, an organizational statement is required by OSHA, and a formal structure is applicable to all.

Organizational Statement

The organizational statement defines the functions of the ERT and its command structure. It should also describe the number of personnel, equipment, and training requirements of the team. The organizational statement should be approved by management in accordance with the company's emergency planning policy statement. This will inform management of the support required for the team and outline the boundaries for duties performed by members of the ERT.

When it has been decided that a fire brigade will be established, a formal organizational statement is required. OSHA standards 1910.156, *Fire Brigades*, and NFPA Standard 600,

Industrial Fire Brigades, both require that an organizational statement be written which establishes the existence of the fire brigade; its basic organizational structure; the type, amount, and frequency of training of brigade members; the expected number of members of the brigade; the functions that they are to perform in the workplace; and the shifts during which the brigade will be available for response.

Organizational Structure

An organizational structure which defines responsibilities and lines of authority is critical to the success of an emergency plan. During an emergency, accurate information must be gathered quickly; decisions must be made by a knowledgeable incident commander; and orders given to members of the team. The commander of the ERT, the "emergency coordinator" must be known to all employees and responding public emergency services. The emergency coordinator's authority also must be understood and agreed upon prior to an incident.

Depending upon the size of the ERT or the number of operating shifts, it may be necessary to appoint assistant emergency coordinators to serve in the absence of the chief emergency coordinator. Coordinators should be assigned to each operating shift.

Executive management, facility management, and administrative functions such as finance, public affairs, and legal have important roles in support of the emergency plan. They are not responsible for operational decisions, but they must be informed of the situation and actions being taken by the ERT to control it.

The emergency organization must be capable of responding to many different types of incidents. Since it may not be practical to train all members of the emergency organization to respond to all types of incidents, it may be more practical to organize individual groups or teams to respond to specific types of incidents. For example, a hazardous materials team may include employees from a specific department who are familiar with chemical hazards; security threats would most likely be handled by security department personnel; and medical emergencies would probably be handled by a

plant doctor or nurse who comprises the facility's medical department. The overall emergency response plan and organizational structure, however, must effectively address the coordination of multiple teams responding simultaneously to serious incidents.

The example organizational chart depicted in **Figure 3** outlines the different functions that an emergency organization may perform. It also shows the relationship of the emergency organization to public authorities, outside services, and internal company management functions. In the top half of the chart, solid lines depict direct lines of authority, and dashed lines indicate working relationships. At the bottom of the chart, typical departments which may be assigned tasks under the emergency plan are listed. Direct responsibility for a function is shown with a solid line. Dashed lines indicate working relationships or supporting roles.

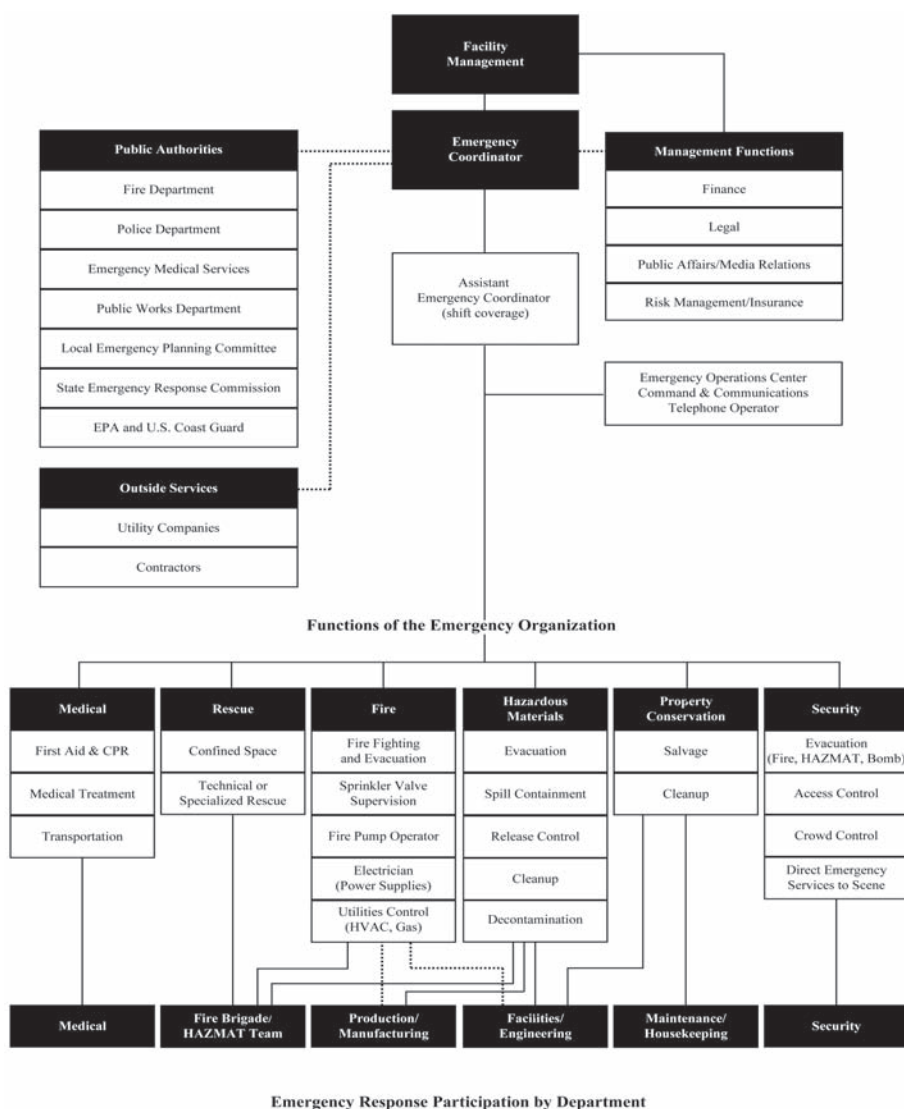


Figure 3. Example Emergency Response Team

Incident Command System

Responses to serious incidents will involve many participants from within the company and outside public agencies. To facilitate a speedy and effective response, it is essential to coordinate the services of the different personnel and agencies that become involved. An incident command system (ICS) which identifies the persons in charge of each agency and responsible for each function is the best method of accomplishing this goal.

For large facilities with separate ERTs responsible for each function (e.g., fire, HAZMAT, medical, etc.), the emergency coordinator should establish an incident command system. Facilities with a single ERT responsible for all functions need only coordinate incident command with public agencies that will respond to the facility.

The ICS should address:

- Person in charge (organization, name, and title);
- Chain of command;
- Advisory roles (technical recommendations) and veto powers, if any;
- Command post and EOC activation and operation;
- Common terminology (organizational functions, resources, and facilities);
- Resource management.

Emergency Coordinator

The emergency coordinator is the most critical member of the ERT. He or she must be physically and mentally capable of handling the stress incumbent in directing an emergency operation. The emergency coordinator must also be very familiar with the facility's building construction, occupancy hazards (including hazardous materials), fire protection systems, utility systems, the content of the emergency response plan, and the personnel and agencies who will be involved in any response.

Duties of the emergency coordinator include:

- Determining what emergencies may occur and seeing that emergency procedures are developed to address them. This involves working with the emergency planning committee to write the plan and keep it updated;
- Directing all emergency activities including evacuation of personnel;
- Coordination of pre-incident planning and emergency response procedures with outside agencies;
- Ensuring that outside emergency services such as fire, police, emergency medical services, environmental authorities, and contractors are called when necessary;
- Directing the shutdown of plant operations when necessary.

Members of the Emergency Response Team

All personnel assigned to fire brigades or hazardous materials response teams must be physically capable of performing their duties. Initial medical evaluations are required by OSHA 1910.156 and 1910.120 and NFPA 600 and 1500. Annual medical evaluations are required for members of advanced exterior and interior structural fire brigades and for members of HAZMAT response teams.

Members of the ERT not assigned firefighting or HAZMAT duties and employees who fight incipient fires but do not belong to a fire brigade do not have to meet these requirements. However, they should be able to handle the stress and be able to carry out their responsibilities under the plan. Other members of the ERT most likely will include electricians, pipefitters, and other trades people from engineering, maintenance, or facilities departments. Each will be responsible for operating mechanical and utility systems. Security personnel can be assigned to direct public emergency services and agencies to the scene of the emergency, control or prevent unauthorized access to the site, and evacuate building occupants. Housekeeping staff are typically assigned to salvage and clean-up operations.

Implementation and Training

Implementation

An emergency response plan is only as good as the knowledge and ability of the members of the ERT. A plan that is only on paper may be ineffective, whereas a highly trained team should be able to handle many different situations quickly and efficiently. Training, education, and practice drills are critically important—many times more important than a written plan that attempts to anticipate all situations.

Practice drills (including live fire fighting) or exercises are required for formal fire brigades and HAZMAT response teams. Exercises that test the knowledge of team members and the adequacy of the written plan can identify weaknesses or deficiencies. They also build confidence in the ERT and their ability to do the job.

Training

Training requirements should be outlined in the plan. Not only is this required by OSHA (fire brigades) and the EPA (HAZMAT response), it is good practice to clearly identify the precise training which is so important for members to properly discharge their duties in an emergency.

Minimum Plans—Emergency Action Plans

As a minimum all facilities must prepare an Emergency Action Plan (EAP) as defined by OSHA. Prior to implementing an EAP, designated employees must be trained to assist in the safe and orderly emergency evacuation of employees. In addition, all employees should be trained in the basic requirements of the EAP initially when the plan is developed, whenever the employees' duties under the plan change, and whenever the plan is changed. In addition, all employees should be apprised of the fire hazards of materials and processes to which they are exposed.

Designated Employees and Members of Fire Brigades

Training for fire brigade members must be commensurate with the duties and functions that the members will perform. This may include use of portable fire extinguishers; hose streams; fire detection; alarm and communication systems; fire pumps, sprinkler systems, and water supplies. Where fire suppression systems have been provided, it is essential the fire brigade members understand how these systems operate;

the locations and areas controlled by valves; and what to do if a system malfunctions.

Members of the ERT responsible for operating or shutting down building utility and process systems such as electrical distribution, emergency generators, HVAC systems, water, natural gas, steam, and mechanical or chemical process systems must be trained in how to do so.

Hazardous Materials Team Members

The training requirements for members of HAZMAT teams varies according to the four different functions defined in the OSHA *HAZWOPER* standard—first responder awareness, first responder operations, HAZMAT technician, and HAZMAT specialist. Training requirements spelled out in the standard specify hours of training and demonstrated competency in the tasks specified to each assignment. Refresher training or verification of proficiency is required annually.

Medical Emergency Responders

Personnel who respond to medical emergencies should be trained in first aid and CPR, preferably having been certified by the American Red Cross or other qualified instructor. Those whose job function may expose them to bloodborne pathogens such as hepatitis B or HIV must be trained upon initial assignment and annually thereafter. Specific training requirements are outlined in OSHA 1910.1030 *Bloodborne Pathogens*.

Confined Space Entry Rescue Teams

Confined space entry rescuers must be trained as authorized entrants with knowledge of the hazards in confined spaces; use of personal protective equipment including respirators; first aid and CPR. Practice exercises are required annually.

Instructors

Those persons who instruct members of the ERT must be qualified to conduct the required training. They must be able to demonstrate that they have a higher level of training than those they train.

Training assistance can be provided by a variety of sources including private contractors such as fire equipment vendors, local fire departments, or state fire training schools. First aid training is available through local chapters of the American Red Cross, hospitals, or other medical providers.

Frequency of Training

The frequency of training varies according to the duties of the ERT. For example, incipient level fire brigade members must receive training initially, and then annually thereafter. Advance exterior or interior structural fire brigade members must be trained quarterly and conduct live fire training exercises annually.

Recordkeeping

All training must be documented in each employee's personnel file. A master training record should be maintained as well. Records must be available for review by regulatory or other interested authorities.

Response

There is a logical chronology to handling a crisis situation. Obviously, most actions will occur almost simultaneously.

Protect Humans First and Avoid Panic.

Product is replaceable, but people are not. If evacuation is needed, enact the plan immediately. It is better to err on the side of people.

Remain Calm!

Do not add to the situation by panicking.

Take Roll Call and Report Anyone Who Cannot Be Accounted For.

Remind everyone of the company policy of not talking to the press or officials unless authorized to do so.

Keep Unauthorized Personnel Out of the Facilities.

This includes employees who have not been assigned a duty.

Notify Authorities and Management Immediately.

Verify that the fire and police departments have been notified. Who is the Notifier? Inform management personnel as developed in the plan. Have management personnel verify proper evacuation and roll call procedures.

Initiate The Search For Missing People.

If they cannot be located, identify their most likely location for emergency personnel.

Activate Trained Emergency Response Teams—Team Responsibilities.

Fire Team. They may be able to contain the fire until the fire department can respond. Make sure someone has been assigned to meet and direct the fire department to the area. If a fire does not exist this team may stand by as a backup for one of the other teams.

Ammonia Leak Team. They can locate and possibly stop the leak. Use respirators, self-contained breathing apparatus and protective suits (See Appendix C, page 51).

Initiate ventilation of the area. Check containers for ammonia trapped in them. Follow procedures suggested by

IARW in handling ammonia leaks. Note that it may be necessary to defrost the affected area, as ammonia can be absorbed by ice. Maintain temperature to protect the product.

First Aid Team. Stand ready to provide any assistance they can until trained professionals can take charge of the situation.

Sprinkler Team. Check that all sprinklers are in operation. Turn water on or off as needed. Start the fire pump.

Electrical Team. Turn off power and be prepared to assess damage after control is achieved. Restore power after the readiness team gives the approval. Institute use of emergency power sources. For example, use exterior lighting to aid operations and security.

Fluid/Gas Line Team. All designated hazardous material lines should be turned off until the readiness team gives approval to restore them.

Salvage Team. It is their job to prevent unnecessary damage as well as to be in charge of cleanup. This may include placing sandbags around facilities, moving equipment, or simply covering product to prevent damage. No product should be discarded without the approval of the customers or their insurance representative. This team should work with the salvage company to minimize loss.

Readiness Team. Do not return to work until normal protection is in place. This includes fire extinguishers replenished or replaced, fire hoses in working order, valves or pipes repaired, or anything else that is essential to safety or operations. This team can coordinate with other teams and should use a sign-off sheet.

Communications Team. People will be asking for information before you are in a position to provide it. Do not admit to any liability or make any claims about the source of the problem. Enact the communications plan immediately. This should include a press release or prepared statement.

Security Team. The emergency security plan needs to be activated as soon as possible. The curious can hamper operations as well as get hurt and expand your liability. The dishonest, including your own employees, can seize on this opportunity. **Keep all unauthorized personnel out of the facility.**

Administrative Team. There will be a lot of other details to handle. Trained administrative personnel will be required.

Start Communicating.

Effective communications is central to successful execution of your crisis management/disaster response plan. The challenge is how you will communicate with each of your key publics and who will do it. Typically, the CEO will be busy coordinating response actions so others in the company must be designated to assist in the communications process since most all of your communications with your key publics must occur simultaneously. Key publics for you will be:

Employees—Often overlooked but essential in the process is communications with employees. While many if not most employees will, in some way, be directly involved in the disaster response typically as members of emergency response teams, it is nonetheless important for senior management to keep employees informed and updated on the current status of event. Crises will create concern among your staff. Their friends and/or co-workers may be victims of the disaster. They will naturally wonder if the crisis situation will impact their jobs or careers. Might they lose a paycheck or two? How will they pay their bills? Keeping them informed is important.

Customers—Alerting customers to the crisis and reassuring them is essential to the continuation of your own business after the dust has settled.

Politicians—Depending on the nature of the disaster, you may likely find local or even national elected representatives weighing in. Keeping them informed early on will help mitigate their involvement.

News Media—If you have done your job of developing relationships with some members of the news media prior to a crisis it will surely help in terms of how the media reports on your crisis. It is important for the media to know that you and your team are on the job taking care of the problem. Keep the news media up to speed with regular news briefings. Ensure that the media has an informational packet about your company and the cold storage industry. When dealing with reporters, keep in mind these tips:

- Know the subject of the interview;
- Know the format of the interview;
- Ask who else has been interviewed for the story;
- Never respond to speculation;

- Refer to notes if you must;
- Rehearse your responses in advance;
- Remain calm at all times;
- If reporter repeats the question—repeat the answer;
- Stand up for yourself, your company & your industry;
- Take your time to respond;
- Always tell the truth—never mislead or be dishonest;
- Return all media calls promptly;
- Never avoid the press;
- Don't volunteer information unless it helps ;
- Make the points that you want to make;
- Dress for success (conservative);
- Stand tall, don't slouch;
- Talk to the reporter, not camera ;
- Use gestures if appropriate;
- Express the demeanor appropriate for the occasion;
- Never say: "I'm glad you asked that question";
- Record the interview;
- Remember—it's YOUR interview—not the reporter's.

Victim's Families. If there are victims, special care will be required. It could be anything from dealing with the family of a worker injured on the job to one or more fatalities. This will require ongoing and very sensitive interaction with victims' families and could very well involve working with families who are many miles away or even located in other countries and could include providing transportation to your location, lodging, special memorial services, recovery of personal effects, etc.

Legal Counsel—Alerting your legal counsel early on is essential. Guidance from counsel is critical.

Insurance Representatives—The same is true of your insurance representative. They, along with your legal counsel, should be a key component of your pre-crisis planning and must be brought in early when disaster strikes.

Engineers—Like contractors, engineers may very well be central to how you go about prosecuting your disaster response plan and certainly could be central figures in your post-crisis rebuilding process.

Share Holders—It goes without saying that your shareholders are important publics with whom you need to be communicating early on. No shareholder should ever have to learn of your crisis from the news media or other sources. They need reassurance that their investment is secure.

Federal, State, Local Officials—When a crisis occurs you will naturally be contacting your first responders—police, fire/rescue—immediately. But, don't ignore federal officials such as OSHA or FEMA or your local member of Congress, state officials such as the state FEMA office and legislative representatives or your city/county council members, the mayor and others.

Contractors—Contractors are an important public. You may need them during the crisis response and likely will need them afterwards. Don't bring them in to the communications sphere at the end of the day but at the beginning.

Start a Log and Record Everything That Happens. A telephone log should record all incoming and outgoing calls: person contacted, time, and subject of discussion. The operator or person screening incoming calls should have a list of persons whose incoming calls should be put through: key customers, the attorney, etc.

Back-up Management. Who should be contacted in case all management personnel are unavailable? Someone who has a vested interest in the company and has been trained to utilize the *Crisis Management Manual* needs to be identified. This person's home, office and temporary phone number should be listed.

Emergency Action Procedures

As a minimum OSHA requires each employer to establish a written emergency action plan covering the “actions employers and employees must take to ensure employee safety from fire and other emergencies.”² The plan must define what constitutes an emergency and specifically what actions are to be taken.

The plan must address the following requirements:

- Emergency evacuation procedures and evacuation route assignments;
- Procedures for employees who remain to operate critical plant operations prior to evacuation;
- Procedures for assuring that all employees have evacuated;
- Rescue and medical duties for those employees who must perform them.

The OSHA-required plan is relatively basic. Most facilities will need to prepare plans that cover more contingencies including those identified during the hazard identification and vulnerability analysis process.

The following is a review of the major components of most emergency response plans..

Evacuation

The decision to evacuate part or all of the facility depends upon the nature of the emergency and the area affected. Incidents such as fires or HAZMAT spills or releases can quickly escalate and threaten a large area. Therefore, the decision to evacuate and scope of evacuation should be based on a worst case scenario. The company’s senior staff member in charge of managing the crisis must be authorized to order an evacuation of whatever area is threatened. For those incidents where it is not clear that occupants are in danger (e.g., a bomb threat), the scope of evacuation should be decided in advance. In the case of the bomb threat, the advance decision should be made in consultation with the local police and fire departments.

Security personnel or other members of the ERT should coordinate evacuation. Evacuees should be directed to use conspicuously marked routes (with alternates in case the primary route

is blocked) and proceed to designated assembly areas. These evacuation routes should be posted on employee bulletin boards and communicated to employees during training sessions.

The evacuation procedures must also include provisions for verifying that all personnel have been evacuated safely. The emergency coordinator or EOC should be notified when persons are not accounted for. Additional considerations include:

- The evacuation plan must account for all personnel including employees, contractors, visitors, and others on-site;
- If there are hazardous operations that must be shut down prior to evacuation, provisions must be made for the safety of operators;
- In multi-tenanted buildings, the building operator’s plans should be communicated to and coordinated with tenant plans. Tenants must be actively involved;
- Handicapped persons must be identified in advance so appropriate assistance can be provided. Areas of refuge assistance (if required by the ADA) should be identified;
- Elevators should not be used for evacuation unless operated by firefighters using special control systems.

Medical Emergencies

Employers are required by OSHA standard 1910.151 Medical Services and First Aid to ensure the availability of medical personnel for advice and consultation on matters of plant health. If there are no medical facilities in close proximity to the facility, then emergency medical capabilities must be provided on-site. The medical department must be equipped with first aid supplies approved by the consulting physician.

A sufficient number of personnel should be trained in basic first aid and cardiopulmonary resuscitation (CPR), which is taught by the American Red Cross and other organizations. This applies to facilities located in urban areas where ambulances and paramedics can be delayed due to traffic congestion or are unavailable due to demand. Prompt first aid treatment can often stabilize victims of life-threatening injuries or illnesses until an ambulance arrives.

Personnel who respond to medical emergencies as a minimum should be trained in first aid; be aware of the precautions specified in the OSHA *Bloodborne Pathogens* standard;

² 29 CFR 1910.38 *Emergency Action Plans and Fire Prevention Plans*, Occupational Safety & Health Administration, Sept. 12, 1980.

and be certified in cardiopulmonary resuscitation (CPR). Depending upon the size and hazards of the facility, emergency medical personnel should be trained as paramedics or the services of a medical doctor should be made available.

The emergency plan should include provisions for:

- Immediate notification of the facility's medical department and/or public emergency medical services (EMS);
- Care for life-threatening conditions and the typical types of injuries that occur in the facility. This includes protecting a patient from further injury and complications;
- Coordination with the local EMS providers to ensure they are aware of the types of injuries which may require special equipment or treatment protocols (e.g., confined space rescue, high elevation rescue, chemical burns, or exposure to toxic materials);
- Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body should be provided within the work area for immediate emergency use;
- A bloodborne pathogens program should be developed to prevent employee exposure to human immunodeficiency virus (HIV) and hepatitis b virus (HBV). This program should cover education, personal protective equipment, housekeeping, and procedures for evaluating the circumstances of an exposure incident. OSHA standard 1910.1030 *bloodborne pathogens* specifies requirements for employees who can reasonably be expected to be exposed as a result of their normal duties. Good Samaritans who assist in providing first aid are not covered under this regulation.

Fire or Explosion

When a fire or explosion is reported, the ERT must be alerted along with the municipal fire department. The fire department should be told the type of fire, its location, and the nature of any fire alarm zones that have been activated. For larger facilities, the fire department should be directed to respond to a specific gate or building entrance closest to the scene.

Depending upon the situation, the emergency coordinator may respond to the EOC or to the fire location to assess the situation. The emergency coordinator must direct ERT members to their assigned areas based upon the conditions reported.

Fire suppression systems (sprinklers, fire pump, water supply

control valves, etc.) and utility systems (generators, electrical disconnects, HVAC, gas, etc.) must be supervised by members of the ERT to verify they are functioning properly and/or to operate them when ordered. Duties include:

- Ensuring that all sprinkler systems and fire pumps are operating properly. The pump operator will keep the pumps operating until ordered to shut down by the municipal fire department incident commander or emergency coordinator. After the incident is under control all sprinkler systems must be restored to full operation;
- Monitoring the emergency generator to ensure it has started and is running smoothly (if there is a power outage or potential outage);
- Disconnecting power to part or all of the building at the direction of the fire chief or emergency coordinator;
- Operating the building's HVAC system under the direction of the municipal fire department incident commander.

Members of the ERT must be reminded:

- NOT to close any sprinkler control valves until the fire has been controlled, and the fire department orders to do so;
- NOT to shut down the fire pump until the fire is under control;
- NOT to silence the alarm system until it is determined that there is a false alarm, or the fire chief orders the system reset.

The municipal fire department incident commander should be met by the emergency coordinator and advised of the nature of the emergency and action being taken. Building plans, a two-way radio (if a two-way radio system is used by the ERT), master keys, and other information should be made available to the fire department as requested.

The emergency coordinator should order evacuation of occupants and employees in surrounding areas, if there is any doubt that the fire cannot be quickly controlled with portable fire extinguishers.

Portable fire extinguishers should be used by trained members of the ERT, if the fire is small and can be attacked with an unobstructed exit nearby.

Security should keep the building entrance and driveway areas free for fire department access. Occupants should be directed to emergency exits and assembly areas away from the building. Unauthorized persons should be kept off the property.

Ammonia Spill

If your facility has had an ammonia spill of 100 pounds or more in a 24 hour period you are required by law to put into immediate effect a specific reporting procedure. Document all your calls—who you called, to whom you talked, when, comments, etc.

Call the National Response Center (see contact information in Appendix B) with the following information:

- The name of the chemical (ammonia)
- An indication of whether the substance is on the list of extremely hazardous substances (ammonia is on the list)
- An estimate of the quantity released (This is a tough one—your engineer’s best estimate should be used.)
- The location, time and duration of the release
- Where did the ammonia go? Into the air? Down the drain?
- Actions taken (medical response, evacuation, elements of emergency plan)
- The name(s) and telephone number(s) of the person(s) to be contacted for further information.

You should also call the emergency response commission in your state (see contact information in Appendix B). If the spill could affect nearby states, call them also.

The coordinator from your local emergency planning committee, and from any other nearby area that may be affected should also be notified. If there is no local emergency planning committee, notify local emergency response personnel (police/fire department, etc.) department, etc.).

It is important to note that this is not a complete checklist. State and local requirements vary widely. Find out what they are and add them to your checklist. You may also want to add them to your IARW *Crisis Management Manual*.

As a suggestion:

- Be sure that several key people have a copy of the list.
- Communicate—don’t assume that someone else made the calls.
- Keep your telephone numbers current.

- Again, document your calls and actions starting now. For example if you call your state emergency response commission to get information on local committees, document what you were told, who gave you the information and date it. If the information you’re given is verbal only, consider summarizing it in a short paragraph and faxing it back to the state agency as your understanding of what you were told. Save your dated fax confirmation.
- Be sure to follow up your emergency response calls with the necessary written release reports. This is done as soon as possible.

For reference, the CAS (Chemical Abstract Service) number for ammonia is 7664 41 7. You may need this information for your follow up written report.

Finally, consider that your time and attention to the details of prompt and accurate reporting is well invested, as it can save \$25,000 per day in fines plus possible criminal penalties.

Hazardous Materials

If a facility uses a significant quantity of highly hazardous chemicals, then on-site response capabilities need to be strong. An organized hazardous materials response team complying with OSHA’s *HAZWOPER* standard is only required for the following facilities³:

- Clean-up operations required by a governmental body, whether federal, state, local, or other;
- Corrective actions involving clean-up operations at sites covered by the *Resource Conservation and Recovery Act of 1976* (RCRA);
- Voluntary clean-up operations at sites recognized by federal, state, local, or other governmental bodies as uncontrolled hazardous waste sites;
- Operations involving hazardous waste that are conducted at treatment, storage, and disposal (TSD) facilities regulated pursuant to RCRA;
- Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard;
- Emergency response operations is defined by OSHA as “a response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance. Responses to incidental releases of hazardous substances

³ 29 CFR 1910.120 (a)(1) Hazardous Waste Operations and Emergency Response

where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel are not considered to be emergency responses within the scope of the [OSHA HAZWOPER] standard. Responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses;⁴

- If a hazardous materials (HAZMAT) response team is provided, it must be organized, trained, and equipped in accordance with the OSHA standard.

The action taken when a HAZMAT incident occurs is dependent upon the level of response decided during the planning process. The following are basic response guidelines.

The ERT and fire department (or other public agency responsible for HAZMAT incidents) should be notified immediately to respond. The following information should be relayed to both:

- The nature of the incident (leak, spill, derailment, fire or explosion);
- Location;
- Area affected (area of the building, the entire building, or does it threaten surrounding properties);
- Name of the material(s) released (material safety data sheet information, shipper, rail car 4 digit UN identification number, placard, or label);
- Quantity;
- Type;
- Hazards of the chemical;
- Any injuries, property damage, or threat to the environment.

Local, state, and federal environmental authorities should also be notified if the quantity of material spilled meets or exceeds reportable threshold quantities.

Material Safety Data Sheets (MSDS's) should be used to identify the chemical manufacturer, trade name, and chemical type. The emergency response instructions on the MSDS should be relayed to the emergency coordinator.

Occupants in the immediate vicinity of the spill or leak should be notified immediately. If the spill or leak is serious,

the emergency alarm system should be sounded for evacuation of building occupants.

The ERT should be assigned the following tasks depending upon the nature of the incident:

- Shut down air handling system(s) if there are any gases or vapors which could be spread by the system;
- Shut down any energized electrical equipment, if there is a possibility of fire or explosion. Sump pumps or electrical equipment downstream or at a lower level than the spill or leak should not be overlooked;
- Control the flow of liquid, if it is safe to do so. First, stop the source, then prevent any liquids from flowing into sumps, drains, stairwells, shafts or other low points. Sand or other inert material can be used to dike liquid flow.

The following precautions should be adhered to:

- No one should enter an area where they could be exposed to toxic chemicals unless they have been trained, are outfitted with personal protective equipment, and are paired with a buddy who can effect rescue;
- If vapors or gases in an enclosed room or area overcome someone, rescuers should not enter the area unless protected with self-contained breathing apparatus;
- Manholes or other confined spaces should not be entered unless personnel are trained, properly equipped, and there is supervision. Confined space entry procedures should be followed;
- If exposed to any chemical, either on clothing, skin, or by inhalation, decontamination and medical treatment should be provided immediately;
- Chemicals should not be cleaned up unless personnel are trained in the proper method; have been equipped with personal protective equipment; and have the necessary clean-up and containment equipment. It may be best to use outside contractors.

Earthquake

Seismic activity varies by region of the country. The West Coast of the United States is seismically active; however, it is not the only area of the United States vulnerable to catastrophic earthquakes. The New Madrid Fault, which experienced a series of 8.0 Richter magnitude events in 1811 and 1812, runs from northeast Arkansas to the southern tip of Illinois.

Earthquake planning should be based on the maximum inten-

⁴ *Ibid.* Section (a)(3)

sity⁵ that could be felt at the facility site. On the West Coast or in the new Madrid Fault area, planning for a catastrophic event is necessary. This event, actually a series of events, could result in significant property damage, injuries, and fatalities. Public services could be overtaxed initially and the return to “normalcy” may take days, weeks, months, or even years depending upon the scope of the damage.

Earthquakes occur without warning, so emergency preparedness efforts must take into account the varying amount of personnel available to respond to an event. This is especially important since off-duty personnel may not be able to travel to the site after a quake has occurred. In addition, those persons on-site at the time of the quake will be concerned about family members and may attempt to return home.

Earthquakes and aftershocks may trigger secondary events such as fires, tsunamis, landslides, liquefaction, flooding, and release or spread of hazardous materials. Dam failures are also likely to occur following major earthquakes.

In the event of an earthquake, the following actions should be taken:

- Once the shaking abates, the emergency coordinator should order an evacuation of the building if there is significant structural damage or threat to occupants;
- The ERT should meet at a predetermined location to coordinate action. If radio communications are functioning, the emergency coordinator can direct ERT members by radio;
- A roll call of employees, guests, and visitors should be made to determine whether anyone is missing. A search of the building should be conducted to locate any missing persons, if it is safe to do so;
- The public emergency services (police, fire, and medical) should be notified if their assistance is needed and if communications are possible. (It should be assumed that communications will be interrupted and public emergency services will be severely taxed.);
- Fire fighting operations should be conducted, if necessary and if available personnel and equipment permits;
- The ERT should shut off all building utilities including water, gas, and electricity if damaged. Sprinkler control valves should be closed only for systems which

have been damaged and are leaking. Oil storage (for diesel engines, boilers, etc.) or HAZMAT storage and piling systems should be checked for leakage and temporary containment or repairs completed if possible;

- Provisions for sheltering, feeding, and taking care of employees who must remain on-site for an extended period should be addressed. Contact with local disaster preparedness officials may identify assistance.

Hurricane

Hurricane season extends from June to November with an average of three hurricanes hitting the United States every two years. The National Weather Service defines a hurricane as a storm with pronounced rotary circulation and sustained winds exceeding 74 mph. Hurricanes are normally accompanied by torrential rains and flooding.

The National Weather Service announces both a hurricane watch and a hurricane warning. A Hurricane *watch* means that hurricane conditions are possible but not imminent. A hurricane *warning* means that hurricane conditions are expected within 24 to 36 hours.

The emergency coordinator or EOC should monitor the National Weather Service broadcasts to follow the latest updates on storm tracking and intensity. This can be accomplished by either monitoring the National Weather Service radio frequency available on commercial weather radios or by monitoring the local AM/FM stations.

In the event that a hurricane watch is issued, a preliminary meeting should be held with management and the ERT. This initial meeting should discuss the availability of personnel and the procedures to be taken in the event a hurricane warning is issued. When the National Weather Service issues a hurricane warning, an emergency condition should be declared.

The instructions of local civil defense or emergency preparedness officials should be obtained as well as any instructions of the National Weather Service. Management must then decide what personnel will stay off-site and whether the facility should be closed.

The following precautions should be taken as soon as possible, since it may take time to obtain necessary materials to protect the building and grounds:

- Inspect roof edging strips, gutters, flashing, covering, and drains;
- Inspect exterior sign supports, guy wires, and anchors;

⁵ *Intensity is a measurement of earthquake effects felt at a specific location or site. Magnitude (measured on the Richter Magnitude Scale) is the measure of the “strength” of the event at its origin.*

- Check for weak door and window latches and hardware or for insecure panel fastenings;
- Protect vulnerable exterior windows from flying debris by taping or covering with plywood;
- Update important records (financial, computer, etc.) and move to a site out of the path of the storm;
- Anchor yard structures that can be moved by high winds (trailers, storage racks, etc.) Move inside if possible;
- Assemble supplies for the ERT including portable lights, lumber and nails, tape for windows, roofing paper, sandbags, tarpaulins, power and manual tools, chain saws, shovels, and axes;
- Fill emergency generator and fire pump diesel engine driver fuel tanks;
- Inspect all fire protection equipment to ensure it is in full service;
- Clean out street catch basins and drains to prevent street flooding;
- Disconnect power to buildings in the immediate danger of flooding.

Those employees remaining on the premises must be properly outfitted with nonperishable food, portable lights, first aid equipment, portable radios (for communications as well as to monitor the storm's progress), and drinking water. A safe location within the facility, such as an interior room that is not subject to flooding or collapse should be identified.

During the storm, employees remaining on the premises should be careful to monitor the progress of the hurricane and not be fooled by the calm conditions of the "eye" of the storm. This temporary calm condition will soon be followed by the severe intensity of the full hurricane conditions.

The potential for flooding should not be overlooked if the facility is located within a flood prone area. Heavy rains can overtax street or storm drains, which could cause localized street flooding conditions. Rooftops can be overloaded if drains become clogged with foreign materials.

After the storm, an immediate damage assessment should be made and a preliminary report prepared. Company management should be informed as soon as possible if telephone lines are in service.

Extreme caution should be taken in the event that power lines are down. The area should be roped off to prevent unsuspecting people from contacting energized power lines. The local

electric utility company should be advised. Care should be taken if there is a possibility of a leak from natural or propane gas or gasoline from storage tanks or vehicles. Potential ignition sources should be controlled if flammable or combustible liquids are present.

Tornadoes

A tornado is defined as a funnel-shaped vortex accompanied by a loud roar spawned by severe thunderstorms or hurricanes. The diameter of a tornado varies from a few feet to more than a mile; the rotating winds may reach 200 to 500 mph. Tornadoes can travel a few feet or more than 100 miles at an average ground speed of 30 mph, although 70 mph has been recorded.

The National Weather Service announces both a tornado watch and a tornado warning. A tornado *watch* means that weather conditions are present which could cause a tornado. A tornado *warning* means that a tornado has been sighted in the area. The following action should be taken:

- The EOC or other constantly attended location should be equipped with a weather alert radio. In the event that a tornado watch is issued, weather advisories should be closely monitored and the emergency coordinator should be kept informed. Instructions of the local civil defense/emergency preparedness officials or the National Weather Service should be strictly followed;
- A lookout should be posted on the highest floor of the building to provide immediate notification in the event a tornado is sighted. The lookout should be equipped with a two-way radio for instant communications;
- In the event the National Weather Service issues a tornado warning or the lookout spots a funnel cloud, an emergency condition should be declared. All personnel should be moved to a basement area or rooms located within the interior of the building;
- As soon as the tornado passes, an immediate search and rescue operation should commence. A systematic search beginning in the area of greatest damage and bottom up or top down should be started. A roll call of employees should be started to determine who is missing;
- Great care should be taken to avoid personal injury;
- Be alert for energized electrical equipment including wiring, fixtures, or other equipment;
- Watch for open or unprotected floor openings including shafts, holes, or missing windows;

- Where there is a potential for further collapse of a ceiling, wall, or the building, evacuate and stay clear of the potential collapse zone—twice the distance of the height of the wall.

Flooding

Flooding occurs when water overflows the natural or artificial confines of a stream or other body of water, or accumulates by drainage over low-lying areas. Flooding may take place suddenly, as when a release of impounded water causes flash floods, or slowly, as bodies of water swell and spill over their banks. A flood *watch* implies that flood conditions are a real possibility, but are not imminent. A flood *warning* indicates that a flood is imminent or in progress and that immediate precautions should be taken.

In addition to the precautions listed above under “Hurricane,” the following tasks should be completed:

- Equipment, machinery, raw stock, and finished products should be moved to another facility outside the flood zone or moved to higher elevation;
- Processes that must be shut down should be identified and prioritized so there is no delay when the decision is made. Open tanks containing hazardous materials may have to be drained;
- Electrical power should be disconnected to buildings or equipment in imminent danger of flooding;
- Sandbags should be placed at vulnerable openings in the building and around critical yard equipment that can’t be moved;
- Extreme caution should be taken in the event that power lines are down. The area should be roped off to prevent unsuspecting people from contacting energized power lines. The local electric utility company should be advised. Care should be taken if there is a possibility of leaking natural gas, propane, or gasoline from storage tanks or vehicles. Potential ignition sources should be controlled if flammable or combustible liquids are present.

Winter Storms

Severe winter storms accompanied by high winds, freezing temperatures, and heavy snowfall present an exposure to personnel and property. Snowfall can obstruct access to the facility preventing fire, police, or emergency medical services response to the site.

The emergency plan should address precautions to be taken when a winter storm approaches to ensure that employees who may continue to work at the facility or who are unable to leave, are properly cared for. If access to the site is blocked, then the ERT will have to handle any emergency that occurs.

Effort should be made to ensure that fire protection and life safety systems are closely monitored. The supply of diesel fuel for generators or fire pumps should be checked as the storm approaches so a delivery can be made before weather conditions deteriorate.

Driveways should be kept clear for emergency vehicle access. The exterior of exit doors should be kept unobstructed to allow for emergency egress. Sprinkler and fire protection control valves as well as fire hydrants should be shoveled out to allow emergency access and operation.

Heavy snowfall on rooftops should be monitored especially where there are changes in elevation. Accumulations which could cause a collapse should be removed if it is safe to do so.

Rescue

The Emergency Response Plan should identify the potential types of specialized rescues that may be assigned to the ERT. High elevations, excavations, confined spaces, and many other situations should be considered.

ERTs with the responsibility for rescue of workers injured or trapped in confined spaces must be properly trained and equipped in accordance with OSHA standard 1910.146 *Permit-Required Confined Spaces*. Rescuers must be provided with personal protective equipment including respirators and body harnesses; trained to perform the assigned rescue duties; be informed of the hazards of the spaces they enter; and have authorized entrants training as specified in the standard. Rescuers must be trained in first aid and CPR. Practice drills must be conducted annually.

Strike, Civil Disorder, and Sabotage

The type of security threat determines the response of the ERT. In most situations, the security department or police department will be responsible. Members of the ERT will provide support to protect company property. In the event of sabotage, the actions of the ERT may be salvage or property conservation. If the act causes a fire or other emergency, those plans will be followed.

Strike preparations must address the availability of security personnel and ERT since they may participate in any job action. Even if they are not members of the striking union, se-

curity and ERT members may not willingly support management actions. Arrangements with municipal police or private security firms should be made in advance to ensure adequate coverage.

The extent of a disturbance can range from a loud demonstration by a group of unruly people to rock or bottle throwing or more extensive activity. The police department should be notified, if there is any threat of bodily injury or damage to company property. Appropriate steps should be taken to protect company property, employees, and guests.

In the event of a major disturbance in which individuals or a group threaten life or property, the following steps should be taken:

The ERT should be assigned to supervise fire protection systems and to monitor the building's utilities (electric, water, and gas services). Access to these areas should be restricted to authorized personnel by locking doors. Sprinkler control valves that are accessible should be padlocked. If the disturbance continues for an extended period of time, periodic inspections of these systems should be conducted.

Appropriate steps should be taken to protect employees, guests, and company property. The safety of personnel should take precedence over all actions. Personnel should not subject themselves to any unnecessary danger.

Security personnel should control access to the building by covering all entrances and exits. Only authorized personnel should be allowed onto the site.

Consideration should be given to boarding up exterior windows that are subject to vandalism.

Steps should be taken to protect communications systems, computers, records, and money.

All lockable doors, desks, and filing cabinets should be locked.

Curtains, blinds, or shades should be drawn to reduce visibility from the outside of the building.

Company vehicles should be parked in an area which offers the most protection from vandalism.

If the disturbance escalates, the decision to evacuate the site should be made by the security supervisor in conduction with the facility manager and police authorities.

Bomb Threats

Many facilities have been the subject of bomb threats, though rarely are explosive devices found. A primary fact to be re-

alized is that the operating function or purpose of a facility does not affect materially whether it will be susceptible to bombs or bomb threats. Any person or group with a real or imagined grievance, can take it upon himself or herself or itself to right their grievance by the harassment or even destruction of your facility.

Persons carrying explosive devices are well aware of the danger of premature explosion. There is a natural desire to set the explosive and leave the area: quick in and quick out. In the vicinity of a lobby and of every unlocked door are numerous spots which must be regarded as hiding places for explosive devices. Other possible areas are stairwells, restrooms, janitor closets, unused offices, or display areas.

In the event a bomb threat is received, the chain of command must be established. A senior manager or the emergency coordinator should be assigned as the person in charge. The police and fire departments should be notified. Based upon the available information the credibility of the threat must be assessed, and the person in charge must decide:

- Whether the building should or should not be evacuated;
- The scope of any evacuation—full or partial;
- The duration of any evacuation.

Current policy in most law enforcement agencies forbids police officials from making any decision concerning evacuation or nonevacuation in bomb threat cases. In the event an explosive device is discovered, however, police and/or fire officials can order evacuation and other steps necessary to protect the public. Therefore, it is essential that the complete information on the bomb threat be obtained in order to make the necessary evacuation decision.

In the event a bomb threat is received by telephone, a bomb threat report should be filled out as soon as possible while the information is still fresh in mind. In the event that the threat is received by U.S. Mail or other means, steps should be taken to protect the letter, note, or other evidence.

Salvage and Property Conservation

As an emergency unfolds, salvage efforts designed to minimize further property damage should begin as soon as conditions permit. Salvage equipment including fans, wet-dry vacuum cleaners, dehumidifiers, absorbent material, brooms, ropes, ladders, hand tools, hammers, staple guns, cleaning agents, plastic sheeting, and tarpaulins should be assembled. Outside contractors who can control damage or begin the repair of damaged buildings or equipment should be notified as soon as possible.

During an emergency the following action should be taken to minimize further property damage:

- Relocate storage or equipment that is exposed to water, smoke, or other damage, if it is safe to do so;
- Cover valuable machinery and equipment with plastic sheeting. Make temporary repairs to broken windows, doors, or roof openings;
- Shut off broken piping systems. Keep floor drains unclogged to remove water. If there are no drains, use pumps, wet vacuums, brooms, mops or squeegees to remove water or direct the flow outside the building. In a flood situation, close off drains which may be backing up;
- Close doors and windows to reduce smoke spread. Shut down ventilation systems to prevent the intake or spread of smoke; or use the system to exhaust the smoke within the building;
- Ventilate all affected areas; clean up debris and damaged materials which contain odors or are soaked with water, and dry damaged equipment.

Appendix

The appendix should be used to compile maps; diagrams and instructions for all fire detection, suppression, and communications systems; building plans; plans for HVAC, water, sewer, gas, and electrical systems; lists of equipment or external resources that can be referred to or accessed during an emergency incident. Equipment that is referenced in the plan can be inventoried here.

EMERGENCY RESPONSE PLAN DOCUMENTATION SELF-EVALUATION CHECKLIST

This document is intended to verify if various aspects of your emergency response plan documentation have necessary elements to ensure a satisfactory response. This document can also be used as a plan template. Confirm that your emergency response plans have procedures in place which address in some way, shape, or form, the following elements:

	Yes	No
Policy Statement	<input type="checkbox"/>	<input type="checkbox"/>
Plan Purpose/Objectives	<input type="checkbox"/>	<input type="checkbox"/>
Plan Scope	<input type="checkbox"/>	<input type="checkbox"/>
Plan Management and Assignments	<input type="checkbox"/>	<input type="checkbox"/>
Overall Responsibility	<input type="checkbox"/>	<input type="checkbox"/>
Updating Procedures and Responsibility	<input type="checkbox"/>	<input type="checkbox"/>
Membership for All Positions	<input type="checkbox"/>	<input type="checkbox"/>
Building Systems & Equipment	<input type="checkbox"/>	<input type="checkbox"/>
Fire Protection Systems	<input type="checkbox"/>	<input type="checkbox"/>
Sprinkler Control Valve Location	<input type="checkbox"/>	<input type="checkbox"/>
Building Fire Alarm/Detection Enunciator Panel Locations	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Egress Systems	<input type="checkbox"/>	<input type="checkbox"/>
Communications Systems	<input type="checkbox"/>	<input type="checkbox"/>
Gas, Electric, Ammonia Equipment Shut-off Locations	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Power Systems	<input type="checkbox"/>	<input type="checkbox"/>
Support Information	<input type="checkbox"/>	<input type="checkbox"/>
1. Evacuation Diagrams	<input type="checkbox"/>	<input type="checkbox"/>
2. Sprinkler System Diagrams	<input type="checkbox"/>	<input type="checkbox"/>
3. Building Utilities Diagrams	<input type="checkbox"/>	<input type="checkbox"/>
4. Emergency Response Equipment Inventory	<input type="checkbox"/>	<input type="checkbox"/>
Designated EOC/Location	<input type="checkbox"/>	<input type="checkbox"/>
Fire Department/Outside Resources Notification Procedures	<input type="checkbox"/>	<input type="checkbox"/>
Specific Response Procedures	<input type="checkbox"/>	<input type="checkbox"/>
Evacuation	<input type="checkbox"/>	<input type="checkbox"/>
Medical Incident (First Aid/CPR)	<input type="checkbox"/>	<input type="checkbox"/>
Bomb Threat	<input type="checkbox"/>	<input type="checkbox"/>
Civil Disturbance	<input type="checkbox"/>	<input type="checkbox"/>
Earthquake	<input type="checkbox"/>	<input type="checkbox"/>

EMERGENCY RESPONSE PLAN DOCUMENTATION SELF-EVALUATION CHECKLIST (CONT.)

	Yes	No
Fire	<input type="checkbox"/>	<input type="checkbox"/>
Flood	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous Materials/Ammonia Release	<input type="checkbox"/>	<input type="checkbox"/>
Hurricane/Tornado/High Wind	<input type="checkbox"/>	<input type="checkbox"/>
Severe Winter Weather	<input type="checkbox"/>	<input type="checkbox"/>
Power Failure	<input type="checkbox"/>	<input type="checkbox"/>
Training and Testing	<input type="checkbox"/>	<input type="checkbox"/>
Evacuation	<input type="checkbox"/>	<input type="checkbox"/>
Special Hazard Responses	<input type="checkbox"/>	<input type="checkbox"/>
All Other Incident-Specific Responses	<input type="checkbox"/>	<input type="checkbox"/>

TEAM ASSIGNMENTS AND CHECKLISTS

For the warehouseman who has experienced a crisis situation, many of the ideas in this manual may be familiar. For the warehouseman who has not, one approach to structuring your crisis management plan is simply to get your crisis management committee together and stage a hypothetical crisis situation. This is one approach. There are many others that are equally effective. The important objective is to anticipate decisions you may have to make and set down general guidelines for handling the decision. This is done by listing possible actions, assigning responsibility and developing communications so that when decision time arrives, you have all possible information to weigh your options.

In this “brainstorming” format, you will have a long list of actions to be taken. Each action must be assigned to a specific team...preferably to a specific person on that team.

The following pages are worksheets to help develop your plan. They list actions that have general application. *Note: Be sure to supplement the list with special considerations based on your specific organizational needs.*

As you review the lists, one item at a time, assign each item to a team (See Team Assignment Checklist). The second step is to assemble all assignments, team-by-team, to put together a page of team objectives and step-by-step actions (See Sample Team Assignment Information Sheet). *Note: some teams maybe renamed, combined, etc., to fit the needs of your plan.*

After structuring the plan, the next important step is to organize team functions, starting with specific objectives. For example, if your plan includes a “Fluid/Gas Line Team,” the team objectives might include “Securing the following valves/controls, consistent with personal safety, to contain (substance) to (area).” Personal safety has priority.

Team responsibilities would then list specific actions, but always keeping personal safety uppermost to product safety or the safety of the facility.

Your *Crisis Management Manual* may use this tab section for team assignments. Assignments should include specific communications to the Administrative Control Team. No team operates without specific communication with ACT.

The Team Assignment Sheet should contain a specific personal safety statement, the committee objective, and a list of actions within the limits of personal safety.

TEAM ASSIGNMENT CHECKLIST

EMERGENCY RESPONSE TEAMS

ACTION ITEMS	EMERGENCY RESPONSE TEAMS										
	FIRE	AMMONIA	FIRST AID	SPRINKLER	ELECTRICAL	FLUID/GAS	SALVAGE	READINESS	SECURITY	COMMUNICATIONS	ADMINISTRATIVE
Sound Evacuation Alarm											
Sound All-Clear (Return To Work) Signal											
Phone Employees' Families To Advise Of Employees' Safety											
Call Emergency Service (Fire, Rescue)											
Authorized Person To Talk To Reporters											
Meet Fire Department And Direct Them To Emergency											
Phone Customers											
Phone Officials (City, OSHA, EPA, Health Department)											
Phone Lawyer											
Phone Insurance Representative											
Assure Inspection And Maintenance Of Fire Control Equipment											
Assure Fire Control Equipment Is In Place And Operating											
Protect Product (Cover, Build Dams, Activate Pumps, Etc).											
Turn Off Designated Electrical Equipment											
Close Designated Fluid/Gas Lines											
Keep Unauthorized People Off Premises											
Select, Inspect, Maintain Self-Contained Breathing Apparatus											
Train Likely Users Of Breathing Apparatus											
Shut Down Electrical/Mechanical Systems											
Start Up Electrical/Mechanical Systems											
Keep Log Of Incoming Calls (Date/Time/Caller/Discussion)											
Keep Log Of Outgoing Calls (Date/Time/Caller/Discussion)											
Maintain Master Copy Of Crisis Manual											
Authorize Return To Work											

EMERGENCY RESPONSE TEAMS

ACTION ITEMS	EMERGENCY RESPONSE TEAMS										
	FIRE	AMMONIA	FIRST AID	SPRINKLER	ELECTRICAL	FLUID/GAS	SALVAGE	READINESS	SECURITY	COMMUNICATIONS	ADMINISTRATIVE
Call Salvor											
Move Product To Alternate Warehouse											
Arrange Transportation Of Product											
Administer First Aid, CPR, Etc. (Maintain Supplies)											
Call Company Physician											
Take Photos Of Damage And Conditions For Documentation											
Liaison With Government Officials											
Monitor Search And Rescue Efforts											
Determine Location And Status Of Victims											
Assist In Identification Of Victims And Fatalities											
Arrange For Memorial Service For Fatalities											
Provide For Return Of Personal Effects											
Arrange For Location For News Briefings											
Arrange For Location For EOC											
Arrange For Multi-Lingual Services											
Set Up And Manage Emergency Web Site											
Contact Next Of Kin											
Arrange For Family Transportation And Lodging											
Serve As Point Of Contact With Families Of Victims											
Arrange For Appropriate Clergy											
Arrange For Family/Employee Counseling											
Provide Regular Briefing For Families											

SAMPLE TEAM ASSIGNMENT INFORMATION SHEET

TEAM _____

TEAM LEADER _____

TEAM MEMBERS _____

TEAM OBJECTIVE On evacuation alarm, secure the plant area from all but emergency and official visitors with credentials (questionable visitors may be checked and cleared by phone with John Doe)

PROCEDURE:

1. When alarm sounds, proceed to designated station.
2. Direct emergency personnel to appropriate team leader.
3. Do not respond to questions by unauthorized personnel. Refer them to an authorized company representative, telephone 555-1000.
4. Advise ACT team immediately of officials admitted to the premises.
5. Remain on station until relieved by a contracted Acme security officer or until the all-clear signal is sounded.

NOTES/COMMENTS: _____

(Specific team members may have specific duties.)

SAMPLE PLANT INSPECTION CHECKLIST

Inspector(s) _____

Date _____

Plant Area	To Be Checked	Comments/Recommendations/Actions
Roof	Gutters clear and working	
	Signs of cracks/separations/drying	
	Standing water	
Engine Room	Respirators & SBA in operating order	
	Fire extinguishers in place and charged	
	Exits clear	
	Emergency Evacuation Bell working	
Freezer	Abnormal ice buildup	
	Sprinkler system	

Signed _____

Inspector(s)

Date

[illegible]

Signed _____

EMERGENCY SHUT DOWN PROCEDURE

ACTION		PERSON	TEAM
1.	Authorize Emergency Shut Down		
2.			
3.			
4.			
5.			
6.			
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32.			
33.			

RE-START PROCEDURE

ACTION		PERSON	TEAM
1.	Assure safety to re-start		
2.	Authorize re-start		
3.			
4.			
5.			
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MEDIA RELATIONS SELF-EVALUATION CHECKLIST

This self-evaluation checklist is intended to answer the question “Where do we stand regarding media relations?” After completion, if you have answered “no” to three or less questions, your plans are likely quite comprehensive and in need of minor improvements. If you have answered “no” on four to six questions, a more thorough review of plans is necessary to determine the level of action needed to make the plan satisfactory. If you have answered “no” to more than six questions, your plans are likely unsatisfactory and in need of major improvements.

	Yes	No
1. Do we have a written media relations plan?	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the plan describe ways to gain positive publicity during a crisis?	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the plan include an interview policy, including who will present, what information will be discussed, and how information will be disseminated?	<input type="checkbox"/>	<input type="checkbox"/>
4. Have company spokespersons been identified and trained?	<input type="checkbox"/>	<input type="checkbox"/>
5. Have employees been briefed on who the spokespersons are?	<input type="checkbox"/>	<input type="checkbox"/>
6. Are the spokespersons' duties clearly defined?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are other functions of the media relations plan assigned to individuals?	<input type="checkbox"/>	<input type="checkbox"/>
8. Have press kits with background documents on the company been prepared (including both location and corporate information)?	<input type="checkbox"/>	<input type="checkbox"/>
9. Do these documents put technical processes and risks into layperson's terms?	<input type="checkbox"/>	<input type="checkbox"/>
10. Have local media contacts (i.e., television, radio, newspapers) been identified?	<input type="checkbox"/>	<input type="checkbox"/>
11. Have your spokespersons cultivated relationships with local media contacts?	<input type="checkbox"/>	<input type="checkbox"/>
12. Has someone at the company been identified to write press releases?	<input type="checkbox"/>	<input type="checkbox"/>
13. Has a primary and alternate media center been identified?	<input type="checkbox"/>	<input type="checkbox"/>
14. Have security measures been planned to identify media members and to maintain media in the designated area?	<input type="checkbox"/>	<input type="checkbox"/>
15. Was the media relations plan reviewed and supported by upper management?	<input type="checkbox"/>	<input type="checkbox"/>
16. Has the plan been tested during a simulated emergency response exercise?	<input type="checkbox"/>	<input type="checkbox"/>
17. Have all members been trained in their duties?	<input type="checkbox"/>	<input type="checkbox"/>
18. Are assigned members encouraged to pursue outside education on their duties?	<input type="checkbox"/>	<input type="checkbox"/>
19. Are good-news (non-crisis) stories being communicated to the local media?	<input type="checkbox"/>	<input type="checkbox"/>
20. Are plans reviewed and updated on a regular basis?	<input type="checkbox"/>	<input type="checkbox"/>

(SAMPLE WORST CASE SCENARIO NEWS STATEMENT/RELEASE)

FOR IMMEDIATE RELEASE

DATE:

CONTACT:

It is with deep regret that we report that a (NAME CRISIS) has occurred at (NAME FACILITY) at (IDENTIFY LOCATION). The accident happened at (IDENTIFY TIME). There were (NUMBER) employees on shift at the time. (A) (NUMBER) have been accounted for. (NUMBER) have not. (B) We are in the process of determining how many have been accounted for and how many have not. We will inform you as soon as we know.

This is a tragedy of monumental proportions for the victims and their families and friends and all of us at (COMPANY). We cannot adequately express to you how deeply saddened we are by this. Our prayers go out to the family and friends. It is the commitment of (COMPANY) that we will do everything in our power to find the cause and make sure it never happens again.

During the coming days there will be a lot of activity surrounding this tragic accident. We will do our very best to keep you and the public informed and we ask all of you in the news media to be respectful of the families of the victims, the employees here at (COMPANY), and everyone else associated with the investigation.

(NAME COMPANY) has a comprehensive disaster response plan which was immediately activated. Our staff has received significant crisis management initial and recurrent training. We update our plan annually and our staff is required to undergo recurrent training at least once a year.

We have 13 specific emergency response teams in place. They are: Evacuation, Ammonia, Fire, Sprinkler, Electrical, Fluid/Gas, Security, First Aid, Safety/Damage, Administrative Control, Readiness, Salvage, and Communications. Each of our emergency response teams have specific duties applicable to the type of emergency we are experiencing. Our training has been administered by a company experienced in crisis management and endorsed by the International Association of Refrigerated Warehouses (IARW).

Following the accident:

- We immediately evacuated the facility of all remaining employees and rescue workers from (CITY/COUNTY/STATE) are on the scene and search and rescue efforts are underway.
- (COMPANY) also has representatives at the accident scene and we will provide whatever assistance we can. We will remain on the scene for as long as it takes to recover those who have been lost and return them and their personal effects to their loved ones.
- We are establishing an Emergency Operations Center at (LOCATION). That will be the headquarters for the investigation and where (COMPANY) and the investigative agencies will conduct news briefings. We will plan to hold two briefings a day initially. We will give you the times once we have had the opportunity to coordinate with all of the involved authorities.
- Your contact for (COMPANY) is (NAME AND NUMBER). All coordination with the news media will come through him/her and his/her office.
- The medical examiner is legally responsible and retains jurisdiction on victim identification and cause of death determination. The identification process is very deliberate and time consuming. Consequently, family members and the media are cautioned not to expect immediate identifications to be made.
- At the time victims of an accident are removed from the incident site, their personal effects are also being recovered. All recovered items are stored in a secure area. It is the responsibility of (COMPANY) to ensure the safe return of all personal effects recovered by contacting the survivor or victim's family and asking them how they would like the recovered items returned. We then carry out the desires of the survivor or the victim's family.

Once again, all of the employees of (COMPANY) wish to express our deepest sympathies to (FAMILIES/FRIENDS/LOCAL RESIDENTS). We will get to the bottom of this tragedy. We will find out what happened. And, we will do everything humanly possible to prevent it from ever happening again.

(End)

MATERIAL SAFETY DATA SHEET

ANYDROUS AMMONIA

DISTRIBUTORS: TANNER INDUSTRIES, INC.

DIVISIONS:

NATIONAL AMMONIA

NORTHEASTERN AMMONIA

HAMLER INDUSTRIES

BOWER AMMONIA & CHEMICAL

735 Davisville Road, Third Floor, Southampton, PA 18966; 215-322-1238

CORPORATE EMERGENCY TELEPHONE NUMBER: 800-643-6226 CHEMTREC: 800-424-9300
DESCRIPTION
CHEMICAL NAME: Ammonia, Anhydrous**CAS REGISTRY NO:** 7664-41-7**SYNONYMS:** Ammonia**CHEMICAL FAMILY:** Inorganic Nitrogen Compound**FORMULA:** NH₃**MOL. WT:** 17.03 (NH₃)**COMPOSITION:** 99+% Ammonia
STATEMENT OF HEALTH HAZARD
HAZARD DESCRIPTION:

Ammonia is an irritant and corrosive to the skin, eyes, respiratory tract and mucous membranes. Exposure to liquid or rapidly expanding gases may cause severe chemical burns and frostbite to the eyes, lungs and skin. Skin and respiratory related diseases could be aggravated by exposure.

Not recognized by OSHA as a carcinogen.

Not listed in the National Toxicology Program.

Not listed as a carcinogen by the International Agency for Research on Cancer.

EXPOSURE LIMITS FOR AMMONIA: Vapor

OSHA	50 ppm,	35 mg / m ³ PEL	8 hour TWA
NIOSH	35 ppm,	27 mg / m ³ STEL	15 minutes
	25 ppm,	18 mg / m ³ REL	10 hour TWA
	300 ppm,	IDLH	
ACGIH	25 ppm,	18 mg / m ³ TLV	8 hour TWA
	35 ppm,	27 mg / m ³ STEL	15 minutes

TOXICITY: LD 50 (Oral / Rat) 350 mg / kg

PHYSICAL DATA
BOILING POINT: -28°F at 1 Atm.**PH:** N/A**SPECIFIC GRAVITY OF GAS (air = 1):** 0.596 at 32°F
SPECIFIC GRAVITY OF LIQUID (water = 1): 0.682 at -28°F (Compared to water at 39 °F).
PERCENT VOLATILE: 100% at 212°F
APPEARANCE AND ODOR: Colorless liquid or gas with pungent odor.
CRITICAL TEMPERATURE: 271.4 °F**GAS SPECIFIC VOLUME:** 20.78 Ft³/Lb at 32°F and 1 Atm.**VAPOR DENSITY:** 0.0481 Lb/Ft³ at 32° F**LIQUID DENSITY:** 38.00 Lb/Ft³ at 70° F**APPROXIMATE FREEZING POINT:** -108°F**WEIGHT (per gallon):** 5.15 pounds at 60° F**VAPOR PRESSURE:** 114 psig at 70° F**SOLUBILITY IN WATER (per 100 pounds of water):**

86.9 pounds at 32°F, 51 pounds at 68°F

SURFACE TENSION: 23.4 Dynes / cm at 52°F**CRITICAL PRESSURE:** 111.5 atm

EMERGENCY TREATMENT

EFFECTS OF OVEREXPOSURE:

Eye: Tearing, edema or blindness may occur.

Skin: Irritation, corrosive burns, blister formation may result. Contact with liquid may produce a caustic burn and frostbite.

Inhalation: Acute exposure may result in severe irritation of the respiratory tract, bronchospasm, pulmonary edema or respiratory arrest.

Ingestion: Lung irritation and pulmonary edema may occur. *Extreme exposure may result in death from spasm, inflammation or edema. Brief inhalation exposure to 5,000 ppm may be fatal.*

EMERGENCY AID: Remove patient to uncontaminated area.

Eye: Flush with copious amounts of tepid water for a minimum of 20 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing.

Skin: Flush with copious amounts of tepid water for a minimum of 20 minutes while removing contaminated clothing, jewelry and shoes. Do not rub or apply ointment on affected area. Clothing may initially freeze to skin. Thaw frozen clothing from skin before removing.

Inhalation: Remove to fresh air. If not breathing, administer artificial respiration. If trained to do so, administer supplemental oxygen, if required.

Ingestion: If conscious, give large amounts of water to drink. May drink orange juice, citrus juice or diluted vinegar (1:4) to counteract ammonia. If unconscious, do not give anything by mouth. **Do not induce vomiting!**

SEEK IMMEDIATE MEDICAL HELP FOR ALL EXPOSURES!

NOTE TO PHYSICIAN: Respiratory injury may appear as a delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Supportive treatment with necessary ventilation actions, including oxygen, may warrant consideration.

FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT: None.

FLAMMABLE LIMITS IN AIR: LEL/UEL 16% to 25%.(listed in the *NIOSH Pocket Guide to Chemical Hazards* 15% to 28%).

EXTINGUISHING MEDIA: Dry Chemical, CO₂, water spray or alcohol-resistant foam if gas flow cannot be stopped.

AUTO IGNITION TEMPERATURE: 1,204°F (If catalyzed). 1,570°F (If un-catalyzed).

SPECIAL FIRE-FIGHTING PROCEDURES:

Must wear protective clothing and a positive pressure SCBA. Stop source if possible. If a portable container (such as a cylinder or trailer) can be moved from the fire area without risk to the individual, do so to prevent the pressure relief valve of the trailer from discharging or the cylinder from rupturing. Fight fires using dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Cool fire exposed containers with water spray. Stay upwind when containers are threatened. Use water spray to knock down vapor and dilute.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Outdoors, ammonia is not generally a fire hazard. Indoors, in confined areas, ammonia may be a fire hazard, especially if oil and other combustible materials are present. Combustion may form toxic nitrogen oxides.

If relief valves are inoperative, heat exposed storage containers may become explosion hazards due to over pressurization.

CHEMICAL REACTIVITY

STABILITY:

Stable at room temperature. Heating a closed container above room temperature causes vapor pressure to increase rapidly. Anhydrous ammonia will react exothermically with acids and water. Will not polymerize.

CONDITIONS TO AVOID:

Anhydrous ammonia has potentially explosive reactions with strong oxidizers. Anhydrous ammonia forms explosive mixtures in air with hydrocarbons, chlorine, ethanol, fluorine and silver nitrate. Anhydrous ammonia reacts to form explosive products, mixtures or compounds with mercury, gold, silver, iodine, bromine and silver oxide. Avoid anhydrous ammonia contact with chlorine, which forms a chloramine gas, which is a primary skin irritant and sensitizer. Avoid anhydrous ammonia contact with galvanized surfaces, copper, brass, bronze, aluminum alloys, mercury, gold and silver. A corrosive reaction will occur.

HAZARDOUS DECOMPOSITION PRODUCTS:

Anhydrous ammonia decomposes to hydrogen and nitrogen gases above 450°C (842°F). Decomposition temperatures may be lowered by contact with certain metals, such as iron, nickel and zinc and by catalytic surfaces such as porcelain and pumice.

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN:

Stop source of leak if possible, provided it can be done in a safe manner. Leave the area of a spill by moving laterally and upwind. Isolate the affected area. Non-responders should evacuate the area, or shelter in place. Only properly trained and equipped persons should respond to an ammonia release. Wear eye, hand and respiratory protection and protective clothing; see PROTECTIVE EQUIPMENT. Stay upwind and use water spray downwind of container to absorb the evolved gas. Contain spill and runoff from entering drains, sewers, and water systems by utilizing methods such as diking, containment, and absorption. CAUTION: ADDING WATER DIRECTLY TO LIQUID SPILLS WILL INCREASE VOLATILIZATION OF AMMONIA, THUS INCREASING THE POSSIBILITY OF EXPOSURE.

WASTE DISPOSAL:

Listed as hazardous substance under CWA (40 CFR 116.4, 40 CFR 117.3). Reportable Quantity 100 pounds. Classified as hazardous waste under RCRA (40CFR 261.22 Corrosive #D002). Comply with all regulations. Suitably diluted product may be disposed of on agricultural land as fertilizer. Keep spill from entering streams, lakes, or any water systems.

SPECIAL PROTECTION AND PROCEDURES

RESPIRATORY PROTECTION:

Respiratory protection approved by NIOSH/MSHA for ammonia must be used when applicable safety and health exposure limits are exceeded. For escape in emergencies, MSHA/NIOSH approved respiratory protection that consists of a full-face gas mask and canisters approved for ammonia is required. Refer to 29 CFR 1910.134 and ANSI: Z88.2 for requirements and selection. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH).

EYE PROTECTION: Chemical splash goggles should be worn when handling anhydrous ammonia. A face shield can be worn over chemical splash goggles as additional protection. Do not wear contact lenses when handling anhydrous ammonia.

VENTILATION:

Local exhaust should be sufficient to keep ammonia vapor to 25 ppm or less.

PROTECTIVE EQUIPMENT:

At a minimum, splash proof, chemical safety goggles, ammonia resistant, gloves (such as rubber), and ammonia-impervious clothing should be worn to prevent contact during normal loading, unloading and transfer operations and handling small spills. Face shield and boots can be worn as additional protection.

Respiratory protection approved by NIOSH/MSHA for ammonia must be used when applicable safety and health exposure limits are exceeded. For a hazardous material release response, Level A and/or Level B ensemble including positive-pressure SCBA should be used. A positive pressure SCBA is required for entry into ammonia atmospheres at or above 300 ppm (IDLH). Refer to 29 CFR 1910.132 through 1910.138 for personal protective equipment requirements.

SPECIAL PRECAUTIONS**STORAGE AND HANDLING:**

Only trained persons should handle anhydrous ammonia. Store in cool (26.7°C / 80°F) and well-ventilated areas, with containers tightly closed. OSHA 29 CFR 1910.111 prescribes handling and storage requirements for anhydrous ammonia as a hazardous material. Use only stainless steel, carbon steel or black iron for anhydrous ammonia containers or piping. Do not use plastic. Do not use any non-ferrous metals such as copper, brass, bronze, aluminum, tin, zinc or galvanized metals. Protect containers from physical damage. Keep away from ignition sources, especially in indoor spaces.

WORK-PLACE PROTECTIVE EQUIPMENT:

Protective equipment should be stored near, but outside of anhydrous ammonia area. Water for first aid, such as an eyewash station and safety shower, should be kept available in the immediate vicinity. See 29 CFR 1910.111 for workplace requirements.

DISPOSAL:

See WASTE DISPOSAL. Classified as RCRA Hazardous Waste due to corrosivity with designation D002, if disposed of in original form.

LABELING AND SHIPPING

HAZARD CLASS: (US Domestic): 2.2 (Non-Flammable Gas) (International): 2.3 (Poison Gas) subsidiary 8 (Corrosive)

PROPER SHIPPING DESCRIPTION:

(US Domestic): Ammonia, Anhydrous, 2.2, UN1005, RQ, Inhalation Hazard

(International): Ammonia, Anhydrous, 2.3, (8), UN1005, RQ, Poison-Inhalation Hazard Zone "D"

PLACARD:

(US Domestic): Non-Flammable Gas

(International): Poison Gas, Corrosive (Subsidiary)

IDENTIFICATION NUMBER: UN 1005

National Fire Protection Assoc. Hazardous Rating:**Hazardous Materials Identification System Labels:****ANHYDROUS AMMONIA**

HEALTH	3
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	H

OTHER REGULATORY REQUIREMENTS

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Section 103, any environmental release of this chemical equal to or over the reportable quantity of 100 lbs. must be reported promptly to the National Response Center, Washington, D.C. (1-800-424-8802).

The material is subject to the reporting requirements of Section 304, Section 312 and Section 313, Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR 372. Emergency Planning & Community Right to Know Act, (EPCRA) extremely hazardous substance, 40 CFR 355, Title III, Section 302 – Ammonia, Threshold Planning Quantity (TPQ) 500 lbs.

EPA Hazard Categories - Immediate: Yes; Delayed: No; Fire: No; Sudden Release: Yes; Reactive: No.

Clean Air Act – Section 112(r): Material is listed under EPA's Risk Management Program (RMP), 40 CFR Part 68, at storage process amounts greater than the Threshold Quantity (TQ) of 10,000 lbs.

DISCLAIMER

The information, data, and recommendations in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. The information, data, and recommendations set forth herein are believed by us to be accurate. We make no warranties, either expressed or implied, with respect thereto and assume no liability in connection with any use of such information, data, and recommendations.

DEALING WITH AN AMMONIA SPILL¹

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Introduction

An ammonia release can present the most dangerous and costly peril to be encountered in the PRW industry. Proper planning and effective management, however, can make the difference between an emergency that can injure employees or take lives and cost millions of dollars and one which produces only temporary inconvenience.

Anhydrous ammonia, one of the most widely used chemicals in the world, is a chemical compound made up of one part nitrogen (N) and three parts hydrogen (H). It commonly goes by the chemical formula label of NH_3 , with the “3” denoting that there are three times as many parts of “H” as there are parts of “N.”

Ammonia’s thermodynamic properties make it an excellent industrial refrigerant. As a result, it is estimated that the chemical is used in as many as 95% of the world’s industrial refrigeration systems. In particular, the one property that makes ammonia such a great refrigerant is its high “Latent Heat of Vaporization,” or enthalpy. Latent heat is the amount of energy in the form of heat released or absorbed by a substance during a change of phase (i.e. solid, liquid, or gas). Ammonia is uniquely capable of absorbing high amounts of heat in the cold storage facility and thus bringing down or maintaining the low temperatures needed for the preservation of perishable products.

While ammonia has been successfully and generally safely used as an industrial refrigerant for well over 100 years, like most other chemicals it must be handled properly in order to prevent unwanted consequences in the event of a release. In such cases, it is absolutely essential to have some rudimentary knowledge about ammonia and specific knowledge about what actions are to be taken. Over many years, considerable information about ammonia refrigeration systems and methods used to deal with ammonia releases have been developed and/or gathered by IARW, the World Food Logistics Organization (WFLO), and other organizations. This paper is designed to summarize portions of that body of information.

Properties of Ammonia

Anhydrous ammonia is a colorless gas with a pungent odor. This odor enables most people to detect the presence of ammonia at around 5 parts per million (ppm). Ammonia in high concentration is extremely corrosive to skin, eyes, the respiratory tract, and mucous membranes. Anyone working on an ammonia refrigeration system must be knowledgeable about the system, take proper precautions, utilize suitable Personal Protective Equipment (PPE), and understand the emergency response plan for the specific facility.²

¹ We wish to thank the following members of IARW and WFLO who contributed to this revision: The revision group included: James Marrella, Pete Lepschat, Don Schlimme, John Horvath, Nicholas Pedneault, Michael Henningsen, Jr., Connie Phipps and Steve Bassett.

² For more information, see WFLO’s *Successful Refrigerated Warehousing*, 8th edition, Chapter 1.2.2 “Ammonia Safety” by David Binder.

The U.S. National Institute of Occupational Safety and Health (NIOSH) has established a Recommended Exposure Limit (REL) for ammonia of 25 ppm, with a Short Term Exposure Limit (STEL) of 35 ppm. The U.S. Occupational Safety and Health Administration (OSHA) has established the Permissible Exposure Limit (PEL) value for ammonia at 50 ppm. The Immediately Dangerous to Life and Health (IDLH) value for ammonia is 300 ppm. An IDLH level requires the use of self-contained breathing apparatus (SCBA).

Ammonia is a very basic, or alkaline, substance which boils at -28°F (-33°C) at normal atmospheric pressure and freezes at -108°F (-78°C). Liquid ammonia is lighter than water, weighing 5.15 lb. per gallon at 60°F (0.608 kg/L at 15°C). Ammonia vapor is lighter than air but can exhibit heavier than air characteristics. Ammonia vapor burns in a mixture with air only when the ammonia concentration ranges between 15-28% by volume³, although contamination with oil makes ammonia flammable at even lower concentrations. Ammonia can form a toxic, explosive gas when exposed to chlorine and corrode copper, brass, zinc, silver and many other alloys with which it may come in contact.

For detailed information about the properties of ammonia, please refer to the attached Material Safety Data Sheet for Anhydrous Ammonia.

Three Phases of Release Management

Effectively dealing with an ammonia release requires three phases of attention—planning, reporting, and cleanup.

1. Emergency Action Planning It is essential that an Emergency Action Plan (EAP) be developed and in place on the first day that a facility goes on line, and that the EAP be revised and updated in conjunction with any changes in systems, plans, laws, regulations, or advances in emergency response technology. The EAP should provide crystal clear guidance for handling fire, ammonia releases, and any other kinds of emergency conditions which may arise. The EAP should be in writing and posted throughout the facility. Employees who are directly involved in carrying out the EAP must be trained in the specific actions for which they are responsible in the event of an emergency, as required in the U.S. under OSHA's 29 CFR 1910.38 Emergency Action Plans, and 1910.39 Fire Prevention Plans. Plant personnel who are not specifically responsible for carrying out elements of the EAP should have a general understanding of the facility's emergency action plan and what they must do or where they must go in the event of an emergency. The overriding goals of every ammonia refrigeration facility must be the prevention of accidental ammonia releases and the protection of human life and health in the event of a release.

2. Reporting Prompt reporting of ammonia releases is critical both in summoning emergency responders and avoiding costly penalties. It is recommended that every facility publish and distribute a "Four Call Card" and that all key personnel be instructed to carry and use the "4CC." Please note that in some locations facilities may be required to call state and local EPAs along with any other agency requirements.

Red Hot Cold Storage

Alexandria, Virginia

Four Call Card

1. Alexandria Fire Department – 703-123-1234
2. National Response Center – 800-424-8802
3. Virginia Emergency Response Commission –
804-123-1234
4. Local Emergency Response Committee –
703-555-1234

³ This represents 150,000 to 280,000 ppm.

Call 1 – In the case of an ammonia release, the local fire department should be notified at the first possible moment, to enlist emergency responder assistance and/or to ensure that the fire department is on call should an easily managed release get out of control.

Note: Not all fire departments are experienced in handling ammonia emergencies and inadequately trained fire firefighters can turn a minor ammonia problem into a more serious problem as easily as anyone else. It is strongly recommended that you meet with local fire department officials before you ever need to rely on them; that you develop an ongoing relationship with the local fire department; that you understand the fire department's capabilities and weaknesses; and that you understand their role, your role, and the role of other emergency response personnel in the event of an ammonia release. Proper coordination and planning with the local fire department will surely help to prevent conflicts in the event of an emergency.

Call 2 – In the U.S., an ammonia spill of 100 or more pounds (45.36 or more kg) within a 24-hour period must be immediately reported to the National Response Center at 800- 424-8802 (or 202-267-2675). The following information must be provided:

- The name of the chemical (ammonia)
- The fact that ammonia is on EPA's list of extremely hazardous substances
- Estimated size of release (using engineer's best estimate)
- Location, time and duration of the release
- Disposition of released ammonia (into the air, down the drain, etc.)
- Measures taken (medical response, evacuation, ventilation, neutralization, etc.)
- Contact information (names and phone numbers) for obtaining further information

Call 3 – In the U.S., the Emergency Planning and Community Right to Know Act of 1986 (EPCRA) requires each state governor to appoint a State Emergency Response Commission (SERC) to, among other things, receive reports and notifications of emergencies. To avoid serious financial penalties, the SERC must be contacted immediately after calling the National Response Center. If you do not have contact information for the appropriate SERC, a complete listing can be found on the EPA website at: http://www.epa.gov/emergencies/content/epcra/serc_contacts.htm.

Call 4 – EPCRA also mandates the creation of Local Emergency Planning Committees (LEPC's) and requires facilities to send release notifications to the LEPC with jurisdiction over the facility. There are some 3000 LEPC's in the US. You can find LEPC contact information at: <http://yosemite.epa.gov/oswer/lepcdb.nsf/SearchForm?OpenForm>

Note: It is necessary to follow-up calls 3 and 4 with a hard (paper/fax) copy.

Note: Calls 2, 3, and 4 must be made "immediately." While the term is not precisely defined in the rules, the courts have interpreted this to mean sixty minutes. (The EPA has interpreted it to mean within as few as fifteen minutes.) To avoid the unpleasantness of financial penalties on top of other tribulations associated with a release, these calls should be made within the designated window of the time that a release is detected. Also, please note that if you are "down wind" a release can go into other communities, counties or states. Their officials, too, must be notified.

Note: EPA has a nasty habit of sometimes showing up months after a release and demanding large fines for failure to make the above notifications on a timely basis. Be sure to keep a record of all your reporting calls, including the name of the person calling, the numbers called, the names of the agencies and persons answering the calls, the precise times and dates of each call, and brief comments made in the course of the calls.

Once the above calls are made, a PRW should immediately notify its insurance carrier, regardless of the amount of ammonia released. In many policies, this is required in order to prevent voiding of the coverage. Key customers should also be notified. The reverse side of the "4CC" provides a convenient place to keep these numbers handy.

Red Hot Cold Storage

Alexandria, Virginia

Four Call Card

IARW Insurance Program – (816) 960-9946

Key Customer #1 – 123-456-7890

Key Customer # 2 – 123-456-7890

Key Customer # 3 – 123-456-7890

3. Cleanup When an ammonia spill occurs in an area where product is being held, that product may be injured. The degree of damage resulting from exposure to ammonia is influenced by many factors. The concentration of ammonia, length of exposure, temperature, type of product and manner in which the product is packaged all influence the extent of ammonia injury.

If a product is directly contaminated by liquid ammonia, that product is normally considered a total loss. The determination of contamination of food products further from the source of an ammonia leak or spill requires evaluation and testing. There are several tests for assessing ammonia damage in exposed products. These tests include:

- Visual evaluation of the product to detect negative aesthetic changes
- Sensory (taste) tests to detect negative flavor changes
- pH measurements to determine the magnitude of pH increase in the food tissue
- Ammoniacal nitrogen tests to measure the concentration of ammonia in the food tissue

Examination of products involved in a large ammonia release reveals that products packaged in polymeric films are not likely to be significantly damaged by exposure to high ammonia concentrations, that products loosely packed in waxed paper or cardboard cases are quite likely subject to permanent damage, that ammonia apparently causes a decrease in viable microbial count, and that unpackaged, fresh produce held at refrigerated storage temperatures as well as frozen foods held in large tote bins are most vulnerable to being irreversibly damaged by ammonia vapor.⁴ However, it is not axiomatic that foods exposed to ammonia vapor are irreversibly damaged or are rendered unmarketable, and, in fact, the USDA-FSIS has in certain cases authorized the use of ammonia vapor as a treatment to reduce the microbial population of product.⁵

There are several successful methods for removing ammonia both from the facility and from product stored in the facility.

a. Ventilation While there is no single approved cleanup procedure, controlled ventilation is considered a primary option following an ammonia release. With ventilation, fans are used to push the ammonia-laden air inside the cold storage facility outside, lowering the concentration of ammonia to more tolerable levels. Ventilation of gaseous ammonia should be initiated as soon as possible using open doors to the outside of the building. Fans should be set up to increase air circulation and gaseous ammonia removal.

Ventilation with outside air will, naturally, increase the temperature of the air space inside the cold store. While raising the air temperature increases the rate of ammonia dissipation, an upper tolerance limit for air temperature in the cold store space should be set; when the temperature limit is attained ventilation should be terminated and the outer doors closed. Air temperature increase in the cold store space, if of limited duration, does not have a significant effect on the temperature of frozen product held in the space. The effect on refrigerated (non-frozen) products may be significant and ventilation duration should be shorter.

⁴ An article on this event entitled “How to cope with product exposure to ammonia – assuring quality after ammonia leaks” is available from WFLO headquarters.

⁵ See WFLO *Research Summary* #1987-03 for information regarding ammonia spills, their effects, recommended steps for dealing with them, and an extensive list of references to consult for further details.

b. Absorption Unfortunately, ventilation alone may not eliminate all ammonia, especially ammonia that may be trapped in crevices and corrugated case flutes after a spill. Additional efforts to eliminate ammonia vapor from the facility following ventilation usually involve absorption or neutralization. Although water absorbs ammonia to form ammonium hydroxide, a weak alkali similar to household ammonia, disposal is problematic when the temperature in the cold store is <32°F (0°C). In any case, it is important to properly dispose of the water/ammonia solution and not to discharge it to the storm drain.

c. Neutralization Acids can be used to effectively neutralize ammonia. Strong acids, such as sulfuric acid and hydrochloric acid, are very good at neutralizing ammonia vapors but are extremely hazardous to handle and difficult to apply. Their usage for this purpose is not recommended. Weaker acids, such as acetic (found in vinegar) and carbonic are also effective in neutralizing ammonia vapor.

Carbon dioxide is a non-toxic, acid forming gas which will neutralize ammonia. In the presence of sufficient water vapor, carbon dioxide reacts with ammonia to form ammonium carbonate monohydrate. If carbon dioxide is released into a cold store atmosphere it will combine with water vapor to form carbonic acid which in turn reacts with any ammonia present to neutralize it.

Regardless of the quantity of ammonia released, after the initial ventilation step has been completed, the quantity of carbon dioxide released initially should not exceed 1 pound per 100 cubic feet of cold store air space. After this initial treatment, the amount of ammonia remaining in the space should be measured using an ammonia meter—then the space can be either re-ventilated or retreated with additional carbon dioxide (but never more than 1 pound per 100 cubic feet of air space).

It is crucial to have sufficient water vapor present in order for neutralization to occur. Ventilation (especially with warm, humid air) usually raises the relative humidity in the cold store space enough to allow neutralization to occur. If insufficient water vapor is present, this problem can be addressed by introducing water-soaked burlap bags (containing some propylene glycol as an antifreeze) into the cold store space.⁶ Water evaporating from the cloth will increase the amount of water vapor in the space enabling the carbon dioxide to do its work. If the water vapor from the burlap bags is not sufficient, it is recommended that a “stream of steam” be used instead of spraying hot water in the room to raise the humidity. Depending upon the air volume in the cold store and the concentration of ammonia and water vapor, the quantity of carbon dioxide required to completely neutralize all ammonia could require more than one treatment. When the carbon dioxide is released, industrial fans must be used to circulate it among the product and keep it from settling. Ammonium carbonate is a powder like substance with possible large lumps settling out onto the racking, product, floors, etc. and can also be problematic to be cleaned up from the release area.

Carbon dioxide in its solid form (dry ice) can also be used to neutralize ammonia fumes. Large amounts of dry ice are more difficult to acquire quickly, more costly, and slower acting than liquid or gaseous CO₂. There are, however, situations in which the use of dry ice may be advantageous. For instance, dry ice may be placed on pallets within an aisle of a cold room, allowing the use of CO₂ while clean-up efforts continue. Large industrial fans should be placed behind the dry ice. Air circulation is imperative for dry ice to be effective. In this way, it may be possible to maintain tolerable working conditions within a room as product movement and continued operations stir up fresh ammonia fumes.

One of the most difficult aspects of the cleanup entails removing the odor of ammonia from packaging materials once it has penetrated pallets of corrugated cases and seeped into the flutes of the corrugated board. This

⁶ Propylene glycol is an effective antifreeze and is GRAS for food use under FDA CFR 21 Part 184.1666.

entrapped ammonia is difficult to neutralize with carbon dioxide because it takes substantial time for the CO₂ to come into contact with the ammonia in the flutes, especially for cases in the interior of pallets.

To neutralize the ammonia odor in the corrugated flutes, it is necessary to work with relatively small lots of product. Take several pallets of the problem cases into a smaller room. With the room temperature set at +10 to +15°F (-12.2 to -9.4°C) to allow for a greater amount of water vapor to be present in each cubic foot (28.3 L) of air in the room, discharge CO₂ into the room. (As noted above, several treatments of CO₂ may be required.) Assure that there is a high degree of air circulation in the room using industrial size fans. The fans should be aimed in an upward direction and toward the pallets to avoid having the carbon dioxide settle near the floor. Once the ammonia has been neutralized, the product should be returned to a 0°F (-18°C) environment.

Be patient. It may, on occasion, become necessary to break down tightly stacked pallets to allow the carbon dioxide to interact with cases removed from the center of pallets, but ultimately the ammonia in the case flutes will be neutralized. Important points to remember are that relative humidity is near the air saturation point, that fans are adequately circulating the CO₂, and that persistence will be rewarded.

Another possible method to neutralize ammonia involves passing the contaminated air through a tank filled with a mixture of water, citric acid, and propylene glycol, causing the ammonia to react with the citric acid and form ammonia citrate. Because this method entails considerable set-up and plumbing it is not generally recommended.

Ozone (O₃) is another powerful oxidizing agent for controlling ammonia odor. Studies conducted by WFLO demonstrated that packaging material (corrugated shipping case test strips) equilibrated with 2,000 ppm ammonia lost most of its ammonia odor when exposed to a moderate O₃ level (0.4 ppm) in a small sealed chamber at ambient temperature for 18 hours. Unfortunately, ozone presents a number of serious problems, including explosion potential, toxic exposure to plants and animals, and oxidative rancidity of poorly packaged food products which are high in lipid content. Furthermore, some major food manufacturing companies may not allow ozone to come in contact with their products. In 1987, a WFLO Ozone Committee recommended that ozone should only be considered for odor removal in warehouses devoid of people and food products.

Note: It is necessary when dealing with an ammonia release that the atmosphere be carefully monitored to determine exposure levels. It is recommended that each facility have a functional relative humidity meter and a carbon dioxide meter in addition to a meter for measuring gaseous ammonia concentration. Constant air monitoring with appropriate skin and respiratory protection deserves priority attention. It is important to understand that all chemicals must be treated with respect and it is recommended that someone having a solid understanding of ammonia properties and interactions be present when dealing with a release.

Conclusion

Needless to say, there is no one plan to resolve all issues when it comes to cleaning up after an ammonia release. Warehouse location, ambient conditions, and room size and configuration, along with the amount of the product, product type, and packaging, are all major factors. If a release occurs during the middle of winter in a northern climate, then ventilation, by itself, may be the way to go. In most cases that will not be sufficient, and introducing another chemical in an enclosed space in order to create a chemical reaction with ammonia requires that considerable precaution be taken.

IARW and WFLO can provide assistance in dealing with various facets of a release once you have made all of the necessary emergency notifications. Keep in mind the following resources for supporting members:

- Steve Bassett, The Communications Workshop, +1 301 483 0158 (media relations)
- David Binder, Tanner Industries, +1 215 322 1238 (ammonia safety questions)
- John Horvath, Horvath and Weaver, 1-800-511-7710 (legal matters)
- Connie Phipps, Lockton Companies, 1-816-960-9946 (insurance matters)
- Don Schlimme, WFLO Scientific Advisor, +1 301 935 5784 (product questions)
- Bobby Tucker, Global Cold Chain Alliance, +1 703 373 4300 (library and contacts)

Attach MSDS for Anhydrous Ammonia

CRISIS MEDIA MANAGEMENT

Steve Bassett, The Communications Workshop, LLC

Of all of the tools used to influence public opinion, effective use of the news media could be the most important. The American public is so conditioned to “the news” that it is almost impossible to manage an issue without being able to understand and influence the media. During a crisis, how the media coverage is managed will determine how the public and key officials will perceive the company, its professional capabilities, and its ability to adequately handle the crisis. Mess this up and the impact on your company could be devastating.

What is “news” is subjective. One individual’s news is another person’s fluff. Each of us has our own personal opinion about news. The dictionary defines the word “news” as “A report of recent events. Material reported in a newspaper, news periodical, or on a newscast. Newsworthy matter.” The dictionary further defines the word “newsworthy” as “Sufficiently interesting to the general public to warrant reporting.” However, the fact is that often news may simply be anything that piques the interest or curiosity of a reporter, assignment editor, or news editor.

The American public typically obtains the preponderance of their news from three primary sources—television, radio, and newspapers. But, the news presented on television, radio, or in the newspapers can only be as accurate as the information on which it is based and only as complete as time and space limitations permit.

Typically and increasingly, those time and space restrictions place such severe restraints on news coverage that what is seen, heard, or read is only a small fraction of the news which is available. Consequently news must be, in the opinion of those who select the news to be covered and reported on, more than just sufficiently interesting to the general public. It must be significantly interesting in order for news organizations to give it a second thought.

Reporters

Reporters conduct interviews for two fundamental reasons. Reporters go to school on interviews. They receive much of their background knowledge from the interview process. They plan it that way. The tighter the schedule the more the actual interview becomes a source for background information for the journalist. Often the reporter is searching for that one or possibly two statement(s) which will support the focus of the story as determined by the journalist based on a wide variety of influences as previously discussed. Recognize what is occurring during the interview and try within the context of your answers to separate background information from the point you wish to make publicly. Don’t give a lengthy answer to a question and then be surprised if the segment of the interview you wanted used is not what appeared in the final story. People typically love to talk but are the first to complain that they were misquoted or that what they said was taken out of context.

Your role in the news process is no less important than the journalists’. If the end result of the story is inaccurate or misleading, you may be just as guilty as the reporter. You can influence the accuracy and the tone of the story. Taking the time to understand their world is the only way they can be expected to understand yours.

Interviews

Good news reporting requires journalists to invest much time and effort in practicing and mastering good reporting skills and techniques. This includes mastering the skills of conducting effective interviews.

As a spokesperson for your company, you must invest just as much time and effort. Successfully protecting your company in a crisis situation requires skill and savvy. It also requires practice.

The following are some of the more important Dos and Don’ts of being an effective spokesperson:

Know the subject—Always have a thorough understanding of the topic the reporter wants to discuss. The last thing you want to have happen is to be fully prepared to discuss one subject or one piece of a subject and suddenly be blindsided by a reporter who is focusing on something entirely different than what you expected and spent hours preparing for.

Be prepared—Never enter into an interview session unprepared to discuss the topic. If the subject at hand is not your specialty, recommend a replacement for yourself.

Talk with the reporter—Spend ten or fifteen minutes free time prior to the formal interview to discuss the issue with the reporter. Use this time to help the reporter with background information and in general help them to learn the issue. Reporters typically ask questions based on what they think they know. Educational time up front can help a reporter avoid questions which are irrelevant, inaccurate, or simply off the mark and focus their thoughts as well as yours on the topic at hand.

Be honest—If you do not know the answer to a particular question, again be honest. Explain this to the reporter and offer to get the answer as soon as possible.

Be smart—Once a question is asked pause for as long as it takes for you to gather and organize your thoughts prior to opening your mouth. Think first, then speak. Then answer in brief, but complete thoughts.

Be positive—Answer all questions and make all statements in a positive, aggressive manner. This displays strength which translates into knowledge, and credibility. Credibility is a spokesperson's greatest asset and must be protected at all times.

Lead the interview in the direction you want it to go. Experienced spokespersons are masters of this technique. Politicians use it to perfection. Leading an interview means moving the discussion in the direction you want it to go. The key to making this work is being able to sell what you want to discuss as the more important subject. Keep in mind that this is your interview, not the reporter's. You are the one who will be exposed. You are the one hundreds of thousands—perhaps millions—of people will be reading about, hearing, or watching. It is your credibility and professionalism and that of your company that will be under public scrutiny. Therefore, conduct the interview the way you want it conducted.

Whenever possible record the entire interview. This will allow you the opportunity to critique yourself and will also give you an accurate record of exactly what was said and in what context it was said.

No “off the record.” Remember that there really is no such thing as “off the record.” You are always on the record. You may not be directly quoted as having made a statement, but everything you say will impact a reporter's thinking about a particular subject and will influence the final story. Use that to your advantage.

Only volunteer additional information if it is to your advantage.

Never get visibly upset or angry with a reporter. Rest assured that such a display will impact the final story.

Go to school on others. Watch television news. Listen closely to radio news. Read interviews in newspapers carefully. Take note of what others say and how they say it. Also take note of how reporters treat stories and interviews. Such insight can be helpful.

Never lie! Once caught in a lie, knowingly giving out inaccurate information, credibility is lost for you personally and for the issue you represent. There is absolutely no substitute for honesty—period!

Developing Procedures to Handle the News Media

Media relations is more than just knowing someone in the news media. Media relations is the mutual development of trust between the media and your organization. It is the wise selection of issues to bring to the attention of the media. It is the crafting of themes and messages to get the media's attention and focus them on the story you wish to tell. It is the fundamental difference between publicity and public relations.

Publicity is easy to get. For example, if you manage a refrigeration warehouse, all you have to do is leak toxic fumes into the air and you likely will get all the media attention you can handle. But it is unlikely this is the kind of attention you want.

Public relations, as it applies to your company's relationship with the news media, means creating the ideal public opinion climate to ensure that the media attention you get is the kind of media attention you want.

Using Public Relations Professionals

The press will approach any member of your staff they can find, particularly in the absence and even in addition to an official response to their questions. That practice must not be permitted when it comes to dealing with your company. Not everyone in your company is or should be expected to be a media relations expert. It takes a keen understanding of the media and skill to be able to develop effective working relationships with the media. It should be handled by trained public relations professionals. Therefore, the first step in developing an effective media relations program is to put someone with public relations experience in charge of your media relations initiative.

All incoming and outgoing contacts with the news media should funnel through this department. This is not intended as a bottleneck, but a device to protect the organization. The last thing you want or need is for someone in your organization—well intended as they may be—to misspeak while talking with a reporter. The damage can often be insurmountable. Your company's public relations director should serve as the main staff contact with news media. That person or department should be responsible for establishing and maintaining ongoing relationships with media representatives. Indeed, in many organizations, staff talking with news media is strictly prohibited. Everyone else in your company should understand that if they are approached by a reporter, their ONLY response is to send them to the media relations department or company spokesperson.

Selecting PR “Experts”

The objective of developing a media relations program is to establish a proactive relationship with the media to deliver your messages to your target audiences. Central to that is to carefully select key individuals within your organization who can be utilized as “experts.” Though contact with the media should be handled directly through your public relations office, it is wise to have people on hand who can serve as subject specialists. Naturally, in any organization, the president is and should be the chief spokesperson. But others with special expertise should also be utilized.

Of course, no one should be permitted to speak with the news media unless they are knowledgeable, articulate, have received professional media relations training, and are well informed on the subject at hand. Additionally, it is always a good practice to have your public relations professionals take part in any interview session with a staff “expert.”

Crisis Media Management

Finally, it is essential for your company to have a crisis media management plan in place. Though you will likely initiate most communications with news media, the time will come when an emergency occurs. A detailed media crisis management plan is essential. It should contain internal contacts, plans of action, procedures for managing outgoing information flow, procedures for developing news releases and holding news conferences, and a list of trusted media contacts who will help ensure that your story is told. Most important, if your company spokespersons have not undergone professional media training, you are asking for trouble. Get them trained. Now!

Key Steps to Handling News Media During Crisis Situations

- Return All Media Calls Promptly
- Never Avoid The Press
- Put Your Company Spokesperson Front And Center
- Have Handouts Already Prepared
- Do Not Permit News Photographic Access To Your Facility
- Know The Format Of The Interview
- Ask Who Else Has Been Interviewed For The Story
- Never Respond To Speculation
- Remain Calm At All Times
- If Reporter Repeats The Same Question—Repeat The Answer
- Stand Up For Yourself, Your Company & Your Industry
- Take Your Time To Respond

- Always Tell The Truth—Never Mislead Or Be Dishonest
- Don't Volunteer Information Unless It Helps
- You Make A Point That You Want To Make
- Dress For Success (Conservative)
- Express The Demeanor Appropriate For The Occasion
- Record The Interview

The Five “Bs” To Being An Effective Spokesperson

- Be Prepared to Discuss Topic
- Be Confident in your Knowledge
- Be Sincere, Honest & Credible—Never Lie!
- Be in Control—Lead The Interview
- Be Brief In Your Responses
- Remember—There Is No “Off The Record”

IMPORTANT REFERENCES AND RESOURCES

Organizations and Government Agencies

National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

- NFPA 600, *Industrial Fire Brigades*
- NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*
- NFPA 471, *Recommended Practice for Responding to Hazardous Materials Incidents*.
- *Hazardous Materials Response Manual*, 2nd edition.

U.S. Environmental Protection Agency—Federal Environmental Regulations

- *Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) (Superfund)*
- *Superfund Amendments and Reauthorization Act of 1986 (SARA)*
- *Emergency Planning and Community Right-to-Know Act (EPCRA) (Title III of SARA)*
- *Resource Conservation and Recovery Act (RCRA)*
- *Clean Air Act Amendments of 1990 National Response Center (800/424-8802)*

Occupational Safety & Health Administration Standards

- 29 CFR 1910 Subpart I. *Fire Protection*
- *Employees Emergency Plans and Fire Prevention Plans (1910.38)*
- *Hazardous Waste Operations & Emergency Response (1910.120)*
- *Medical Services and First Aid (1910.151)*
- *Bloodborne Pathogens (1910.1030)*
- *Permit Required-Confined Space Entry (1910.146)*
- 29 CFR 1910 Subpart I. *Personal Protective Equipment*

Other Publications, Standards, and Regulations

- *Community Awareness and Emergency Response Program (CAER)*, Chemical Manufacturers Association (CMA), 2501 M Street, NW, Washington, D.C. 20037