but especially new ones like CM, require all the tools they can muster to advance the state of the art. Indeed, we can say that a field will not truly begin to develop—let alone mature—until we have tools and frameworks to help assess its critical dimensions. Accordingly, we strongly urge you not to get caught up in the numbers of CrMgt for their own sake. All the numbers produced and used are no better than the judgments that created them. We especially recommend that you use CrMgt as part of a group process to allow the other members of the group—ideally, the members of your own organization's CMT—to express their opinions. This is the real purpose of CrMgt, to foster discussion and not to encourage entering meaningless numbers into a computer.

SIX

Managing Industrial Disasters

AN EXAMPLE

As we mentioned in the opening chapter, the decisions and activities required for effective CM can be generalized, regardless of the nature of the crisis. Chapters 2 and 5 presented a road map, or a visual crisis manual, of the entire CM process. That is, they laid out a broad set of actions and decisions that must be considered and perhaps taken, during the occurrence of a crisis. To understand the CM process even better, we shall apply in this chapter the framework to a specific crisis. This chapter discusses a contaminant leak, that is, a subtype of an industrial disaster. Our goal is not to supply a checklist for a particular type of crisis but to give you the opportunity to follow a detailed application of the CM approach we have developed.

A CRISIS SCENARIO

Assume you are the plant manager of a manufacturing company whose processes require the use of hazardous materials. Assume also that your plant is located in the Midwest near a river. The tasks required to process your products are, for the most part, predictable and simple. Your employees are loyal and enjoy stable employment and long tenure. First-line supervisors are often promoted directly from the ranks of workers. Middle managers come from two sources: plant veterans who have proved their commitment and value through the years, and management trainee-engineers who rotate jobs throughout the plant as part of their introduction to the organization.

Assume further, that it is 8:00 P.M. on a balmy Friday evening in late August. Because it is the end of summer, many of your employees are on vacation. Tonight, one of your best operations managers is acting as the plant manager. It is his phone call that will forestall your plans for a getaway weekend. On a routine inspection of the plant, the manager has smelled a "problem."

There seems to be a minor gas leak on the south side of the plant. The prevailing winds are from the north, and there are no residential communities within three miles south of the plant. The crew on

duty quickly locates a small leak in one of the refrigeration components.

Let us stop the action for a moment and consider some of the CM plans and preparations that would be helpful in such a situation.

Goals

In the best possible case, the plant would be guided by goals and strategic guidelines that have been clearly and concisely articulated across the entire organization. These might include maintaining up-to-date training, tools, and equipment; preserving the employees' health and safety; and protecting the company's reputation. Although they may have seemed meaningless at the time they were formulated, they will be of critical help in determining your decisions and actions in the face of tonight's problems.

Guided by your general goals and guidelines and, further, as a manager in a CM-prepared organization, you are familiar with your company's strategic guidelines and priorities with regard to CM. After much deliberation, your CMT declares that your company will react positively, assume responsibility for resolving the problem, take into account environmental and public welfare, and maintain open communication with the media and relevant government agencies. This

solid underpinning enables you, and any other manager, to make decisions and take actions under extraordinary conditions without having to wait for item-by-item approval or specific executive guidance. As long as you act within the established goals and guidelines, you can be confident that your actions and decisions will be supported by other company executives.

Signal Detection

Because your organization has invested time and money in CM, it has well-established means of detecting early warning signals of impending trouble. In particular, your organization has a computerized, companywide system for tracking crises, or near crises. In addition, all plant personnel have access to this system. By tracking data from the entire company, you can see whether signals from a variety of sources point to a common problem. Without such a system, individual, isolated signals may not "add up" to a serious problem.

You take a quick look through the data. Nothing yet has been reported about a similar incident since installing new equipment in the south building. Nonetheless, the company's computer records make available diagrams of the plant for locating and identifying potential sources of leaks. This information

proves especially useful to the maintenance supervisor on duty tonight because he has not had an opportunity to walk through the south building since the new equipment was installed. The computerized system thus enables him to isolate seventeen possible origins of the leak. As you continue to review the information at hand, you find the name and phone number of the subcontractor who last serviced the new equipment. A quick call to the subcontractor's night-shift troubleshooter helps your maintenance supervisor reduce the number of sources of the leak to three.

At this point, there is some uncertainty regarding the impact of the leak. You thus decide to notify the member of your corporate CMT who is on call for the weekend. You advise the executive of the current status of the plant, including questions remaining to be answered, as well as your projection of best- and worst-case scenarios. If the problem escalates to a full-blown crisis, you know that your corporate CMT will be able to provide immediate assistance by facilitating your access to critical resources. In addition, because of their broad experience with past incidents, the CMT could be useful resources themselves. The team represents such diverse departments as Operations, Government Affairs, Legal, Research and Engineering, Security, Maintenance, Environmental Health and Safety, and

Human Resources. By working together as a team, they have improved and sharpened their CM skills. Their primary objective in this kind of situation is to support your needs for managing a crisis in the field.

Preparation

If the incident erupts into a disaster, you know that there are well-developed and tested CM plans to handle it. You have already moved available experts into the plant's crisis ready room. Essential supplies, equipment, and communication links are located there in case they are needed. You know that CM plans, policies, and diagrams (such as those in Chapters 2 and 5) are available and up-to-date. In addition, the company has a policy of being proactive; that is, it continually tests and simulates emergency response plans. Furthermore, your plant has already exceeded the federal guidelines for health and safety compliance.

In the crisis ready room, you and other experts have immediate access to (and are familiar with) the CM plans as well as the site's specific procedures. A CM flowchart details the decisions and actions pertaining to plant leaks and explosions. You have already found the flowchart to be a convenient tracking aid, as well as a visual briefing tool, for those who

continue to arrive on the scene. Although it now appears that the leak will not threaten the surrounding community, you are relieved to know that the plant has established and tested plans for alerting the neighborhood. If the incident worsens, your company even has specific guidelines for evacuating local residents and immediately providing them with support.

As part of its emphasis on crisis preparation, your corporate officers have encouraged the plant managers to know and be known in their communities. You have already made contact with regional, state, and national health authorities. The firefighters, police, and emergency response teams are familiar with the plant because they have been included in simulated crisis incidents. These sessions have given everyone the opportunity to evaluate the performance of various systems, to test the effectiveness of the plant's CM plans, and to make minor adjustments along the way. If the incident should get worse, you believe that the support you need will be there, and you can work as an expanded team because you already have had plenty of practice doing so.

Although you are skeptical about the corporate guidelines for open communication with the media, you find that they are paying off. Having been honest and forthcoming with the press when minor rumors circulated in the past, you find that the media are willing to neutralize coverage of the incident until

you can give them more detailed information. You have made them comfortable in a temporary press room, and you have promised to fill in the details as soon as they are available.

Training

In the best possible case—long before a leak occurred or an incident threatened your manufacturing plant—you helped establish plans and mechanisms for responding to a crisis. These plans formed the groundwork for plantwide training. Having participated in several training sessions, you are confident that the plant's employees are experienced in responding to a crisis. They understand their own individual roles, as well as the importance of those roles in the plant's overall response plan. You have even had success recently in helping people understand that if they are not needed, they should stay away from the affected area. This has been a difficult task, as your employees generally care about the plant and one another and like to be in the center of action.

Let us return now to the crisis scenario. The acting plant manager has taken action in your absence, guided by the containment strategies that have been clearly described and, in most cases, practiced by the plant management team.

Containment and Response

At the first sign of a problem—whether it is the sounding of an alarm, a field report from an employee, or a call from the media, an activist group, or a member of the community (Table 6.1)—your

TABLE 6.1. SOURCES OF REPORTING OR ALLEGATIONS OF INDUSTRIAL ACCIDENTS

External	Internal
Complaint by community	Alert from Health and Safety Department
	Call from employee
Sounding of alarm	
	Field report from employee
Call from police	Call from Security Department
Call from media	Call from Public Affairs Department
Call from (state, federal) Health Department	
Call from hospital or doctor	
Call from saboteur	
Call from disgruntled employee	
Call from technical/ professional organizations	
Call from regulatory organizations	

primary role as acting manager is to begin gathering on-site information. To assess the plausibility and seriousness of the report, you try to determine what is known about the incident at hand:

1. Where in the plant can the leak have originated?
2. Who is available that is familiar with the plant and its operations?
3. What systems are in place to track or assess potential problems?
4. In regard to the potential for environmental contamination, what are the prevailing weather conditions?
5. How might this problem unfold over the next several hours (best-case and worst-case scenarios)?
6. How can the limited resources at hand be best deployed to deal with the current situation?
7. Who should be contacted inside and outside the company?

You are greatly relieved that all of your employees are accounted for, that no one was hurt. And there was no need for medical triage, although you were prepared to commence predesignated emergency pro-

cedures in case they were needed. You have given your local emergency medical services response team a call to stand by. You also have made sure that the equipment necessary for emergency communications is in place, and you have reviewed your evacuation procedures. Without any immediate threat to human health or safety, you continue to monitor the incident. You are confident that any health and safety needs can be met.

Business Resumption

Although the plant and the crew stood ready, you are relieved that there was no need to shut down the plant or the affected processes. The problem was resolved without slowing down operations, and there was no need to alter or discontinue production. With the assurance of your lead maintenance supervisor, you are glad to be able to notify the appropriate agencies and authorities that the problem has been fully resolved; in short, the leak has been fixed. Your next step is to notify the corporate CMT that the leak was found and repaired, there were no environmental effects on the surrounding area, and normal operations are continuing. You notify the CEO that he no longer needs to stand by as the company spokesman for the particular incident at hand.

With the incident under control, you go to the press briefing room, distribute a release, and carefully answer some questions. To alleviate any concerns, local radio and television reporters are notifying local residents of ongoing safety procedures.

Learning

Over the twelve years that you have been with the company, you have watched past incidents confirm the company's clear policy of "no-fault learning." Those involved in crises and near crises are encouraged to share pertinent information freely, knowing that they will not be punished for making honest mistakes. The company has always stressed that it is better to learn from mistakes than to point fingers in search of scapegoats.

Those involved in the incident (plant employees, managers, and corporate executives) will have an opportunity to describe their views regarding what might have gone wrong and what did go right. You pore through logs of activities surrounding the time of the incident. With the help of company experts, including personnel from other plants, you compare what happened with "normal" operating conditions in similar past incidents. In addition, experts from outside the organization who can provide additional

information will be asked to give their opinions. When all the information has been collected, patterns will be identified in an attempt to learn what went well and what did not. As in the past, the emphasis throughout the entire process is on what can be done differently in the future to avoid similar occurrences and to make the plant even safer. Some of the lessons will be applied to modify existing CM plans and procedures so that future responses will be even better. Other lessons will be incorporated as minor changes in existing operating procedures. Plant employees will be notified of the improvements, and the lessons learned will be shared with sister plants throughout the organization.

A OVERVIEW OF CRISIS MANAGEMENT

Now that we have gone through the scenario and discussed the CM plans and procedures that a CM-prepared organization would have in place, let us review the case using the figures in Chapters 2 and 5 as a basis for analysis and comparison. In particular, Box 1 of Figure 2.1, the "starting point" of all crises, applies in the case of industrial accidents, but with some important modifications. From detailed studies of chemical plants, oil refineries, storage depots, and the like, the different sources of infor-

mation typically associated with the reporting of industrial accidents or their allegation have been identified. This list (Table 6.1) is similar to Box 1, but with some differences.

By themselves, the various alarms/alerts/calls in Table 6.1 are insufficient to attract attention unless the organization also has mechanisms to receive and act on them. Consider, for instance, a disaster at New York's La Guardia and Kennedy airports a few years ago. Even though this was not strictly an industrial disaster, it contained features common to many industrial crises.

AT&T provides critical information to the air traffic controllers who operate La Guardia and Kennedy airports. In turn, AT&T obtains the electrical power it needs to run its computers and communication systems from Con Edison. At the peak of a summer heat wave, Con Ed experienced an unusual drop in power because of the added load due to the operation of so many air conditioners. As soon as the power dropped, AT&T's backup generators were programmed to begin operating, but the generators failed. A backup to the backup in the form of a single forty-eight-volt battery with a six-hour life then took over. As soon as the backup battery was activated, an alarm was sounded as a warning that the six-hour "clock" had begun. But this alarm was not heard until six and a half hours later. By this time,

airplanes were circulating "blindly" in the air above La Guardia and Kennedy because the air traffic controllers could not land them safely. The point here is that the best alarms in the world are useless unless people can hear them, are motivated to do so, can immediately pass on the relevant information on to the right parties, and can take the appropriate actions. In examining the failure of its system, AT&T found that the operators who should have heard the alarm had been attending classes on a new backup system! Apparently no one had thought to leave at least one operator behind. This story indicates dramatically the tight interconnectedness among all the aspects of all the figures shown in Chapter 2, for example, between Points 1 (Figure 2.5) and 32 (Figure 2.7).

In another example, a large chemical plant had a pressure vessel that was controlled by a valve on one floor, but the gauge indicating the current level of pressure in the vessel was located on another. The operator literally had to run from one floor to the next in order to make changes in the pressure vessel and verify them!

Regardless of the source of a report of a potential industrial disaster (Table 6.1), crisis-prepared organizations should have established mechanisms in advance to route important calls to a central crisis command center. Thus in Figure 2.5, the arrow from Diamond 5 would be reversed to point upward, to

show that crisis-prepared organizations treat incoming information differently than do crisis-unprepared or crisis-prone organizations.

Crisis-prepared organizations have operators who have been specially trained to handle important calls. They have been trained to listen calmly and empathetically, so that they can deal competently with the emotions and stress of crisis situations. They have specific forms and procedures to record important details and elicit information. For instance, they record the caller's tone of voice and general emotional state. They try to gather as many details as possible, such as (1) precisely what occurred, (2) when it occurred, (3) the full extent of injuries and damage, (4) the condition of surrounding roads and damage to equipment, and (5) the impact on the surrounding community. All such factors are used to assess the power and/or credibility of the source as well as to determine the position of the company in its response.

As a general rule, crisis-prepared organizations should be quick to begin fact-finding investigations and to clean up potential disaster sites. Thus at the first signs of a serious disaster (Diamond 2, Figure 2.5), they not only activate their CMT (Point 6) but also send a member from the CMT to the affected site so as to coordinate emergency treatment with on-site personnel.

Two sets of activities are initiated at (1) the corporate headquarters and (2) the affected site or sites. First, at the corporate headquarters, as soon as the CMT is activated, the availability of each of its members is ascertained, and their roles and the leaders are reassigned as appropriate. Second, the resources (medical treatment, supplies, and money) needed to treat the situation are checked.

At the site, three issues are paramount.

1. Has the situation caused significant contamination?
2. Does the contamination pose a serious health threat?
3. Is evacuation necessary?

If the answer to all three is yes, then a triage/evacuation should begin. But even if the answers to the first two questions are no, an evacuation may still be warranted if the public perceives the situation as hazardous. Even in such cases, however, the organization should still try to convince the public and the surrounding community that the situation is safe if the available medical, scientific, and technical information point to this conclusion. Nonetheless, the interaction with the community may have to proceed on grounds other than strictly "scientific." For ex-

ample, the organization is advised to use spokespersons who have credibility with the community, who can speak in jargon-free terms. Unless this is done, all the best scientific data in the world may not be convincing and instead exacerbate the situation.

If an evacuation seems necessary, obviously, the most seriously injured should be treated and evacuated first. Next, the appropriate community emergency response groups should be notified. (This means that as part of being crisis prepared, the organization will already have established relationships with community response groups and relevant persons. It also means the organization will have shared its crisis response plans with those of the surrounding community organizations so that they can be coordinated.) Provisions for evacuating gawkers and preventing new ones from arriving at the scene must be coordinated and established.

One of the most important aspects of all crisis situations is the fact that they pose a threat to not only the physical condition of those persons and communities affected but also to their emotional state. Many organizations neglect the emotional and traumatic aspects of crises. Rather, specially trained workers should be involved who know how to listen and to elicit the feelings of those who have been touched by a crisis. Unless those concerned have a chance to express their feelings and emotions within

the first forty-eight hours or so following a crisis, they will "clam up." But this does not mean that they will not be affected. Rather, they will be affected subconsciously in the forms of dreams, nightmares, and general anxiety.

If there have been serious injuries or deaths, the victims' families must be notified as quickly as possible. In many crisis situations, emotional harm has been compounded by delaying notification to families for days after a serious accident has occurred.

Prototype and protocol messages should be composed for the various media that will be interested in the details of the accident. The most general message that will serve the needs of diverse organizations should be well thought out. If the situation is extremely serious, the media will have to be managed with regard not only to the information given to them but crowd control as well.

It may be necessary to provide trauma treatment for those who have witnessed a crisis, as they can be affected emotionally as deeply as are those who experienced its direct effects. In addition, psychological support must be provided for those who have sustained serious injuries. In general, such support is part of the training of those who provide the emergency response. Finally, the senior managers and executives at the site should be not only treated but also informed of the full dimensions of the crisis and

what is likely to follow in the days and weeks to come.

As we have emphasized throughout this book, the prompt and effective treatment of injured parties is the first concern of crisis-prepared organizations. In addition, many such organizations begin an accident investigation simultaneously with their treatment efforts. A basic question is whether the disaster had a natural or a human cause. Subsequent questions concern how the incident was handled. Whatever the causes, the appropriate authorities must be notified. The process of determining how and whether the incident occurred usually includes interviews with complainants, victims, witnesses, and coworkers.

There are several ways in which organizations can proceed through the figures in Chapters 2 and 5. As we emphasized earlier, the figures merely represent the most general CM processes and their relationships to one another. In most cases, organizations must attend to several critical features simultaneously; this is one of the main purposes of the figures, to show all the actions that must be considered so that you and your organization can initiate several lines of action and decision making simultaneously.

Once the treatment of affected persons is under way, and the causes of the situation have been assessed, the next critical phase of CM is resuming business and repairing critical operations. An important question is whether entire operations should be shut down. Do equipment and/or major processes have to be redesigned, or can you continue operations after they have been repaired? If critical equipment must be shut down or redesigned, additional actions will be necessary. These include notifying the proper federal and state authorities and insurance companies, coordinating and communicating with the designers of new technologies or identifying new technologies, assessing the public health impact of any new technologies, determining the amount of redesign required and the extent to which traditional production must be altered or discontinued, isolating those parts of the production processes that must be modified, and developing new plans for treating the broader environment affected by the disaster.

Many of these activities are contained in Figure 2.9, Diamond 44. But whereas the first set of treatment activities are those pertaining to the accident itself, a new set of evacuation and treatment strategies should be considered for the larger community, depending on the extent of the affected area. If a broader evacuation is required, many more coordinated activities must be undertaken. Federal and state agencies and authorities have to approve and coordinate evacuation plans and procedures. This may include the National Guard, the local police, and the Red Cross. Alternative evacuation sites must be es-

tablished to treat people and to serve their long-term housing needs. In addition, communication strategies directing people to evacuate should be drawn up and transmitted by the appropriate media.

CONCLUDING REMARKS

As they apply to industrial accidents, Figures 2.5, 2.7, and 2.9 once again demonstrate the necessity of preparation. As part of their preparation, crisis-prepared organizations initiate the following activities before a crisis:

1. They designate and equip a crisis command center.
2. They offer media training to key managers and executives.
3. Their crisis plans incorporate the roles of the Operations, Personnel, Public Relations, Legal, and Financial departments.
4. They establish relationships with research and development/testing labs before an accident so that they can determine the causes and handling of a crisis.
5. They are proactive in forming, updating, and simulating the emergency response plans and capabilities of critical operations.
6. They integrate the requirements of various government agencies in their crisis plans.

With regard to the last, this means that they integrate the testing methods, the response/operating procedures, the technical reporting/language requirements, and the health/human standards requirements as well.

In addition, crisis-prepared organizations draw up plans for alerting the surrounding communities. They establish means of securing community support, and they create communication linkages with important authorities and members of the community. They develop plans for obtaining firsthand information about the principal types of disasters. They contact "third parties" such as regional health authorities, national health authorities, state health authorities, local health authorities, regulatory agencies, law enforcement, industry associations, community emergency response groups, and nearby industries. They also develop plans to alert maintenance, the emergency response team, and security. They also ensure the availability of appropriate and adequate health and safety supplies and communication equipment.

Crisis-prepared organizations also regularly conduct "organizational climate/cultural surveys" to find

out whether CM plans and procedures are taken seriously. They also establish accountability and rewards for crisis management in general and signal detection in particular. That is, they reward the behaviors they want to encourage, tying such rewards and recognition directly to signal detection preparation. They also make sure that their organizational structures are flexible so that they can shift quickly to the behaviors needed during a crisis. Finally, they practice simulations and training exercises to test their plans and procedures.

SEVEN

The Challenge of Crisis Management

AN IDEAL CRISIS MANUAL