1995

The San Francisco 49ers become the first NFL team to win five Super Bowls.

February 21

Steve Fossett lands in Leader, Saskatchewan, becoming the first person to make a solo flight across the Pacific Ocean in a balloon.

The Rock and Roll Hall of Fame Museum opens in Cleveland.

January 17

The 7.3 magnitude Great Hanshin earthquake rocks Kobe, Japan, causing significant damage and killing more than 6,000 people.

January 24

O.J. Simpon's criminal trial opens in California. He is found not guilty of murder in October.

Forrest Gump wins the Best Picture Academy Award

March 14

Russian space station Mir greets first Americans. Space Shuttle Atlantis docks with the station on June 27.

Maximizing for Victim Evacuation & Recovery in Mass-Casualty Incidents

By Carol A. Bacon

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At the time this article was published, Carol A. Bacon, RN, COHN, was president of C-A-B Consultants Inc. in Hillside, IL. In this role, she developed safety and health programs, and provided training in 10- and 30-hour OSHA regulations. Bacon served on ASSE's Member Education Committee. She is currently a professional member emeritus of ASSE's Northeastern Illinois Chapter.

FORESIGHT IN CONTINGENCY PLANNING, along with calm, coordinated communication and action are key to minimizing fatalities and preventing the aggravation of injuries due to disasters. This applies to natural catastrophes such as floods, tornadoes, hurricanes and earthquakes, as well as human-influenced accidents such as building collapses, fires, transportation disasters and explosions.

Although OSHA requires that all companies with 11 or more employees have a written emergency preparedness plan, it does not stipulate that the plan address contingencies. Too often, the written line of action is rendered ineffective because key personnel are absent, or adverse weather conditions or other unforeseen elements arise.

One way to address such events is to appoint alternates for each emergency action position, such as fire coordinator, evacuation coordinator, power shutdown coordinator and those who call roll in staging areas to ascertain whether any employees are missing. Furthermore, a company's emergency action plan (EAP), which should be distributed to all employees, should contain detailed descriptions for each emergency role. Consequently, even if the primary person and first alternate for a key position are either absent or injured, other employees would be familiar with their roles.

March 20

Nerve gas attack in Tokyo subway kills eight and injures thousands.

October 1

Ten people are found guilty of the 1993 bombing of the World Trade Center.

ASSE membership approves restructure of the Society's governance.

November 28

U.S. President Bill Clinton signs a highway bill that ends the federal 55 mph speed limit.

Unprecedented heat wave strikes the midwestern U.S. during July, leaving hundreds dead.

The DVD, an optical disc storage media format, is announced.

November 21

The Dow Jones Industrial Average closes at 5,023.55, its first close above 5,000.

1995

Plan for Complications

Imagine this scenario: A plant is engulfed in flames. The EAP mandates that casualties be taken to a corner of the company's parking lot. At the same time, however, a tornado watch has been posted for the area. Without an alternate, "in case of adverse weather conditions" staffing area specified in the plan, evacuation officers and evacuees could become confused.

Few EAPs consider the possibility of what can be called "multihazard" emergencies. In certain cases, several disasters or potential disasters may merge simultaneously—a building collapse during a blizzard; a series of fires that causes toxic gases to escape; a flood complicated by hurricane winds. Without a plan that can cope with two phenomena at once, a company may be thrown into a state of confusion.

A facility's geographic location is a tip-off to what adverse weather conditions could complicate response to a locally provoked disaster. Known hazard zones for various natural phenomena are listed in the graphic on page 48. Such information is an important part of contingency planning, for single- and multihazard purposes.

Create a Response Partnership

No company should plan for disaster action, including evacuation of injured personnel, without interfacing with local police, fire and emergency rescue personnel before any incident occurs. Although this is not an OSHA requirement, it is good common sense. Once the EAP is drafted, a company should review it with public authorities that would normally respond to a disaster call at a particular location. They will likely suggest modifications or additions that will increase the plan's flexibility. Such interaction also amplifies contingency planning and may, when the plan is in action, cause more lives to be saved, minimize injuries and speed evacuation.

Each public authority consulted, as well as the firm's insurance carrier, should receive copies of the EAP, as they will be crucial partners should a mass-casualty incident occur. Informing these organizations in advance about what steps will be taken for damage control, evacuation, rescue of injured and/or retrieval of fatalities helps them determine the most effective points of intervention. This is especially important for police, fire and rescue personnel.

Once on the scene, public authorities should be able to easily identify the site's designated evacuation or emergency personnel, and enter immediately into coordinated action with them (something pre-incident interaction will facilitate). In any case, EAP designates should wear red armbands or other prominent identification.

Safety Alliances

Companies with keen attention to disaster preparedness frequently form mutually supportive alliances with area companies. Through such a network, each company can present its EAP and work cooperatively with others to develop a large-scale disaster program for the area. Such dialogue improves all site-specific plans and often leads to exchange of pertinent safety information that may affect local response (e.g., reductions in police or fire budgets or addition of new emergency equipment).

A company can also ask its insurance/loss control representative to observe and critique emergency preparedness drills; inspect equipment (e.g., sprinkler systems and other firefighting elements; availability of masks for gas and smoke; marking of exits and hazardous materials area); and question EAP designates regarding details of their actions in case of a disaster. Safety personnel can then perform similar critiques of other locations.

Safety staff and EAP designates are not the only personnel who need to know the plan and be ready to activate it, however. Senior management, human resources personnel, line management and occupational health staff play vital roles in making the plan work as well. The plan must contain sufficient detail and allow for enough contingencies to ensure that medical response will meet victim needs in any situation—from chemical fires to gunshots.

ASSE began publishing a journal in 1956.

To celebrate 50 years of keeping SH&E professionals current in this dynamic field, each issue of Professional Safety *in 2006 will feature an article from a past issue of the journal.*

Crowd Control

Another key concern is the arrival on the scene of large numbers of people not factored into the EAP. This group will likely include family members and friends who have learned of the disaster via the media. In addition, any dramatic disaster (such as a towering-inferno-type fire or a building collapse) inevitably draws a crowd. Although police are trained to handle crowds, their numbers may be strained, necessitating help from company personnel designated for crowd control.

One real danger stemming from the gathering of spectators is the difficulty of clearing a path for emergency vehicles. If this process is improperly handled, evacuation of the critically injured may be impeded, resulting in unnecessary deaths. Casualties may also occur as these vehicles attempt to make their way through the crowd.

In situations that require helicopter evacuation, a large area will need to be designated for landing. During landings and takeoffs, access to this area must be limited to those guiding the helicopters and loading victims.

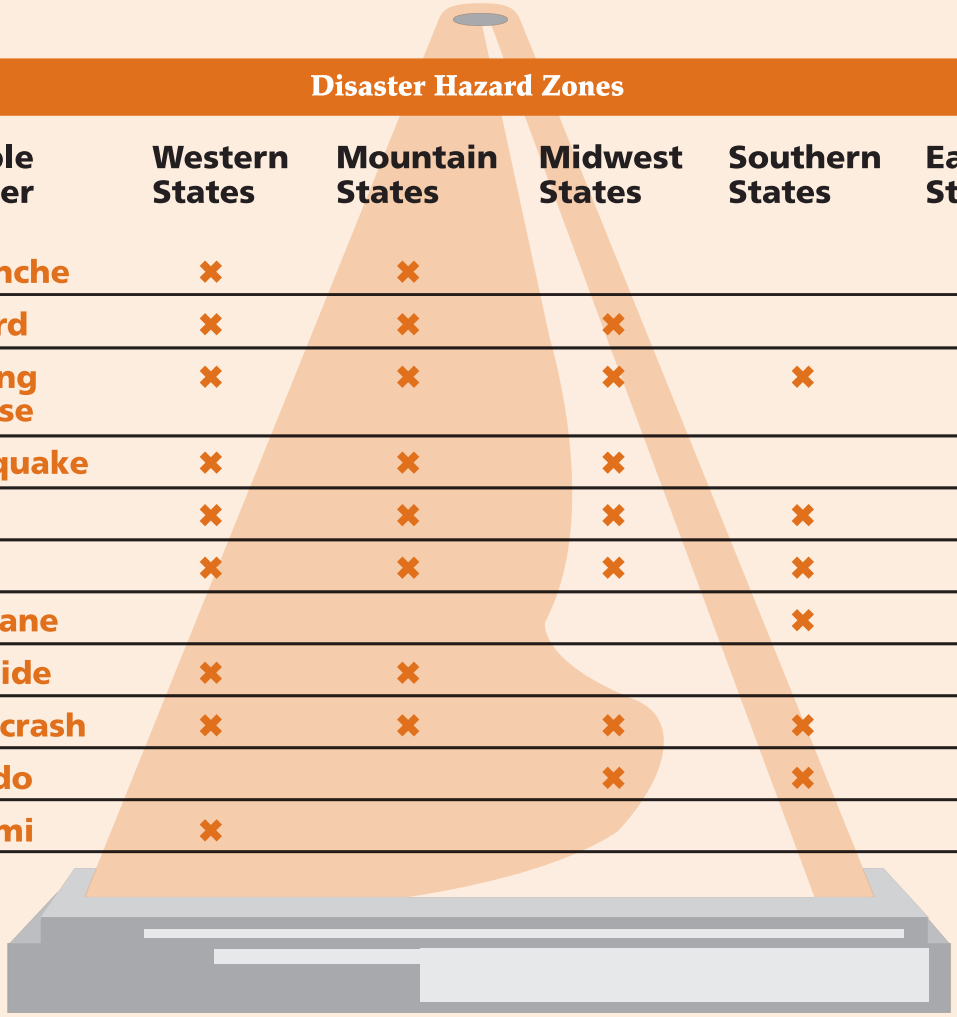
Coordination

Response to a mass-casualty incident typically causes several different medical teams to converge on a site. This may include facility occupational health staff and/or paramedics, CPR-trained employees, police officers trained in CPR and other emergency techniques, and firefighting personnel, as well as paramedics and nurses arriving in ambulances. Each team must act in a responsible, decisive fashion that is coordinated with responses of all other teams. Therefore, some liaison must exist among the teams. To avoid duplication of effort and prevent squabbling, designated persons from each team should effectively communicate with designates of other teams.

Based on various factors, each facility must define a "mass-casualty incident." Because this will vary

Disaster Hazard Zones

Possible Disaster	Western States	Mountain States	Midwest States	Southern States	Eastern States
Avalanche	✖	✖			
Blizzard	✖	✖	✖		✖
Building collapse	✖	✖	✖	✖	✖
Earthquake	✖	✖	✖		
Fire	✖	✖	✖	✖	✖
Flood	✖	✖	✖	✖	✖
Hurricane				✖	✖
Mudslide	✖	✖			✖
Plane crash	✖	✖	✖	✖	✖
Tornado			✖	✖	✖
Tsunami	✖				



from place to place, a sound rule of thumb is to consider any situation in which 10 or more individuals face a life-threatening circumstance a mass-casualty incident. However, an emergency situation can exist whether or not injuries or deaths result. Occasionally—and often due to poor planning—a disaster will kill or injure every individual on the site. Yet, in other cases, despite sudden fire or the presence of toxic substances in the air, nearly all those threatened will escape major injury. Again, this is not a matter of chance; it is the outcome of sophisticated, thorough contingency planning and good coordination among the company's EAP designates and public rescue personnel.

Emergency Action Organization Chart

Coordinator	First Shift		Second Shift	
Emergency	Primary Alternate	ext. ext.	Primary Alternate	ext. ext.
Fire	Primary Alternate	ext. ext.	Primary Alternate	ext. ext.
Chief Communication	Primary Alternate	ext. ext.	Primary Alternate	ext. ext.
Power shut down	Primary Alternate	ext. ext.	Primary Alternate	ext. ext.
Evacuation	Primary Alternate	ext. ext.	Primary Alternate	ext. ext.
First responders	Primary Alternate	ext. ext.	Primary Alternate	ext. ext.
Roll Call Department A Department B Department C Department D (continue with each department)	Primary	Alternate	Primary	Alternate

Employee & Production Issues

A range of possible disaster scenarios should be communicated to all employees, with emphasis on the need for calm, controlled response. Inadequate preparation goes hand-in-hand with confusion and panic when disaster strikes. Plants that realize the importance of "preparedness" stage mock disasters (in which firefighters and employees role-play as rescuers and victims) to simulate building collapses, plane crashes, tornados or chemical spills. As a result of such coordinated exercises, the EAP is often upgraded and additional training provided.

Monthly safety training sessions should include "disaster training." Installing luminescent "You are here" signs and keeping exit signs illuminated is just as important as everyone knowing the phone number to call when facing a disaster.

Production of the company's product while facilities are being refurbished is another concern. Has an agreement been made with a sister company to assume production and fill orders? Is any merchandise warehoused off site (as a hedge)? Will a similar manufacturer allow the company to work a line to ensure that client needs will be met and the company will remain in business?

Conclusion

Year after year, every conscientious company or public unit must thoroughly review and revise its preparedness planning and the training of EAP designates. Employee response must be evaluated as well.

No plan can account for every contingency, however, nor can every imaginable communication interaction be envisioned in advance. The goal is to strive for continuous improvement, both in contingency planning and in effective, well-coordinated communication. The company that focuses its efforts on these two ends will find itself well served when disaster strikes. Company vigilance for safety will be evident when the event is over and the number and gravity of casualties is totaled.

Everyone comes together in times of true hardship and disaster—a reflection of genuine caring in our society. Yet, one must wonder why it is so difficult to get everyone to work together on a plan to ease the blow. ■

References

Bronstein, A.C. & Currance, P.L. (1988). *Emergency care for hazardous materials exposure.* St. Louis, MO: C.V. Mosby Co.

U.S. Department of Transportation. (1990). *1990 emergency response guidebook.* Washington, DC: Author, Research and Special Programs Administration.

Zenz, C.I. & Dickerson, O.B. (1994). *Occupational medicine.* (3rd ed.). St. Louis, MO: C.V. Mosby.