

Risk & Crisis Communication

*Essential skills for today's
SH&E professional*

By Pamela Ferrante

THE TERM RISK COMMUNICATION was first attributed to William Ruckelshaus, the first administrator of EPA in 1970, who marshaled the agency through its early years, establishing its role in protecting the environment and assisting community organizations (Covello, Peters & McCallum, 1997). In the 1980s, the Superfund program incorporated the concept in its public participation process, and it also appeared in the emergency planning and community right-to-know provisions of Title III of the Superfund Amendments and Reauthorization Act of 1986 (Covello, et al.). The theories and the roots of the risk communication process come primarily from the environmental arena and from working with the public and other stakeholders. In recent years, how-

ever, the concepts have been successfully used to deal with any type of hazardous situation or disaster.

Key Definitions

Several definitions provide a framework for building common understanding about key terms. Risk is defined as the probability of undesired effects (or health outcomes) arising from exposure to a hazard. It is often expressed as an equation: Risk = Probability x Consequences. Manuele (2003) defines risk as "the potential for realization of unwanted, negative consequences of an event" (p. 59).

According to Lundgren and McMakin (2004), risk communication is "the interactive process of exchange of information and opinions among individuals, groups and institutions concerning a risk or a potential risk to human health or the environment" (p. 438). The Center for Risk

Communication says that risk communication is a "science-based approach for communicating effectively in high concern situations" (Covello, Peters, Wojtecki, et al., 2001).

The U.S. Department of Health and Human Services (2002) says:

Risk communication is an interactive process of exchange of information and opinion among individuals, groups and institutions; often involves multiple messages about the nature of risk or expressing concerns, opinions or reactions to risk messages or to legal and institutional arrangement for risk management (p. 4).

According to National Research Council (1989), risk communication "often involves multiple messages about the nature or risk or expressing concerns, opinions or reactions to risk messages" (p. 322).

It is also important to note the subtle, yet critical difference between risk communication and crisis communication, that is, when the communication occurs. Risk communication is an ongoing process that helps to define a problem and solicit involvement and action before an emergency occurs. Crisis communication encompasses those messages delivered to stakeholders during an emergency event that threatens them. According to Fearn-Banks (2007), crisis communication "is concerned with transferring of information to significant persons (publics) to either help avoid or prevent a crisis (or negative occurrence), recover from a crisis, and maintain or enhance reputation" (p. 2).

Theoretical Foundations

Much of the applicability of risk communication comes from understanding how the general public

Pamela Ferrante, CSP, CHMM,
is president of JC Safety & Environmental Inc. in Pittsburgh, PA. She is a professional member of ASSE's Western Pennsylvania Chapter, of which she served as president in 2006-07, and is the Assistant Administrator of ASSE's Consultants Practice Specialty. She received the Safety Professional of the Year Award from ASSE's Consultants Practice Specialty in 2006. Ferrante is chair of the Society's Technical Publications Advisory Committee, and a member of the Leadership Conference Task Force and Student Activities Committee. A regular presenter at safety conferences and a frequent author, Ferrante holds a B.S. in Environmental Protection Science.



perceives risk. By understanding these perceptions, SH&E professionals can determine how to tailor risk messages. Numerous models have been proposed and they provide a framework for understanding how risk and crisis messages are perceived.

Covello, et al. (2001), offer four theoretical models that help practitioners understand how information is processed, how perceptions are formed and how risk decisions are made. By understanding these models and how they apply in various situations, SH&E professionals can better prepare their messages and coordinate their communication in high-risk situations.

Risk Perception Model

The risk perception model theorizes that the public's perception of risk comes from the strength of 15 different factors, each of which can alter perceptions in varying degrees of magnitude (Covello, et al., 2001, p. 6). These factors determine the public's level of concern and elevate or decrease worries, anger, fear, hostility and outrage. Understanding the strength or weakness of these levels affects the ability to alter perception, change behavior and modify attitudes and factors based on the messages delivered. These factors are:

- 1) Volunteerism. Risks that are perceived to be voluntary are more readily acceptable.
- 2) Controllability. Risks under the control of the individual are more readily acceptable.
- 3) Familiarity. Risks perceived to be familiar are more readily acceptable.
- 4) Equity. Risks perceived to be evenly and equitably distributed are more readily acceptable.
- 5) Benefits. Risks with perceived benefits to the individual are more readily acceptable.
- 6) Understanding. Risks that are well understood or self-explanatory are more readily acceptable.

7) Certainty. Risks that are known to science are more readily acceptable.

8) Dread. Risks that are perceived to evoke limited emotions such as fear, terror and anxiety are more readily acceptable.

9) Trust in institutions. Risks associated with institutions or organizations that have a high degree of public trust are more readily acceptable.

10) Reversibility. Risks that are perceived to have reversible effects are more readily acceptable.

11) Personal stake. Risks perceived to have limited direct or personal threat are more readily acceptable.

12) Ethical/moral nature. Risks perceived to have limited ethical or moral concerns are more readily acceptable.

13) Human versus natural origin. Risks perceived to be caused by "acts of God" are more readily acceptable.

14) Victim identity. Risks that produce no or limited human victims are more readily acceptable.

15) Catastrophic potential. Risks perceived to have limited potential for catastrophe are more readily acceptable.

Each situation has a unique combination of these 15 factors. They may be strong or weak, or may have no relevance. In addition, the varying strength of each factor combines to create a moving target for SH&E professionals. Given all of these variables, and because perceptions are typically highly individualized, crafting risk and crisis messages requires a skilled communicator.

Mental Noise Model

The mental noise model provides a means for understanding how the public processes information in periods of high stress and anxiety (Covello, et al., 2001, p. 7). As the perceived threat rises, an individual's consequent ability to process information decreases. The creation of mental noise effectively blocks the individual's ability to hear the message and affects his/her willingness and ability to process it.

Risks associated with a lack of control, which are perceived to be low in benefits or are thought to be unfair, create the highest levels of mental noise. An individual's ability to engage in rational discourse has substantial implications for SH&E professionals attempting to deliver a message dedicated to changing attitudes and behaviors.

Negative Dominance Model

The negative dominance model addresses how the public processes negative and positive information in high-concern situations (Covello, et al., 2001, p. 7). The model suggests that the relationship between the two messages is asymmetrical; the negative messages receive substantially more weight than the positive ones. In other words, the public places more value on their losses than on their gains. This has implications on how the message is delivered. It also reflects the importance of balancing positive messages with negative ones to counteract the intensity given to the negative messages.

It also has implications for the message's word-

Abstract: *Risk communication and its sister process, crisis communication, are essential skills for SH&E professionals. This article examines several key concepts, including common theoretical foundations and definitions; evaluation of risk in various scenarios; goals for the process; development of a written risk/crisis communication plan; and common problems and pitfalls.*

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ing. Negative words (e.g., not, cannot, never, nothing, none) are heard better, have a greater impact and can effectively drown out positive messages regardless of how well they are crafted. To counteract this, the positive messages must provide a level of detail that highlights actionable activities to draw the audience's attention. "More specifically, risk communications are most effective when they focus on what is being done, rather than what is not being done" (Covello, et al., 2001).

Trust Determination Model

The trust determination model highlights the importance of establishing trust in all forms of risk and crisis communications (Covello, et al., 2001). Trust comes first in all messages, regardless of purpose or content. Without it, success will be limited. Further, the trust required to fully engage the public in the message is a long-term process. It requires thoughtful processes and methods in addition to sound communication skills.

Important factors in trust determination and development are the perception of agreement among experts; coordination among the various risk management organizations; sensitivity by risk managers to the need for effective dialogue and public participation; a willingness to honestly acknowledge risks; a willingness to disclose or share information; and responsibility in fulfilling risk management requirements.

Since trust and credibility are vital, what factors can help a communicator determine whether trust can be built and credibility can be achieved? How can communicators use this information to craft risk and crisis communications?

The empathy factor is crucial in this respect; studies (Covello, et al., 1997) have identified three key factors:

- 1) perceptions of knowledge and expertise;
- 2) perceptions of openness and honesty;
- 3) perceptions of concern and care.

Therefore, a communicator must craft a message that helps the audience develop or enhance the perception needed to have the message both heard and acted upon. While the theoretical concepts reviewed provide some assistance in helping one understand the public's risk perception, craft messages or advise others on message content, delivery of these messages also requires an understanding of a separate set of processes and skills (see "Crafting Risk and Crisis Communication Messages" on p. 41 and "Common Pitfalls in Message Delivery" on p. 42).

Hazard + Outrage

Sandman (2003) has written extensively about risk and crisis communications. His Risk = Hazard + Outrage theory is widely quoted and deserves elaboration in order to understand the theoretical foundations of risk and crisis communications. He suggests that the success of risk and crisis communications rests on the communicator's clarity of the theory and how to apply it to the situation at hand.

Hazard is the actual event addressed by the com-

munication. It can be a potential future event that the message is attempting to prepare a receiver for, or an actual event that is occurring or is about to occur. Hazards or hazardous events, therefore, can fall anywhere along the continuum from negligible to catastrophic. Getting the message receiver (usually the public or some stakeholder group) to understand the seriousness of the event is a significant determining factor of the success of the message and the action the message receiver takes as a result of hearing it.

Outrage refers to the emotions and behaviors of message receivers given their perceptions of the hazard level presented to them. Like hazards, the level of outrage exists on a continuum from high to low.

Combining the concepts of hazard and outrage, Sandman (2003) poses the following framework of the four kinds of risk communications.

High Hazard/Low Outrage

A high-hazard/low-outrage situation involves a serious hazard, but an apathetic audience. Although the audience often will not object to the message, even a skilled communicator may find it difficult to move the audience to a desired action.

As a result, the messenger may exaggerate the hazard scenario in order to scare the audience into action. Although this can be effective, it also can be risky and cause an overreaction by the audience, followed by distrust when the true nature of the hazard is discovered.

The risk/crisis communicator must find a way to convey the message that will predispose the audience toward the desired goals. The message must be short but effective at increasing the audience's outrage in order to provoke action or at least attention. This task is made easier by the apathy of the audience, who will listen to anything said without reservations or objections.

An example of this scenario is the reflective view of the crisis communication efforts preceding Hurricane Katrina. Although many residents heeded the calls to evacuate, certain groups were unwilling to do so. Some of those who stayed, not because they could not leave but because they chose to stay, died because their outrage level was not sufficient to move them to a desired action (evacuation).

Medium Hazard/Medium Outrage

In a medium-hazard/medium-outrage situation, the audience is interested but not so emotional that internalizing the message is difficult. The message sender can discuss the situation rationally and openly, and the discussion will likely generate audience questions and rational concerns.

This is the easiest communication environment. The messenger must simply provide an open, honest dialogue that explains the situation and allows sufficient opportunity for audience response and questions. The audience will likely respond to the request for action.

Such scenarios often feature lengthy processes of dialogue and consensus decision making between the messenger and stakeholders. For example, the

Risk Messages: Good, Bad & Ugly

Effective Message

This message was delivered by President Obama at a Cabinet meeting on May 1, 2009. The quote was noted in a CNN.com article titled, "Confirmed Number of Global Swine Flu Cases: 367 and Counting" (retrieved April 16, 2010, from <http://www.cnn.com/2009/HEALTH/05/01/swine.flu.outbreak/>).

The message acknowledges the hazard and attempts to tell the public to be worried but not alarmed, thus moving the outrage level from low to medium. It also focuses on the importance of all parties working together to get through the crisis, treating the public as a partner while understanding the role of the government as the leader.

So I just want everybody to be clear that this is why this is a cause for concern, but not alarm. We are essentially assuring that, in the worst-case scenario, we can manage this appropriately, government working with businesses and individuals, the private sector, and containing an outbreak, and that we can, ultimately, get through this.

Inappropriate Message

This message was delivered by Vice President Joe Biden on April 30, 2009, during an interview on NBC's *Today* show. At the time, President Obama and the public health community were trying to provide information about the H1N1 virus and help the public understand how the virus spreads. Those messages were intended to educate and provide accurate information while avoiding panic. Biden's comments contradicted those messages:

I would tell members of my family, and I have, I wouldn't go anywhere in confined places now. It's not that it's going to Mexico, it's you're in a confined aircraft when one person sneezes it goes all the way through the aircraft. That's me. I would not be, at this point, if they had another way of transportation suggesting they ride the subway.

His statements were clarified 2 hours later by his office, which noted that he

intended only to advise Americans to avoid unnecessary air travel to and from Mexico, and to avoid confined public spaces only if they were sick. (From article, "Biden: Stay Off Subways During Swine Flu Panic," retrieved April 16, 2010, from <http://www.nbcnewyork.com/news/archive/Swine-flu-0428.html>.)

Inaccurate Messages

As the manufacture of the H1N1 vaccination was being fast-tracked by the U.S. and five major vaccine manufacturers, the number of vaccines that were expected to be available changed frequently in remarks by various government officials, particularly from the Department of Health and Human Services and CDC. A rosier picture than what eventually transpired was often represented by Health and Human Services Secretary Kathleen Sebelius and others. On Sept. 15, 2009, before the House Committee on Energy and Commerce, Sebelius said:

The federal government is also preparing for a voluntary national vaccination campaign for the 2009 H1N1 virus starting in October. With unprecedented speed, we have completed key steps in the vaccine development process. We have characterized the virus, identified a candidate strain, expedited manufacturing and performed clinical trials. The speed of this vaccine development was possible due to the investments made through ASPR/BARDA over the past 6 years in advanced research and development and infrastructure building. One-hundred ninety-five million doses of H1N1 vaccine have been purchased from five manufacturers by the U.S. government (retrieved Jan. 2, 2010, from http://energycommerce.house.gov/Press_111/20090915/sebelius_testimony.pdf).

Sebelius's use of the word "purchased" was likely overlooked by many who later wondered where all the vaccines went when delivery began. In addition, a short time after

these remarks, vaccine manufacturers were promising only 40 million doses by late October. In reality, by early November only 16.9 million doses actually had been shipped.

The resulting controversy led to long lines and frustration, and contributed to an ongoing deterioration of trust in the messages delivered by government officials in general and in the midst of this particular crisis.

On Nov. 3, 2009, National Public Radio's Steve Inskeep interviewed Michael Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota (transcript retrieved Nov. 3, 2009, from <http://www.npr.org/templates/story/story.php?storyId=120044053>).

Inskeep: Was there any substantive damage done by making it an over-optimistic prediction?

Osterholm: Well, I think there is, in the sense that we still have a significant communication problem with the public. We now have about 30 million doses that have been made. However, even as of Friday, only 16.9 million doses of that have been shipped. . . .

I think you are going to see a collision course kind of scenario here in the next 2 to 3 weeks as more and more Americans want the vaccine, have this perception because of the messaging that there's a lot of it out there and not be able to get it, and I think you're going to see some real angry people out there. And we've got to start to better communicate to them what the issues are, how much is there and when they can really expect to get it.



Developing and maintaining trust and credibility with the audience is a predominant factor that determines the success of the message.

processes of community engagement stipulated in the Superfund program work well here because the hazard is not immediately life threatening and time is available to develop consensus on site hazard and remediation decisions. The audience is easier to engage because the hazards often affect their homes and families.

Low Hazard/High Outrage

The low-hazard/high-outrage situation is the most difficult scenario for a risk communicator. The audience often does not trust any message and may be controlled by a small group of activists who have purposely exaggerated the situation for varying motives, or who truly believe that the situation is dire, even if

Having and portraying compassion are essential to any situation, especially as the level of outrage increases.

the facts say otherwise or at least suggest that the situation is not nearly as serious as some believe.

In this scenario, the communicator must reduce the outrage by sincerely listening, acknowledging and even apologizing, if that will move the audience to a more realistic view of the seriousness of the hazard. The advantage is that the messenger has the audience's attention and, with skillful messages, movement in a desired direction is possible.

An example of this scenario occurred just after the *Exxon Valdez* disaster in 1989, when a BP tanker spilled a much smaller amount of oil off the coast of California. Realizing that Exxon erred by not quickly providing timely information about the spill to the public, BP provided immediate, regular and timely communications about the spill, its effects and the clean-up efforts. Even though the spill was substantially smaller than the *Valdez* incident (low hazard), the emotional state of the residents of California began as high outrage because of what was happening in Alaska and the perception of being lied to and kept in the dark about the realities of the situation.

High Hazard/High Outrage

The audience in a situation of high hazard/high outrage is not angry. It is fearful and scared. Because the hazard is serious, their position may be justified. Without skillful management by the communicator, the outrage can easily turn into terror or depression, which are of limited use in getting the audience to take the desired action.

The communicator must proceed carefully, allowing for the audience's legitimate fears, remain human and empathetic, yet still be rational and demonstrate true leadership. The advantage is that the audience's outrage is not typically directed at the communicator, at least until after the crisis has passed.

Returning to the Hurricane Katrina case, the situation quickly deteriorated into an example of this scenario. Media reports showing desperate and dying citizens of a major metropolitan city created incredulous emotional states across the country and prompted high outrage. Early efforts by government officials to rescue those in need and alleviate suffering compounded the problem. However, the appointment of Lt. General Russel Honoré to lead the joint task force brought about the type of crisis communications needed at the time. Honoré was often praised for his brash leadership skills, clearly communicating the situation's gravity and the need for swift action, all the while demonstrating empathy for the citizens of New Orleans.

Crafting Risk & Crisis Messages

SH&E professionals can use the models reviewed to develop risk and crisis communication messages. Central to all of the models is an understanding of the audience and its stake in the process or situation at hand. EPA has a list of seven cardinal rules that, although originally designed for environmental communications, apply to many hazard situations.

1) Accept and involve the public as a legitimate partner. If the goal is to produce an informed public

that will respond in a specific way to a hazard, all communications must begin with this foundation. The public's knowledge base may be minimal at the time the communication process begins, but that knowledge can be increased enough so that the process can become a dialogue rather than a speech. In Sandman's (2003) theory of situations with high outrage, this process can be difficult since the public's anxiety must be dealt with first, but accepting the audience's concerns as valid is an essential first step.

2) Plan carefully and evaluate your efforts. Many factors influence the content of any risk or crisis message, including process goals, audiences, outrage level, hazard level and setting. In addition, risk messages are often very different from crisis messages. The former take longer, as trust and credibility must be developed. The latter's success is primarily the result of the skill of the communicator in the moment and whether the communicator has a history with the specific audience that has allowed for some trust and credibility to develop.

Before the message is delivered, these factors must be considered. Following the message, results of the effort must be evaluated and corrections or adjustments noted for the future.

3) Listen to the public's specific concerns. The concept of outrage (Sandman, 2003) plays a pivotal role. The process becomes a dialogue in which each side's viewpoint is legitimate. Furthermore, the risk communicator's ability to develop trust and credibility often hinges on audience members' recognition that their point of view is accepted as valid and deserving of time and effort to discuss.

Audience members sometimes care as much about credibility, competence and empathy as they do about risk levels, statistics and details. The savvy communicator understands and acknowledges this, and works with it to his/her advantage.

4) Be honest, frank and open. Developing and maintaining trust and credibility with the audience is a predominant factor that determines the success of the message in terms of how it is understood and whether it prompts the audience to act in certain ways. If the message is not honest and open, trust is lost and it is difficult to regain. In some cases, it may be permanently lost.

5) Coordinate and collaborate with other credible sources. When a risk or crisis message is diametrically opposed to one being communicated by another organization(s) or one organization's communicator appears to be overly critical of another, the public may have little choice but to pick sides or even to dismiss the messages of both parties. (Recall the exchanges between elected officials and government employees in various news conferences during the height of Hurricane Katrina.) Conflicting messages waste time and increase the public's frustration, confusion and distrust.

In situations with many communicators, limiting the conflicts helps all parties achieve their goals. The ability to compromise with another communicator in order to craft a consistent message can save time as well because when the public hears essentially the

same message from multiple sources, their ability to respond and respect the message increases.

6) Meet the needs of the media. This topic is complex and goes beyond the scope of this article. Suffice it to say that the media will report on any situation it deems newsworthy. Getting out in front of the media's needs and understanding the importance of meeting them can significantly improve the chances that the message which appears in the media will be the one the communicator wishes it to be.

In general, legitimate media sources are seeking facts that can be presented succinctly and simply. Risk communicators may need to develop a separate message for the media as their needs are not always the same as those of the public.

7) Speak clearly and with compassion. The skill of speaking clearly is not natural to everyone, particularly during high-stress situations in front of an angry or terrorized public. Therefore, the risk communicator must spend time before the communication situation practicing the text of the message and rehearsing various scenarios that may occur in order to prepare for how to address them comfortably. While a risk communicator need not possess the skills of a presidential spokesperson or prepare as if participating in a presidential debate, s/he must be able to speak with clarity and often off the cuff.

Having and portraying compassion are essential to any situation, especially as the level of outrage increases. In addition, in situations where death and destruction may be imminent or have already occurred, the audience must know that the organization being represented by the risk communicator cares about it. The adage about faceless bureaucrats must be proven wrong in these types of situations.

Common Pitfalls in Message Delivery

Following the cardinal rules does not guarantee success, even for the most skilled risk communicator. For the message to succeed, the risk communicator must analyze each situation carefully and understand the audience's motivations, moods and outrage.

In addition, some common pitfalls can derail messages that appear fail-proof. U.S. Department of Health and Human Services's (2002) guidelines identify the most common pitfalls, several of which are highlighted here.

- Using abstractions. Risk communicators should not assume a common understanding. Avoid jargon, acronyms and highly technical language.

- Attacking the audience. Respond to issues, not people. Be careful to end debates by responding clearly and accurately.

- Sending negative nonverbal messages. A risk communicator who loses his/her temper is in trouble, but tense facial expressions and certain hand movements also can signal negativity and hostility toward the audience. Practicing in front of a mirror or a colleague can help a communicator see what s/he may be saying nonverbally.

- Blaming anyone. Assigning blame to another party is never helpful. It confuses the audience and forces them to take sides. Similarly, if an organiza-

tion has some responsibility for the situation, accepting it matter-of-factly and honestly can help build trust and credibility.

- Focusing too much on money. Complaining about lack of funds to solve a problem only increases audience members' frustration since they often have no ability to change the situation. Telling the audience what benefits are being derived from the funds available is more productive.

- Providing guarantees. Instead of guarantees, the communicator should offer likelihoods and emphasize the progress being made.

- Trying to be funny. This is usually only effective if directing the laugh at oneself. Attempting to inject humor into a serious situation trivializes it.

- Rambling. Aim to limit presentations to 15 minutes, while reserving plenty of time for questions. The latter can serve to effectively enhance and clarify additional message points.

- Using negative words and phrases. Negative messages override an audience's ability to respond and move away from high levels of emotionality. It is best to avoid them if possible.

- Thinking you are "off the record." A risk/crisis communicator never is, and nothing said to anyone, particularly the media, is confidential.

- Promising anything. This tactic will likely be regretted if delivery is not certain. Making strong assurances is a better tactic.

- Forgetting the visuals. Most people understand messages delivered in more than one format. Slides, handouts and other visuals can enhance what is being said and helps the audience process complicated information after the formal presentation ends.

- Overusing statistics. Statistics should be used to enhance and support comments only.

- Forgetting to define the message goals in advance. Being unprepared in front of a large group of people who may already be distrustful is a sure-fire path to disaster.

- Forgetting the role of the public. This is a partnership. It is crucial to build trust and credibility by engaging in a dialogue.

Ethics in Risk Communication Messages

SH&E professionals play many roles in crafting and delivering risk and crisis messages. In some situations, they are members of a team tasked with engaging stakeholders about a particular risk; this may involve attending and participating in public meetings. In other cases, they may be asked to help develop a message to be delivered by public relations staff or corporate executives. In the simplest sense, SH&E professionals regularly deliver risk and crisis messages to the workforce as formal safety training sessions and written communications as well as informal comments and discussions that occur on the manufacturing floor or on the construction site.

What should SH&E professionals do when situations are presented that appear to downplay the seriousness of a risk or even suggest it does not exist? What actions should SH&E professionals take if asked to help craft deliberately deceptive messages?

Plan Elements

Authority

- Applicable statutes
- Internal documents

Purpose

- Define what the plan does, for and by whom

Scope

- Define areas covered by the plan

Situations & Assumptions

- Circumstances under which an emergency might arise
- How a problem is identified
- When to activate the plan
- Available resources
- Special or unique situations
- When to notify the media

Concept & Operations

- General plan of action (main body of the plan)
- Advance preparations
- Who, what, when, where, why and how
- Lines of authority
- Media policies

Organization & Assignment of Responsibilities

- Detailed delegation of tasks and responsibilities
- Identification of spokesperson
- How to staff implementation of the plan 24/7
- News dissemination systems
- Liaison with outside agencies and response organizations

Plan Development & Maintenance

- How often to review
- How changes are made and distributed

Appendices

- Logistical details
- Call down lists
- Available materials
- News conferences/media guidelines
- Equipment, supplies and services

One obvious answer is that the profession's ethical foundation always must be at the forefront of all actions. ASSE (2002) offers this fundamental canon in its Code of Professional Conduct: "Inform the public, employers, employees, clients and appropriate authorities when professional judgment indicates that there is an unacceptable level of risk." This canon offers primary guidance but it requires that the SH&E professional use his/her judgment, which is often based on taking the time to understand the facts presented by the situation. This necessarily involves understanding the hazard presented as well as the risk assessment techniques that help categorize and quantify the hazard.

Measuring Risk

With an understanding of key terms, theoretical frameworks and related factors, SH&E professionals can better evaluate their organizations' risk and subsequent need for a risk and crisis communications plan. Most of the work in this discipline also had its beginnings in the environmental remediation movement, most notably related to Superfund projects. However, given today's constant media attention and message delivery through various technological sources, the traditional foundations underlying risk and crisis communications can be applied to any situation in which an organization interacts with the public

before a potential emergency or during one.

Risk is best assessed in a formal process that quantifies when possible, while recognizing that some aspects of the process are subjective. Many tools can be used to accomplish this. Depending on the organization's needs and potential risk situations, external consultation may be necessary, but, in general, a simple risk matrix may be all that is needed. Some common risk assessment tools are reviewed and readers are encouraged to read additional information to best determine which tools are most applicable (Manuele, 2008; Hansen, 2008).

Before elaborating on the various tools, the concept of *acceptable risk* should be discussed. In any risk analysis process, an organization must recognize that not all risks need to be planned for. It may be that the potential of the occurrence of the risk is too small or

that the organization has limited resources and decides to focus on those risks deemed to be more significant and/or likely.

Resources will always be limited and employing the concept of using them to the greatest good is not only economical, it will also result in true and more effective risk reduction. Each organization must determine its own levels of acceptable risk. This is a unique process based on a company's goals and mission as well as the dictates of those currently in managerial roles.

Risk Matrixes

At its simplest, a risk matrix uses two variables to establish probabilities of an occurrence and help define those situations that require advance action and planning (Figure 1). To complete a risk matrix, an organization must list the various risk situations that may occur and determine which box they belong in. The matrix can be expanded to flesh out the varying levels, but in the end its value is in helping to identify the critical and high-risk situations that should be addressed first.

To enhance the process, numerical ratings can be assigned to the different categories, then acceptable risk can be defined as anything that falls under a certain number and becomes that which is planned for, while those above the number are deemed to not require advance planning. This is a helpful strategy when an organization has many hazards that have low or very low risk. Numerical ratings also reduce the subjectivity of the rankings. Table 1 presents an example matrix (adapted from MIL-STD 882, 2000).

Preliminary Hazard Analysis

In a preliminary hazard analysis, scenarios are developed to describe what is being analyzed and evaluated. These scenarios encompass tasks, operations, systems and products, as applicable. Exposures are analyzed and quantified in terms of people, facility, product, equipment loss, downtime or environmental damage. Once the analysis is complete, a plan is developed to reduce or eliminate the hazard through preparation, processes and systems changes.

What-If Analysis

What-if analysis begins with brainstorming sessions during which a group identifies hazards, develops hazard scenarios, and discusses incident development and probable consequences. All questions and concepts are recorded for further investigation, clarification and quantification. Upon reconvening, the group uses the gathered data to develop controls to remove or sufficiently reduce the potential occurrence of the hazard situation.

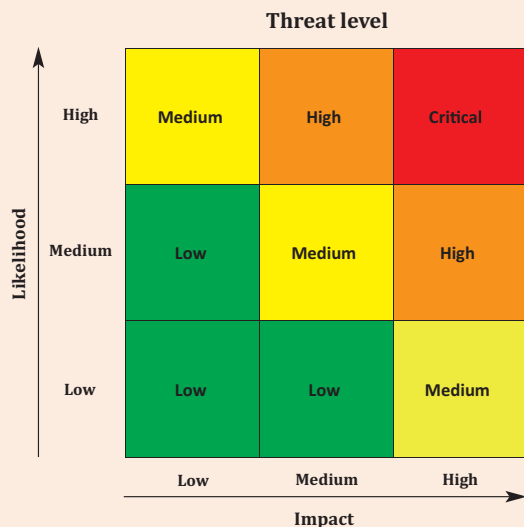
Failure Modes & Effects Analysis

Failure modes and effects analysis is most often used at the time of design or redesign of equipment or processes. Common steps include the following:

- 1) Identify the item or function to be analyzed.
- 2) Define the failure modes.
- 3) Record the failure causes.
- 4) Determine the failure effects.

Figure 1

Risk Matrix



5) Enter a severity code and a probability code for each effect.

6) Enter a risk code.

7) Record the actions required to reduce the risk to an acceptable level.

Developing a Risk/Crisis Communications Plan

As with any planning process, the key point in developing a risk/crisis communications plan is to anticipate risks and crises and prevent them when possible. In other words, never having to implement the plan is always best.

Beyond that, the plan is designed to use risk communications to develop trust and credibility with the targeted audience before any crisis. Furthermore, the plan dictates the processes that will be followed when crisis communications are required. Most of the information in this section is derived from a planning tool developed by the Texas Department of State Health Services.

The plan must provide for timely, accurate and helpful messages. All levels of management and operations must be involved in the process and participate on the working group. Sufficient authority must be provided to the planning and implementations processes and include resources such as money and time. Ideally, the planning process should be team focused and also may include external resources and groups.

Once the plan is developed, an implementation team must be selected and trained. Most of the formal training will take place internally, but several team members, such as those who will deal with the media, may require external training. Drills are essential and can range from tabletops that test the plan's basics to full-scale exercises that test its significant details.

Key elements of the plan include:

- endorsement from top levels of management;
- designated responsibilities for all levels of the organization;
- identification of a spokesperson authorized to speak for the organization;
- procedures for information clearance;
- regional and local media contact list;

Table 1

Numerical Risk Matrix

		SEVERITY			
PROBABILITY		Catastrophic	Critical	Marginal	Negligible
Frequent		1	3	7	13
Probable		2	5	9	16
Occasional		4	6	11	18
Remote		8	10	14	19
Improbable		12	15	17	20

Note. Adapted from "Standard Practice for System Safety (MIL-STD 882D and E)," by U.S. Department of Defense, 2000, Washington, DC: Author.

- procedures for coordinating response teams;
- after-hours contact list and contact information;
- signed mutual aid agreements;
- procedures to secure resources such as space, equipment, people and finances;
- methods of disseminating information to stakeholders.

The sidebar on p. 44 presents key plan elements.

Conclusion

SH&E professionals are being asked to provide more technical advice and assistance to their organizations and are expected to have comprehensive knowledge of the processes involved in emergency planning. One of these processes involves risk and crisis communications, and SH&E professionals should have this skill at their disposal. ■

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At its simplest, a risk matrix uses two variables to establish probabilities of an occurrence and helps define those situations that require advance action and planning. To enhance the process, numerical ratings can be assigned to the different categories.