

Effective Emergency Management

A Closer Look at the Incident Command System

By Brian Bennett

IN BRIEF

- The consequences of an emergency situation, in terms of public perception of a company, is influenced by that company's emergency preparedness and response, as well as its coordination with local emergency responders.
- Managing an emergency incident requires a calm leader who effectively utilizes support staff, is knowledgeable about emergency response technologies and is up to date on the latest information in a rapidly changing world with new threats, hazards and risks.
- By understanding the incident command system, its key players and critical components, and by working closely with public-sector responders, a facility can be well prepared for an emergency situation.

Any organization's response to an emergency is one of the most visible activities in which it can be involved. In some cases, a business may be located within a neighborhood, where it has operated for years, flying under the radar because it has had no incidents that have affected residents.

Once an incident occurs, whether it is a fire, a HazMat incident or a severe injury, residents instantly become aware of the company's presence in their neighborhood. This is particularly true in today's real-time world, in which a significant incident quickly

becomes common knowledge, spreading rapidly via social media outlets, the Internet and 24-hour news services. As a result of the negative publicity,

residents may begin to believe that the company is a threat to their safety and well-being and a less-than-desirable neighbor. The consequences of the incident, in terms of public perception of the company, is influenced by the company's emergency preparedness and response, as well as its coordination with local emergency responders.

Emergency response incidents are inherently dangerous. Unlike routine operations within a facility, the risk cannot be completely eliminated. When addressing routine, planned operations, stakeholders have adequate time to thoroughly analyze the situation and develop appropriate risk controls before beginning the operation. In the fast-paced, life-and-death world of emergency response, those involved do not always have time to thoroughly analyze the situation and eliminate all risk before acting.

Some incidents, especially those involving hazardous materials, can be far-reaching, affecting people far away from the incident over long periods; can be severe, posing an acute or chronic, and an immediate or delayed health effect; and insidious in that the presence of the hazardous material may not be immediately apparent. Emergency incidents can become significant because they can affect wide areas of land, water or air; pose an unreasonable risk to people, property and environment; and can quickly spread through multiple jurisdictions. A complicating factor in today's world is that responders

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must contend not only with accidental and natural emergencies, but also with intentional acts (e.g., terrorism).

Emergencies come in many sizes and shapes; some are easy to mitigate, others are complex and challenging to mitigate. Emergencies can occur at inopportune times, such as during periods of minimal staffing (e.g., nights, weekends, holidays) or bad weather. Emergencies also can occur in inconvenient locations, such as in unexpected areas or in inaccessible locations.

Managing an emergency incident requires a calm leader. This task is stressful, but experience has shown that successful managers properly utilize subordinate staff and focus everyone on achieving a common goal. In addition to being knowledgeable about the available emergency response technologies, emergency managers must be current on the latest information in a rapidly changing world with new threats, hazards and risks.

Emergency Response Safety

Emergency response safety is critical, even more so than in routine operations, because of the inability to conduct a thorough hazard and risk assessment and eliminate risk. Safety must be a primary consideration in every action taken at an incident scene. Although an emergency scene initially may appear all but lost and beyond responders' ability to do anything, and although mitigation efforts may appear unsafe, proper planning, training and experience can reduce risk during these activities.

Several basic techniques can be used to maximize emer-

gency responder safety. The buddy system and backup teams are key examples. The buddy system simply means that no emergency responder operates in the danger zone alone; crews should be a minimum of two properly trained and equipped responders. If one responder is incapacitated, the other responder(s) can call for help and provide immediate assistance. Backup teams are emergency responders dressed in the same level of PPE as those in the danger zone who have the proper tools so they immediately deploy to provide additional assistance. Backup teams also should have at least two responders.

Emergency Response Risk

Why do emergencies pose risk and why are they often perceived as unsafe? The answer is quite simple. As noted, responders often do not have enough time to fully analyze and plan a dynamic event. As seen in Figure 1 (p. 30), emergency response operations can be classified based on frequency and risk. Some emergencies are addressed with a relatively high frequency (e.g., worker suffers minor laceration). Others occur at a lower frequency (e.g., major fire on an upper floor of a high-rise office building).

Risk can be categorized as low, for example, if the worst-case scenario is a minor injury to a responder. High risk would translate to a life-threatening or even fatal injury. Typically, emergency responders are not concerned about low-frequency/low-risk incidents as such events are infrequent and the risk to responders is low.

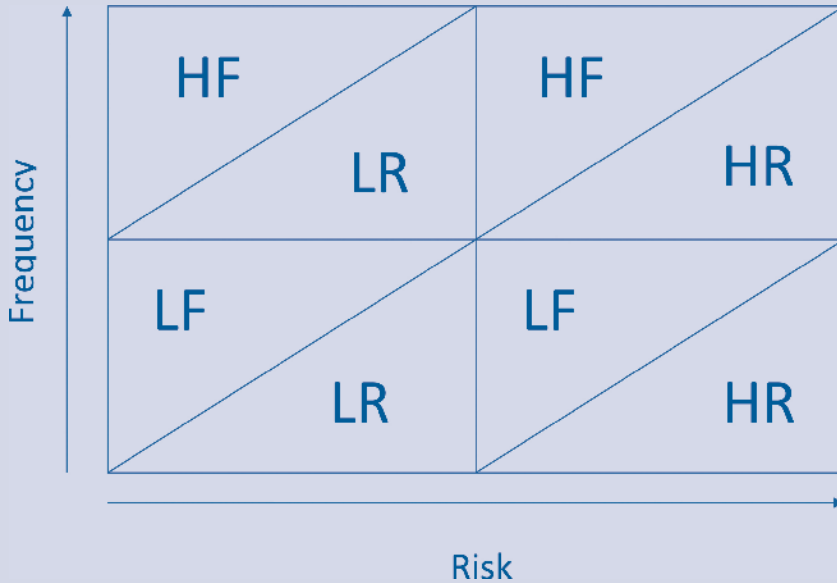
Emergency responders also generally are not too concerned about low-risk/high-frequency and high-risk/high-frequency incidents because such incidents occur quite often and, therefore, responders are familiar with the hazards presented and likely have plans, procedures and training to minimize or eliminate significant harm.

The incident that presents the most concern is the high-risk/low-frequency event—the event that may occur only once or twice in a responder's career. Examples might include a major explosion with several buildings burning or collapsed, many employees

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Figure 1

Frequency Vs. Risk in Emergencies



severely injured and others missing, or an uncontrolled leak of a hazardous material. Most responders have not encountered such incidents before, and are not familiar with the challenges and risks, and do not have the benefit of experience or the resulting plans, procedures and training it would have provided.

To prepare for such incidents, each emergency response organization must define what it considers acceptable and unacceptable risk before an incident occurs. An organization also must ensure that it has trained personnel sufficiently to assess hazards and risk, and to apply appropriate safety techniques to protect themselves. The key with risk is recognizing when the risk is too great and disengaging responders before harm can occur.

Incident Command System: Background

The incident command system (ICS) was developed in the western U.S. in the 1970s. It addressed

several known problems experienced while fighting large brush fires common to that area, such as the Laguna fire in 1970 that burned more than 175,000 acres, destroyed 382 houses and killed eight people [FEMA(a)].

The objective of an ICS is to help the incident commander (IC) safely and effectively manage and employ resources, and ensure responder safety through a coordinated planning and response effort. Without use of an ICS, responses typically:

- lack accountability;
- have poor coordination;
- use an uncoordinated and nonsystematic planning process;
- order and use most resources inefficiently and ineffectively;
- fail to efficiently and effectively integrate on-scene responders;
- tend to have safety issues [FEMA(a)].

The ICS was modified over time to become modular and all-hazard, meaning it can be used for both large and small incidents, and for situations other than fires, both planned (e.g., parades, large gatherings)

and unplanned (e.g., HazMat incidents, missing people, natural disasters). Over the years, ICS use has become widespread, as many organizations embraced the concept.

Additionally, some organizations started to mandate use of ICS. For example, both OSHA (29 CFR 1910.120) and EPA (SARA Title 3) require use of ICS at HazMat incidents. Federal Emergency Management Agency (FEMA), through the National Incident Management System, requires use of ICS as well. Even nonregulatory bodies, such as NFPA, have promulgated consensus standards (e.g., NFPA 471, 600, 1500) that require use of ICS.

Key Elements of ICS

The complexity of incident management, along with the likelihood of multiagency and multijurisdictional response to an incident, requires a single standard incident management system used by all responders. Several features make ICS a valuable tool. These features include:

- ICS organization.** ICS includes the use of both a command staff, which advises the IC, and a general staff, which handles the five major management activities. Command staff includes the IC, public information officer, liaison officer, incident safety officer and documentation officer. General staff includes command, finance/administration, logistics, operations and planning.

- Incident facilities.** ICS incorporates predesignated incident facilities. The two most common are the incident command post and the staging area.

- Incident action plan.** This plan provides all incident supervision with

Emergency response activities are highly visible to the community. Notice the spectators watching responders operating at this early morning motor vehicle crash.



direction for future actions, including measurable tactical operations.

•**Span of control.** This refers to the number of organizational elements that may be directly managed by another.

•**Common responsibilities/terminology.** Various disciplines may not understand each other's jargon. To help avoid confusion, ICS uses common terminology to describe resources, tasks, supervisory levels and functions, tactical steps, etc. [FEMA(a)].

Over time, ICS developed a bad reputation because many responders viewed it as little more than complex organization charts, and a multitude of forms and elements that do not apply specifically to a given organization (e.g., bases, camps, tankers).

However, ICS should instead be described for what it really is: a modular, flexible, standardized system used by emergency responders to ensure efficient resource management resulting in a safe, efficient, effective response. An ICS does not provide specific solutions on how to mitigate specific incidents. However, it provides a template and the tools needed to safely and efficiently manage an incident.

An effective ICS will:

- enable a coordinated response among various jurisdictions and agencies;
- establish a common process for planning and management of resources;
- allow for integration within a common organizational and management structure [FEMA(a)].

Principles of ICS

ICS works for small routine operations as well as catastrophic events. A key principle of the system is its flexibility. ICS organizational structure is based on:

- incident size and complexity;
- specifics of the hazardous environment created by the incident;
- incident planning process and incident objectives.

In about 98% of emergency incidents, the organizational structure is relatively simple, with the IC position filled and single resources being used to mitigate the incident [FEMA(a)].

Common terminology is a critical component of ICS, as it helps ensure that all responders are speaking the same language. This terminology is used for organizational functions, incident facilities, resource descriptions and position titles.

One safety feature of ICS is span of control, which is defined as the number of subordinates a supervisor can effectively manage during an emergency incident. In the daily work routine, it may be reasonable to expect a first-line supervisor to effectively supervise 10 to 15 employees. However, due to the high levels of risk and potential danger present in emergency response operations, it has been found that a supervisor can safely manage three to seven subordinates, with five being optimum.

Span of control is influenced by incident type and complexity, nature of the response or task, distance from the supervisor (whether subordinates

can be observed to ensure their safety) and other safety factors. Span of control can be maintained as additional resources are added to the response by taking advantage of ICS's modular organization, and organizing resources into sections, branches, groups, divisions, units or crews. These organizational structures can be added as resources are added, then demobilized as resources are released. Although no hard and fast rules are in place, remember that only necessary functions/positions are filled [FEMA(a)].

ICS predesignates several incident facilities. The first is the command post. This is the area where the incident management team assembles and works. Depending on the incident's nature and location, the command post could be located on the street, out in the open exposed to the weather, or inside an adequately sized vehicle or building where the team can work in a comfortable environment, out of the weather and in a secure area with the necessary support functions such as phone/fax/Internet, food and sanitary facilities.

The staging area is where resources, both equipment and personnel, are marshaled until needed. This area should be large enough to accommodate all necessary resources and be in a safe location. However, the staging area should be close enough to the incident scene that resources can arrive within 3 to 5 minutes after being requested.

Specific ICS position titles have been developed as well. This provides a common standard to ensure consistency across the emergency response spectrum. For example, a municipal IC may have a title of foreman, sergeant, lieutenant, captain or battalion chief. A private-sector IC may have a title of foreman, supervisor, superintendent or manager. By using standardized titles, all responders know the individual's position and degree of responsibility, regardless of everyday job title.

Unity of Command & Unified Command

Another cornerstone of ICS is unity of command. This term simply means that each subordinate has only one boss. Responders should report to one supervisor and receive work assignments from only that supervisor.



Although things may seem hopeless when responders first arrive, emergencies that are properly managed often have favorable outcomes. That was the case with this three-story building which was under construction. The radiant heat was starting to ignite the homes across the street.



Emergency responders should utilize the buddy system whenever in the danger zone.

Unified command is a collaborative effort. It enables all responding agencies to manage an incident together by establishing a common set of incident objectives and strategies. It allows ICs to make joint decisions by establishing a single command structure. Unified command is used when multiple jurisdictions respond to an incident.

For example, suppose a facility has a fire and the emergency responders include the facility's incident management and emergency response teams. Municipal responders include police, fire and emergency medical services. This is a classic example of when a unified command should be used. The ICs from each of the five stakeholder organizations assemble in the command post and work cooperatively to successfully mitigate the emergency by implementing a single incident action plan.

Why embrace unified command?

- It allows for specialist input.
- It allows each stakeholder to have input about how the emergency will be managed.

- It ensures that the interests of all stakeholders are addressed [FEMA(a)].

The Incident Commander

Command is the art of directing, ordering or controlling the emergency scene by virtue of explicit statutory, regulatory or delegated authority. The IC is the person who is ultimately responsible for all decisions relating to incident management. Many responsibilities and accountabilities fall on an IC's shoulders. In addition, the IC must be aware of many legal issues in order to avoid both individual and organizational liability.

A common question is, what characteristics make a good IC? Although opinions differ, experience has shown that an effective IC possesses the following characteristics:

- Proactive: Thinks ahead and anticipates developments and needs.
- Objective: Fairly evaluates all facts before making a decision.

Basic Tenets of Emergency Response

Some basic concepts an emergency manager might find helpful:

Maintain focus. Incident managers should not dwell on what has already happened. Dwelling on the fact that there was an explosion or failure of a container, personnel have been injured or killed, or wondering how something could have happened serve only to distract from the mission of successfully mitigating an incident. Focus on what can be changed, not on what cannot.

Complacency kills. The investigation of most emergency responder injuries and fatalities often point to complacency as a causal factor. Since risk is always present during an emergency incident and the situation is very dynamic, emergency responders must always be situationally aware and at the top of their game, depending on their training, equipment and procedures to protect them. Never let your guard down.

Forget the words *never* and *always*. A good way to get in trouble quickly is by managing an emergency by saying it never or always behaves in a certain manner. All incidents are different and must be evaluated for what they are. In the same vein, do not outwardly disregard or dismiss any information outright until it

has been completely and thoroughly evaluated.

The IC is responsible for managing or delegating command and staff functions. Many things need to be done at an emergency. The IC is responsible for doing everything, or delegating that responsibility to another competent person(s). However, the IC is ultimately responsible for ensuring that all tasks, whether kept or delegated, are completed properly.

The IC cannot be an island. In today's world, an IC cannot realistically expect to know everything about all types of potential emergencies. Although the IC may have expertise in one or more areas, in some incidents input from subject-matter experts will be needed.

For example, for a HazMat release at a fixed chemical facility, it would make sense to consult with facility experts. Experience has shown that ICs who think they have all the answers for every possible situation often have the biggest problems. Don't be afraid to say, "I don't know the answer," and find someone who does. The safety of responders requires that degree of honesty.

If in command, take command. If assigned the responsibility of incident command, take charge and lead the effort to mitigate the emergency immediately. The IC must exude a

command presence, and let there be no doubt that you—and you alone—are in command. ICs who tend to be more reserved often find that things don't go according to their plan as others assume a leadership role and start giving orders. This can lead to disaster as there are now several plans being implemented that may be in conflict with each other. When the management of incidents degrades to this state, problems are likely. Remember, the only thing worse than a bad decision is no decision.

The IC cannot get involved at the task level. The IC is like the conductor of the orchestra. One is not likely to see the conductor put down the baton, climb down into the orchestra pit and start playing the clarinet. If so, the overall tune would likely be sour as there is no overall direction for the rest of the orchestra. The IC's job is to maintain focus on the big picture, ensuring the safety and health of responders, coordinating resources, keeping a strategic focus and managing the incident. If the IC starts getting his/her hands dirty, overall control of the incident is lost, things don't get done and the situation generally deteriorates.

Control the situation or it will control you. Emergency incidents are dangerous and dynamic. Few incidents end at the same point at which they

•Calm: Exudes confidence and the perception that all is well.

•Quick thinker: Able to make key decisions quickly.

•Safety oriented: Conscious of uncontrolled risks and willing to use all necessary means to protect responders.

•Adaptable/flexible: Aware that an incident is dynamic and able to adapt to the flow of events.

•Realistic: Understands the limitations and capabilities of personnel and equipment.

•Decisive: Is firm and follows through once a decision has been made.

•Patient: Understands that time will pass between plan development and implementation before change will occur.

•A good listener: Listens to all facts and opinions provided by supporting staff.

Based on the author's experience, an effective IC has above-average leadership

skills, which encompass providing purpose, direction and motivation to responders working to accomplish difficult tasks under dangerous, stressful circumstances.

A good operational leader:

•communicates by giving specific instructions and asking for feedback;

•supervises and manages the incident scene;

•evaluates the plan's progress and effectiveness;

•understands and accepts the need to modify strategy and tactics;



For complicated incidents, it is a good practice to have several plans available in case the initial one is not successful.

periods of time. An IC who expects responders to operate at that level for hours is asking for trouble.

Most responders require a considerable rehabilitation period after working as little as 15 minutes. Likewise, the IC must know what their equipment can do. If a fire flow of 6,000 gpm is needed, and the fire pump can only supply 1,500 gpm, the expected results will not be realized. Know what the people and equipment can do, and ensure that adequate resources are available to meet tactical needs.

Every incident needs: Plan A (in use); Plan B (in your pocket); and Plan C (under development). The key to success in an emergency is proper planning. Incident action plans must be developed quickly, and communicated to responders before starting an operation. Seldom is an incident completely and successfully mitigated using the original plan. Therefore, it is recommended that a second plan be immediately available once the first plan is initiated, as conditions can and will change

rapidly. At the same time, a third plan should be under development taking into consideration what has already happened through the employment of Plan A.

Know when to say no. Sometimes, the best option is to do nothing. The risk is too great, and there is an insufficient amount of resources, training or personnel to accomplish something positive. There is no sense in adding to the casualty count by taking the approach that something must be done. Instead, wait for more favorable odds.

Despite the best plans, bad things will happen. It has been established that emergencies are dynamic, and the risk posed to responders cannot be completely eliminated. Although planning and training may have been great, and the best equipment is available, bad things are sure to happen considering the adverse environment in which responders work. The IC's job is to reduce the adverse consequences as best as possible, yet be prepared for bad things to happen.

began. By their nature, emergencies tend to grow larger and expand exponentially if response is not well-executed. ICs who do not act in a proactive and aggressive manner are often playing catch up in trying to mitigate the incident. Instead of the IC dictating the conditions, responders are now in a reactive mode as the incident has its way.

You can never have enough manpower.

One common pitfall for an IC is not ensuring that adequate manpower is available for immediate deployment if needed. Often, the first wave of responders is committed to the mitigation efforts, and no provision has been made for a second wave of responders. The bottom line is that most emergencies typically require at least twice the number of responders to mitigate the incident than was initially determined. Consideration should be given to calling for additional resources as soon as possible. Remember the lag time between ordering resources and the time they actually arrive on scene can be significant.

Know the limitations of your people and equipment.

Most emergency responders think they can do anything. However, despite their best intentions, responders cannot operate at high levels of stress and exertion, wearing PPE in poor environmental conditions for extended

Effective emergency response requires the coordinated effort of all responders through the incident command system to ensure safety.



- ensures safe response activities;
- takes command of assigned resources;
- motivates subordinates with a can-do-safely attitude;
- demonstrates initiative by taking action through sound, timely decisions [FEMA(b)].

Leadership brings with it authority, responsibility and accountability. The leader must possess three key values:

•**Duty.** The leader has a duty to step out of a tactical role and assume a leadership role, making sound and timely decisions. Duty is how one values the job. A leader's primary duty is to fully understand the job and become proficient in executing his/her responsibilities.

•**Respect.** Respect does not necessarily come with the title. True respect from subordinates must be earned. In the emergency response field, respect can be earned through good communication skills, building the team, knowing support staff's capabilities and limitations, ensuring their well-being, and being knowledgeable and experienced.

•**Integrity.** Integrity is how one values him/herself. One must be in charge of oneself before one can be in charge of others. A leader with integrity separates right from wrong, and acts according to what s/he knows is right, even at personal cost. A leader seeks responsibility and is prepared to accept responsibility for his/her actions [FEMA(b)].

Who Is in Charge?

Upon arriving at an incident, the highest-ranking person will assume command. In fact, the IC position is the only position that is always staffed in ICS applications. During small incidents, the IC may accomplish all management functions.

The fundamental questions are, who has the authority and responsibility to be in charge of the emergency response effort, who is in charge for the company, and how are each selected?

Typically, a private-sector IC holds a senior position within the local organization. However, is this person best-suited for the job by virtue of his/her title? Does this person have the requisite knowledge and experience in emergency response? Is

s/he fully capable of managing a complex response effort? In the author's experience, this can be a political issue, but it is worth evaluating whether the person designated as the IC is appropriately qualified to hold that position.

The municipal IC is also the senior person within the responding agency. However, this person usually has years of emergency response experience, has attended many hours of emergency response training, and typically holds local, state or federal certification(s) in several areas, including incident command. While politics can play a role in the public sector as well, certain protocols must be met to promote an individual to higher ranks.

The next question: When two agency ICs are present, which one is in charge? As noted, the ideal situation is to have a unified command in which all stakeholders are represented. Still, someone must be the overall boss. Most public-sector jurisdictions have legal authority through local ordinances or state statutes to assume command of the incident scene. This issue should be researched, planned for and coordinated between the private- and public-sector organizations long before an incident occurs to ensure operational efficiency.

The Incident Safety Officer

The incident safety officer (ISO) is a member of the command staff. This individual has overall responsibility for all safety and health issues related to the emergency, and his/her primary job is to advise the IC on those issues. The ISO has an important power—s/he can stop any unsafe act observed without going through the chain of command. This is an important authority and it should not be abused. The ISO should try to work within the ICS framework to resolve safety and health issues, and use this authority only as a last resort.

Where possible, an ISO should appoint assistant ISOs, especially during large, complex responses. Whereas the ISO is looking at the big picture, ensuring the safety and health of all affected parties, the assistants can assume some related responsibilities. For example, an assistant ISO could be assigned to the operations section, where s/he will focus exclusively on emergency responders. This provides an additional level of protection to help identify hazards and risks as responders implement tactical operations and helps ensure responders' safety and health by providing an extra set of dedicated eyes to observe their operations.

Two important operations must be addressed by an assistant ISO assigned to the operations section: 1) emergency responder rehabilitation (rehab) and 2) responder accountability. Rehab is the process of removing responders from response activities for rest, recuperation and rehydration. This is done away from the incident in a location where responders can remove PPE, undergo medical evaluation, rehydrate and recover from stresses related to their activities.

Responder accountability means knowing where each responder is at any given time and what task each has been assigned. The accountability system is

particularly critical should a responder become lost or incapacitated; using the system, backup teams will know what the responder was doing and where.

Authority

The IC position comes with a certain level of authority. In this context, authority is the right or obligation to act on behalf of a company, department, agency or jurisdiction. In the public sector, an IC's scope of authority is derived from existing laws, statutes or ordinances; agency policies and procedures; and delegation from an elected official or agency administrator. In the private sector, authority is derived from delegation by corporate officers, by virtue of one's position in the organization, and company policies and procedures.

In either case, some considerations must be addressed to protect the IC and the organization from potential embarrassment and/or liability:

- Legal authorities and restrictions. Are there any legal requirements, such as notification of governmental agencies, or restrictions, such as what cannot be done?
- Financial authorities and restrictions. Is the IC authorized to commit or spend funds to mitigate an emergency? If so, what are the limitations?
- Reporting requirements. Do any internal or external reporting requirements exist with regard to the emergency (e.g., injury, fatality)?
- Agency priorities. Are any agency or organizational priorities in conflict with those of the public sector? Has an effort been made to resolve these conflicts before an emergency?
- Process for communications. Does a tested ability exist to communicate internally and externally to the organization?
- Political considerations. Do any internal or external political considerations pose a hindrance to effective emergency response [FEMA(b)]?

Coordination With Local Responders

In the author's experience, high levels of friction can arise when public-sector crews respond to an incident at a private-sector facility. At the core:

- The primary mission of public-sector responders is to protect the community.
- The primary mission of private-sector responders is to protect the company's assets.

Such conflict arises not because of intentional malice or dislike; rather, it is related to differing and, in some cases, competing priorities and internal politics. This barrier must be overcome to ensure an effective emergency response. To achieve this, both parties must take the time to coordinate efforts and plans, then practice them through drills and exercises. By meeting and discussing organizational priorities, each side can gain a better understanding of the other's position and identify a solution that addresses both parties' needs.

In the author's experience, the two perspectives on how the emergency should be reported and handled are often based on political considerations. The public sector would prefer:

- to be notified of the emergency situation at the

earliest possible time, before the event has escalated;

- that detailed information about the situation be provided on the initial 9-1-1 call to provide an accurate picture of the situation;

- that a knowledgeable person meet the IC upon arrival on scene to provide necessary information and start working in a unified command mode.

In comparison, the private sector:

- would prefer to delay (or eliminate) notification to municipal responders because of the potential for negative publicity and possible regulatory activity that may arise from notification;

- would prefer to provide minimal information on the initial 9-1-1 call in order to minimize the apparent significance of the event and help ensure a minimal response;

- may not have a knowledgeable individual available to meet incoming responders, often because all knowledgeable resources are working to mitigate the incident;

- believes its personnel must be in charge because public-sector responders do not have the facility's best interests at heart.

Such differences must be addressed if there is to be a successful outcome. Preincident coordination is needed; this process will take months to achieve and it encompasses several recommended steps:

1) Meet with local responders. Introduce company staff to local responders. Talk about the company; work performed at the facility; level of emergency response capabilities, training and experience present on site; help that can be provided; and type of assistance likely needed in the event of an emergency.

2) Share the facility's emergency response plan. Send a copy of the plan to local responders, and ask for a critical review with the goal of making it a practical, realistic, workable and achievable plan. In addition, make sure municipal responders can meet the facility's needs. On both sides, much confusion can exist about how quickly a sizable response force can be assembled, the amount of manpower and quantity of emergency equipment that is readily available, and the levels and types of services that can be provided.

3) Invite responders for a facility tour. Provide an overview of the company, personnel, operations and emergency response capabilities. During the tour, point out all critical infrastructure and target hazards.

4) Develop preemergency plans jointly. These plans are used when an emergency occurs. By developing them before an emergency occurs, responders are better able to fully analyze situations and carefully develop safe, efficient plans for vari-



Don't dismiss information without evaluating it. Although the assumption was that the contents of this truck were hazardous, the first report that it contained molasses was accurate.



Many incidents occur in locations that are unexpected, such as this burning car perched precariously on a guardrail. Such situations pose even more risk to emergency responders.

ous scenarios. This is a great opportunity for the site team to work with municipal responders and further develop a solid working relationship.

Once plans are developed, they should be incorporated into the training and exercise program so they can be practiced and tested. Make sure they are critiqued after each use, so they can be further refined and enhanced.

5) Ensure interoperability of equipment and systems. Interoperability means the various systems are compatible with each other. For example, hose threads should match for both organizations so that they can be connected and used interchangeably. If one sector is considering an equipment purchase, coordination helps ensure that the new equipment is compatible. Interoperability helps ensure a safer and more efficient response.

6) Provide joint emergency response training. If responders are expected to provide specific emergency services at a facility, provide them with some site-specific training. For example, if the fire department is expected to provide confined space rescue, provide some classroom and practical hands-on training.

7) Conduct emergency exercises. These are an excellent way to establish good relationships between the two teams. During these exercises, responders can get to know one another in a low-stress environment, while learning about each other's capabilities and limitations. Start small with a tabletop exercise and work up to a full-scale exercise.

8) Conduct joint debriefings and critiques. Involve both facility and municipal responders in debriefings and critiques after training, exercises and actual incidents to further strengthen relationships and facilitate team building.

9) Maintain communications. Once a good working relationship is started, maintain it. Share new and updated information on a timely basis. Meet periodically to ensure that communication channels remain active.

Keys to Successful Incident Management

An IC's primary responsibility is to quickly assess an incident. The IC must determine what has happened, what is happening and what is likely to happen, then analyze applicable safety issues, assess risks and start formulating a mitigation plan. This is a large task, but it can be achieved quickly and efficiently if divided into small, manageable chunks.

The first step is to utilize incident response priorities. The initial snapshot (assessment) should identify issues related to incident priorities so that an appropriate action plan can be developed. Not many factors pertaining to emergency response remain constant regardless of what is occurring. However, incident priorities never change.

These priorities are:

1) Life safety. Ensuring that personnel are safe and free from an unreasonable amount of risk is the first priority. The first group to consider is emergency responders. As part of the job, responders assume a reasonable amount of risk in order to

rescue and save a victim that a lay person would normally avoid. However, responders should not be deployed into a situation in which they are likely to be severely injured or killed.

In the author's experience, an effective mantra is, "Risk a lot to save a lot. Risk a little to save a little." An emergency responder will assume greater risk if there is a viable victim who has a reasonable chance of being rescued and surviving the ordeal (risk a lot to save a lot). However, responders should not be asked to assume that same level of risk to enter a burning vacant building, with little or no value, that was scheduled to be demolished (risk a little to save a little). Once responder well-being is ensured, consideration should be given to ensuring the life safety of any victims.

2) Incident stabilization. Once life safety issues have been addressed for both responders and victims, the next priority is incident stabilization or mitigating the emergency. This step should be initiated only after all life safety issues have been addressed, a risk assessment has been completed, an action plan has been developed, and an appropriate number of properly trained and equipped responders are on scene and ready to work. Typically, a medium level of risk is acceptable for incident stabilization activities.

3) Property conservation. The last priority is to conserve the property at risk. Generally, responders will take on little risk for the sole purpose of conserving property.

Depending on the specific conditions encountered, the number of emergency responders present, their training level and available equipment may allow an IC to address all three priorities concurrently.

The next step is to formulate incident goals and objectives. These fall into two categories:

- Strategy, which is the overall desired outcome necessary to achieve a successful response. In the author's experience it is best to select a strategy that is within acceptable safety norms; makes good sense (e.g., feasible, practical, suitable); is cost effective; and is consistent with sound practices and policies.

Consider this strategy: Contain and extinguish the fire to the room of origin; search for and rescue any victims; and ventilate the smoke, heat and toxic gases from the structure without suffering any injuries.

- Tactics are the specific tasks that will be implemented to achieve the strategy. Using the example strategy cited, tactics may include: establish a water supply; stretch a hand line and backup line to attack the fire; cut a hole in the roof for ventilation; and deploy a search and rescue team.

It is a good practice to prepare multiple tactical plans in case the situation changes or the initial tactics fail to accomplish the stipulated goals. However, a change in strategic goals is often the result of some negative events, forcing the implementation of an entirely new plan.

Similar to goals in most aspects of life, response goals should be SMART:

Specific: State what is to be accomplished.

Measureable: Identify what is to be achieved and within what time frame.

Achievable: Likely to be completed within the stated time frame.

Realistic: Able to be achieved with the resources at hand.

Timely: Will have a positive effect on overall mitigation efforts.

Strategic and tactical goals must be continuously reevaluated to ensure that they progress as planned and have a positive effect toward successfully mitigating the incident.

Incident Action Plans

Next, an incident action plan (IAP) should be developed so responders can be made aware of the plans and their part in them, and they can be deployed.

The three action options for responders are:

- Offensive. Offensive actions are aggressive techniques used to mitigate the emergency. Typically, these actions require highly trained responders who are protected in the highest-level PPE and have the necessary equipment to perform their tasks. Offensive actions generally pose the highest level of risk to responders. Examples include entering a burning structure to extinguish a fire or entering a hot zone to patch a leaky container.

- Defensive. Defensive tasks are performed from a relatively safe distance, thereby reducing risks to responders. Defensive actions often require fewer responders, less training and less equipment. Examples include extinguishing a structure fire from the exterior using large-caliber hose streams, or diking a HazMat spill downgrade from the release point.

- Nonintervention. This step is used when one or more of four conditions exist: 1) not enough responders on scene; 2) training is inadequate to mitigate the incident; 3) not enough necessary equipment is available; or 4) risk exposure to responders is too great. Nonintervention sometimes means letting the incident proceed without intervention or taking some basic defensive actions. This mode should continue until conditions change. An example would be to not extinguish a fully involved structure that is burning, but rather use the limited resources to protect the currently uninvolved exposures on either side of the burning structure.

The IAP is typically prepared and communicated verbally, although for long duration or complex incidents it may be written. It addresses:

- 1) Strategy: What do we want to do?
- 2) ICS: Who will be responsible for doing it?
- 3) Tactics: How will it be done?
- 4) Communications: How will we talk to each other?
- 5) Safety: What are the hazards and risks and what happens if someone gets hurt.

The IAP should be developed and communicated to all affected responders before implementing the tactical plan.

Progress Reports

Effective communication is the key to success.

As noted, emergency response operations must be continually evaluated to ensure that activities are progressing as expected and that efforts are having the desired effect. In emergencies, conditions can and will change rapidly. Thus, responders in the field implementing tactical operations must provide immediate feedback to the IC so plans can be adjusted accordingly. Based on the author's experience, a formal reevaluation of operations should be conducted every 15 minutes. This reevaluation also helps the IC identify additional resource requirements and determine whether the existing incident management structure is appropriate.

As part of the progress report, the IC should evaluate current tactics. Is the incident stable, or is it decreasing or increasing in size and complexity? Are tactics meeting current strategic and tactical goals? What is the current status of resources? Are the resources in good condition or will they soon be depleted? Are sufficient resources available? Are incident priorities being met? Have any emergency responders suffered casualties? Is progress being made in mitigating the incident? If events are not going according to plan, the reason can likely be traced to one of three factors: insufficient manpower, inadequate experience/training/knowledge, or improper or insufficient equipment.

Conclusion

Emergency response incident management is a complex, challenging task that, at times, poses high levels of uncontrolled risks to responders. By definition, these incidents are unsafe and dynamic, sometimes changing quickly and dramatically.

However, such incidents can be successfully mitigated under specific circumstances:

- A suitable unified incident command system is used.
- Adequate communication and coordination exists between the public and private sector.
- Equipment between the responding agencies is interoperable.
- Adequate preemergency planning has been conducted.
- An effective training, drill and exercise program has been implemented.
- A good relationship of cooperation and coordination exists between the company and the municipality.

Becoming a good emergency responder or IC takes years of education and experience, and is a never-ending road to excellence. In a world that is constantly changing with new hazards being identified and new threats being posed, emergency responders must commit to a lifetime of learning to maintain their edge. **PS**

References

- Federal Emergency Management Agency (FEMA)**
(a). Introduction to the incident command system (I-100). Washington, DC: Author.
- FEMA(b).** Incident command system for single resources and initial action incidents (I-200). Washington, DC: Author.



A thorough hazard and risk analysis must be performed before committing responders to action.