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Effective Risk and Crisis Communication during Water Security Emergencies

SUMMARY REPORT OF EPA SPONSORED MESSAGE MAPPING WORKSHOPS

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Effective Risk and Crisis Communication during Water Security Emergencies

Summary Report of EPA Sponsored Message Mapping Workshops

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Abstract

This report summarizes results from three water security risk communication message mapping workshops conducted by U.S. EPA's National Homeland Security Research Center during 2005/2006. It provides information about effective message development and delivery that could be useful to water sector organizations as they develop their respective risk communication plans.

Message mapping is a process by which users can predict 95 percent of questions likely to be asked by the media and others following an incident, prepare clear and concise answers to the questions along with supporting information ahead of time, and practice effective message delivery before a crisis occurs.

The workshops were facilitated by Dr. Vincent Covello, internationally known crisis communication expert and Director of the Center for Risk Communication in New York City. Invited workshop participants represented a cross-section of water utilities from various regions of the United States; local, state, and federal government agencies; emergency response organizations; public health officials; law enforcement agencies; and water sector professional associations.

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1. Introduction

Risk Communication

The interactive process of exchanging information and opinion among individuals, groups, and institutions involving multiple messages about the nature of risk...

– The National Research Council

EPA Workshops

Risk communication skills are imperative for the successful management of crises. Recent U.S. and global events have resulted in heightened recognition by public officials and others responsible for crisis management of the need to evaluate and refine these skills. Message mapping (described in Section 2) has become widely accepted as a method of preparing ahead of time for crisis communication that will be necessary during various types of potential incidents, including those affecting drinking water and wastewater utilities. For this reason, the U.S. Environmental Protection Agency (EPA) has sponsored message mapping workshops focusing on several categories of water infrastructure crises. These were conducted in the following locations:

Atlanta, GA	March 2-3, 2005
Washington, DC	August 17-19, 2005
Alexandria, VA	February 14-15, 2006

This report presents information from the workshops that could be useful to water sector organizations as they develop or improve their respective risk communication plans.

Risk Communication Plan*

The techniques for developing and delivering effective crisis messages described in this report should be considered within the context of a comprehensive written risk communication plan prepared by the water sector organization in advance. Such plans allow for a proactive, quick, and effective response during an emergency since many of the necessary communication decisions and activities will have already been decided upon. If carefully designed, a risk communication plan can save precious time when an emergency occurs and enable leaders and spokespersons to focus on particulars of the emergency at hand and the quality, accuracy, and speed of their responses.

To show the context of messaging as part of the overall plan, the following describes what a comprehensive risk communication plan should do.

- Describe and designate staff roles and responsibilities for different emergency scenarios
- Designate who is accountable for leading the response
- Designate who is responsible for implementing various actions
- Designate who needs to be consulted during the process
- Designate who needs to be informed about what is taking place
- Designate who will be the lead spokesperson and backup for different scenarios
- Include procedures for information verification, clearance, and approval
- Include procedures for coordinating with important stakeholders and partners (for example, with other water utilities, health agencies, emergency responders, law enforcement, elected officials, and state and federal government agencies)
- Include procedures to secure the required human, financial, logistical, and physical support and resources (such as people, space, equipment and food) for communication operations during a short, medium and prolonged event (24 hours a day, 7 days a week if needed)
- Include agreements on releasing information and on who releases what, when, and how
- Include polices and procedures regarding employee contacts from the media
- Outline well thought out communication contingency plans for various scenarios
- Include regularly checked and updated media contact lists (including after-hours news desks)

*Source: Adapted from Hyer RN, Covello VT. *Effective Media Communication during Public Health Emergencies: A WHO Handbook*, WHO/CDS/2005.31, World Health Organization, Geneva, 2005 (www.who.int/csr/resources/publications/WHO_CDS_2005_31/en/)

- Include regularly checked and updated partner contact lists (day and night)
- Outline exercises and drills for testing the communication plan as part of larger preparedness and response training
- Identify subject-matter experts (for example, university professors) willing to collaborate during an emergency, and develop and test contact lists (day and night); know their perspectives in advance
- Identify target audiences
- Identify preferred communication channels (for example, telephone hotlines, radio announcements, news conferences, Web site updates, and faxes) to communicate with the public, key stakeholders and partners
- Contain **message maps**, including holding statements, core messages, message templates, and **message maps** with answers to frequently asked questions
- Contain fact sheets, question-and-answer sheets, talking points and other supplementary materials for potential scenarios
- Contain a signed endorsement of the communication plan from the agency's director
- Contain procedures for posting/updating information on a Web site
- Contain task checklists for the first 2, 4, 8, 12, 16, 24, and 48 hours
- Contain procedures for evaluating, revising, and updating the communication plan on a regular basis

Workshop Proceedings

Dr. Vincent Covello, internationally recognized crisis communication expert and Director of the Center for Risk Communication in New York City, facilitated the workshops. Dr. Covello has consulted for several hundred public and private sector organizations over the past 30 years, including the EPA, Centers for Disease Control and Prevention (CDC), Department of Defense, Department of Health and Human Services, and the World Health Organization. He has provided expert consultations related to such threats as bioterrorism, West Nile virus, smallpox, SARS, and pandemic flu, and has authored or edited more than 25 books and 75 articles on crisis communication.

Invited workshop participants (see Appendix B) represented a cross-section of water utilities from various regions of the United States; local, state, and federal government agencies; emergency response organizations; public health officials; law enforcement agencies; and water sector professional associations.

Following an overview of risk communication and message mapping principles by Dr. Covello, participant work groups produced several message maps for each of the following six hypothetical scenarios:

(1) Possible chemical contamination of a reservoir
(2) Physical attack—bomb explosion
(3) Credible threat—unknown agent and location
(4) Loss of electrical power impacting water delivery systems
(5) Pesticide contamination
(6) Biological contamination

Products generated by workshop participants include:

- A list of stakeholders who will need information during a water sector crisis
- A list of anticipated questions or concerns from the public and media for each of the six scenarios
- Message maps for a small subset of anticipated questions for each scenario

Report Organization

This report is organized into four sections. Section 1, *Introduction*, provides a brief overview of workshop locations, proceedings, and scenarios. Section 2, *Guide to Message Mapping*, provides a "how to" guide outlining the background, benefits, and steps to message mapping. Section 3, *Message Mapping Workshop Products*, provides lists of potential questions and a subset of message maps produced for each scenario. Section 4, *Conclusion*, provides a brief discussion of this and other risk communication tools available from EPA. Appendix A presents seven best practices for effective risk communication, Appendix B provides a list of workshop participants, and Appendix C includes a list of references.

2. Guide to Message Mapping

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"We have only recently come to understand that communications are as critical to outbreak control as laboratory analyses or epidemiology."

– Dr. Lee Jong-wook, Director-General,
World Health Organization, September 2004

Background

Under normal circumstances, the elaborate infrastructures and mechanisms that protect the nation's water systems generally go unnoticed. In the middle of a water security crisis, however, such as an attack against a water treatment plant or contamination of the drinking water with a naturally occurring organism like *cryptosporidium,* they will be of intense interest. Risk communication during such emergencies will directly influence events. Poor risk communication can fan emotions and undermine public trust and confidence at best, and at worst, incite high tensions, misinformation, and additional crises that need to be handled. Good risk communication can rally support, calm a nervous public, provide needed information, encourage cooperative behaviors, and potentially help save lives.

Effective risk communication is a key responsibility of water utility officials and public information officers in times of crisis. The public, news media, policy-makers, and other stakeholders will expect timely and quality information from water utilities, regulatory agencies, public health officials, and other authorities about the situation. A spokesperson who communicates badly may be perceived as incompetent, uncaring, or dishonest, thus losing trust. One who communicates well, however, can reach large numbers of people with clear and credible health, safety, and security messages.

While the specifics of water security crises are difficult to predict, risk communication *strategies* for such events can be planned before a crisis occurs. Such planning greatly increases the likelihood that communication will further health and safety interests and contribute positively to emergency response efforts. Well-constructed, practiced, and delivered messages will inform the public, reduce misinformation, and provide a valuable foundation for informed decision making.

What Is Risk Communication?

Risk communication is a science-based approach for communicating effectively and accurately to diverse audiences in situations that are high-concern, high-stress, emotionally charged, and/or highly controversial. Its purpose is to enhance knowledge and understanding, build trust and credibility, encourage constructive dialogue, produce appropriate levels of concern, and provide guidance on appropriate protective behavior and actions following a crisis incident. Although much about risk communication involves elements of common sense, its principles are supported by a considerable body of scientific research as reflected in more than 8,000 articles in peer-reviewed scientific journals, 2,000 published books, and a number of published literature reviews by major scientific organizations such as the National Academy of Sciences.

Mental Noise: Why Risk Communication Matters During a Crisis

Mental noise theory, one of the main constructs of risk communication, indicates that when people are highly upset, they often have difficulty hearing, understanding, and remembering information. Research shows that mental noise can reduce a person's ability to process information by more than 80 percent. This is mostly due to trauma and a heightened emotional state during a crisis. Factors that cause the highest levels of worry, anxiety, and mental noise during a crisis include but are not limited to perceptions that:

- The situation is under the control of others, especially those we do not trust
- The situation is involuntary
- The situation is inescapable
- The crisis is of human origin versus nature
- The crisis involves something that is unfamiliar or exotic
- The crisis threatens a form of injury or death that is dreaded
- There is a great deal of uncertainty
- Victims include children, pregnant women, or other vulnerable populations
- There are untrustworthy sources of information

The challenge for risk communicators is to overcome the communication barriers created by mental noise. Solutions include developing a limited number of key messages that are brief, credible, and clearly understandable. One of the most powerful tools available to risk communicators for this purpose is *"message mapping."*

Message Mapping

Message mapping is a seven-step process by which users can:

- Predict 95 percent of questions likely to be asked by the media and others following an incident
- Prepare clear and concise answers to the questions along with supporting information ahead of time
- Practice effective message delivery before a crisis occurs

Message maps are viable tools for communicating information about terrorist attacks and other manmade or natural emergencies. They ensure that risk information has the optimum chance of being heard, understood, and remembered. Message maps allow organizations to convey timely, accurate, clear, and credible information. They enable audiences to better understand issues, act constructively upon the information provided, recover more quickly from the stress of the event, and gain or regain trust in risk managers.

The process has been used for some time by outstanding risk communicators such as Mayor Rudolph Giuliani; most notably in communicating about the attacks on the World Trade Center in New York City on September 11, 2001. Message maps present concise, detailed, and hierarchically organized responses to anticipated questions or concerns. They are visual aids that can highlight at a glance the organization's messages for key issues of concern.

As shown in the template in Figure 2-1, the top portion of a message map identifies the intended audience, the spokesperson, and the specific question or concern the map is intended to address. The next layer of the message map contains three key messages in response to the question. Key messages are intended to address the information needs of a wide variety of audiences. The three key messages can also serve singularly or collectively as a media sound bite (a very short comment or phrase suitable for use in a broadcast or print news story). Sound bites are critical to successful media interviews. The bottom tier of the message map contains supporting information, blocked in groups of three under the key messages. Supporting messages amplify the key messages and provide additional facts or details.

Benefits of Using Message Maps

As a strategic tool, a message map affords multiple benefits. It provides a handy reference for water security leaders and spokespersons who must respond swiftly to questions on topics where timeliness and accuracy are critical. Multiple spokespersons can work from the same message map to ensure rapid dissemination of consistent messages across a wide spectrum of communication outlets. Message maps provide a unifying framework for disseminating information about a wide range of water security issues.

When used consistently, message maps promote multiple partners "speaking with one voice." Message maps also minimize chances of "speaker's regret," which includes regretting saying something inappropriate or regretting not saying something that should have been said. A printed copy of the message map enables spokespeople to "check off" the talking points they want to address during interviews, in order of their importance. This helps prevent omissions of key facts or misstatements that could provoke misunderstandings or controversy.

Message mapping permits organizations to develop messages in advance for potential emergencies and crises, such as a terrorist attack. Message maps can be tailored to the specifics of the event when the crisis occurs. Once developed, the effectiveness of message maps can be tested through focus groups and practice.

Message Map

Audience/Stakeholder: _____
Spokesperson: _____

Question or Concern: _____

Key Message 1
- Supporting Information 1-1
- Supporting Information 1-2
- Supporting Information 1-3

Key Message 2
- Supporting Information 2-1
- Supporting Information 2-2
- Supporting Information 2-3

Key Message 3
- Supporting Information 3-1
- Supporting Information 3-2
- Supporting Information 3-3

Figure 2-1. Message Map Template.

Uses of Message Maps

Message maps can be used for effectively sharing information in news conferences, media interviews, stakeholder information exchanges, public meetings, Web sites, telephone hotline scripts, and fact sheets.

History of Message Maps

Message maps were developed by Dr. Vincent Covello in the early 1990s as a specialized tool for communicating effectively in high-stress, high-concern, or emotionally charged situations. Message mapping was first adopted as a public health tool in the aftermath of the U.S. anthrax attacks in the fall of 2001. Early in 2002, the CDC conducted an intensive message mapping session focused on the communication challenges posed by a potential smallpox attack. A product of this workshop was several hundred smallpox message maps. Figure 2-2 (below) provides one example.

Since 2002, agencies at the national, regional, state, and local levels have conducted dozens of message mapping workshops focused on a wide variety of emergency events. For example, emergency events that have already been mapped include bioterrorism, pandemic influenza, exposure to anthrax, smallpox, plague, botulism, viral hemorrhagic fevers, tularemia, and radiation. EPA has conducted message mapping workshops focusing on water sector incidents; crises involving indoor facilities such as buildings, schools, or arenas; and decontamination following an incident.

Several important outcomes have resulted from these mapping efforts. These include identification of key stakeholders early in the risk communication process, anticipation of stakeholder questions and concerns before they are raised, internal and external partnering in the development of messages, and a vetted central repository of clear, concise, and accurate information for the major types of emergency events.

Steps in Developing Message Maps

There are seven steps involved in the message mapping process. These include: (1) identifying stakeholders, (2) identifying stakeholder questions, (3) analyzing the questions to identify the underlying concerns, (4) developing key messages, (5) developing supporting facts for the key messages, (6) testing and practicing messages, and (7) delivering maps through the appropriate information channels.

Message Map Example

Stakeholder: General Public
Spokesperson: Public Health Official

Question or Concern: How contagious is smallpox?

Key Message 1: Smallpox spreads slowly compared to many other diseases.

- People are infectious only when the rash appears.
- Smallpox typically requires hours of face-to-face contact.
- There are no carriers without symptoms.

Key Message 2: This allows time to trace those who have come in contact with the disease.

- The incubation period for the disease is 10-14 days.
- Resources are available for tracing contacts.
- Finding people who have been exposed and vaccinating them has proved successful in the past.

Key Message 3: Those who have been traced can be vaccinated to prevent illness.

- People who have never been vaccinated are the most important to vaccinate.
- Adults who were vaccinated as children may still have some immunity.
- Adequate vaccine is on hand.

Figure 2-2. Sample Smallpox Message Map Developed by CDC.

Step 1. Identify Potential Stakeholders

The first step in message mapping is to identify potential stakeholders for a selected issue or topic, such as a terrorist attack against a water treatment plant or the discovery of a contaminant in the water system. Stakeholders include the public at large as well as all interested, affected, or influential parties (local, state, and federal; including law enforcement, public health, and elected officials).

Every emergency event involves a distinctive set of stakeholders. Each stakeholder may have a different set of questions and concerns that may be voiced. The following is a list (in alphabetical order) of potential stakeholders for a water security emergency identified by EPA Message Mapping Workshop participants. This list is intended to provide examples of potential stakeholders. Individual water utilities or other water sector organizations may choose to include additional or different stakeholders in their respective risk communication plans than those in this list.

- advisory panels
- business leaders and business community
- consultants
- contractors
- disabled populations
- educational leaders and educational community
- elderly populations
- emergency response personnel
- employees of other responding organizations
- environmental officials
- ethnic populations
- families of emergency responders, law enforcement personnel, hospital personnel, and health agency employees
- fire department personnel
- government agencies
- homebound populations
- homeless people
- hospital personnel
- illiterate populations
- institutionalized populations
- law enforcement personnel
- legal professionals
- local residents who are out of town and their relatives
- media, print and electronic
- military leaders
- minority populations
- non-English speaking groups
- non-governmental organizations
- other water utilities
- physicians, nurses, paramedics, and other healthcare personnel
- politicians/legislators/elected officials
- professional societies
- public-at-large
- public-at-risk
- public health officials
- religious groups
- scientific leaders and scientific community
- security personnel
- service and maintenance personnel
- suppliers/vendors
- tourists or business travelers and their relatives
- union officials and labor advocates
- veterinarians
- victims
- victims' families
- water utility employees

As part of this first step of message mapping, stakeholders can be further distinguished and categorized according to: (1) their potential to affect outcomes; (2) their credibility among other stakeholders; and (3) whether they are likely to be apathetic, neutral, supportive, non-supportive, adversarial, or undecided regarding issues on the table.

It is important to note that maps need not be developed for every stakeholder group on the list. Providing information to the media, for example, will get information to many of the other stakeholders listed. Additionally, the same messages can be used for multiple stakeholders.

Step 2. Identify Potential Stakeholder Questions

The second step is to identify as complete a list of potential questions and concerns for each stakeholder group as possible. Questions and concerns typically fall into three categories:

- **Overarching Questions**: for example, "What do people need to know?"
- **Informational Questions:** for example, "When will the water be safe to use?"
- **Challenging Questions:** for example, "Why should we trust what you are telling us?"

The questions can be further refined by grouping them according to themes (for example, whether the incident involves chemical, biological, physical, or radiological agents; the likely organization responsible for answering the questions; certainty or uncertainty that the event has occurred; and the level of protective actions).

How to Develop Lists of Questions

Lists of specific stakeholder questions and concerns can be generated through research, including:

- Media content analysis (print and broadcast)
- Analysis of web site material
- Document review, including public meeting records, public hearing records, and legislative transcripts
- Reviews of complaint logs, hotline logs, toll-free number logs, and media logs
- Focused interviews with subject matter experts
- Facilitated workshops or discussion sessions with individuals intimately familiar with the issues
- Focus groups
- Surveys

The 77 Most Frequently Asked Questions by Media Following Crisis Incidents

Recent research conducted by the Center for Risk Communication and other groups indicates that questions and concerns raised by stakeholders in emergency situations can be identified in advance using the techniques described above. For example, the following is a list of the 77 most frequently asked questions by journalists during a crisis. The list was generated by researching a large database of questions posed by journalists at news conferences immediately following a disaster and distilling the larger list into 77 questions. This is an excellent resource for identifying potential questions for which message maps should be developed.

What is your name and title?
What are your job responsibilities?
What are your qualifications?
Can you tell us what happened?
When did it happen?
Where did it happen?
Who was harmed?
How many people were harmed?
Are those that were harmed getting help?
How certain are you about this information?
How are those who were harmed getting help?
Is the situation under control?
How certain are you that the situation is under control?
Is there any immediate danger?
What is being done in response to what happened?
Who is in charge?
What can we expect next?
What are you advising people to do? What can people do to protect themselves and their families – now and in the future – from harm?
How long will it be before the situation returns to normal?
What help has been requested or offered from others?
What responses have you received?
Can you be specific about the types of harm that occurred?
What are the names of those that were harmed?
Can we talk to them?
How much damage occurred?
What other damage may have occurred?
How certain are you about damages?
How much damage do you expect?
What are you doing now?
Who else is involved in the response?
Why did this happen?
What was the cause?
Did you have any forewarning that this might happen?
Why wasn't this prevented from happening? Could this have been avoided?
How could this have been avoided?
What else can go wrong?
If you are not sure of the cause, what is your best guess?
Who caused this to happen?
Who is to blame?
Do you think those involved handled the situation well enough? What more could/should those who handled the situation have done?
When did your response to this begin?
When were you notified that something had happened?
Did you and other organizations disclose information promptly? Have you and other organizations been transparent?
Who is conducting the investigation? Will the outcome be reported to the public?
What are you going to do after the investigation?
What have you found out so far?
Why was more not done to prevent this from happening?
What is your personal opinion?
What are you telling your own family?
Are all those involved in agreement?
Are people over-reacting?
Which laws are applicable?
Has anyone broken the law?
How certain are you about whether laws have been broken?
Has anyone made mistakes?
How certain are you that mistakes have not been made?
Have you told us everything you know?
What are you not telling us?
What effects will this have on the people involved?
What precautionary measures were taken?
Do you accept responsibility for what happened?
Has this ever happened before?
Can this happen elsewhere?
What is the worst-case scenario?

What lessons were learned?
Were those lessons implemented? Are they being implemented now?
What can be done now to prevent this from happening again? What steps need to be taken to avoid a similar event?
What would you like to say to those who have been harmed and to their families?
Is there any continuing danger?
Are people out of danger? Are people safe? Will there be inconvenience to employees or to the public?
How much will all this cost?
Are you able and willing to pay the costs?
Who else will pay the costs?
When will we find out more?
Have these steps already been taken? If not, why not?
Why should we trust you?
What does this all mean?

Step 3. Analyze Questions to Identify Common Sets of Concerns

The third step in message map construction is to analyze the lists of questions to identify common sets of concerns in order to focus on the most salient issues. Case studies indicate that questions can typically be categorized into 15 to 25 overarching areas of concern. The following is a sample list, in alphabetical order, of categories of concern that could be considered for a water security event. This list is intended to provide examples of potential categories of concern. Individual organizations may choose to use additional or different categories than contained in this listing.

- Accountability (who is responsible)
- Basic Informational – Who, What, Where, When, Why, How
- Changes in the Status Quo
- Control (who is in charge)
- Duration/Recovery/Decontamination
- Ecological/Environmental
- Economic
- Effects on Children/Future Generations/Elderly
- Equity/Fairness
- Ethics/Morality
- Expertise
- Honesty
- Human Health Concerns
  - one's own
  - children
  - parents
  - friends and family
  - elderly persons
  - expectant mothers
  - special populations
  - others
- Irreversibility
- Legal/Regulatory
- Listening/Caring/Empathy
- Openness/Transparency/Access to Information
- Options/Alternatives
- Organizational (for example, who's in charge)
- Quality of Life
- Safety
- Trust
- Unfamiliarity
- Voluntariness

Once common concerns are listed and analyzed, a useful next step is to construct a matrix (Figure 2-3) that contains a list of stakeholders on one axis and a list of stakeholder questions and concerns on the other axis. Within the boxes of the matrix, stakeholder questions and concerns can be designated as: (1) high concern; (2) medium concern; (3) low concern; (4) not applicable. One of the most important uses of the resulting matrix is as a resource allocation guide. Boxes that have the highest number of entries or are of the highest concern should be the first addressed.

Stakeholders	Concerns													
	Human health	Trust	Safety	Basic Information	Organizational	Quality of Life	Accountability	Duration/Recovery	Control	Listening/Caring	Unfamiliarity	Economic	Equity/Fairness	Other
Public-At-Large														
Public-At-Risk														
Victims														
Victims' Families														
Media														
Water Utility Personnel														
Public Health Personnel														
Emergency Response Personnel														
Law Enforcement Personnel														
Goverment Agencies														
Special Needs Population														
Other														

Figure 2-3. Sample Matrix of Stakeholders and Their Concerns.

Step 4. Develop Key Messages

The fourth step in message mapping is to develop key messages in response to each stakeholder question or concern. Key messages should be based on what the target audience most needs to know or most wants to know.

Key messages can most effectively be developed through brainstorming sessions with a message mapping team. The message mapping team typically consists of subject matter experts, communication specialists, policy/legal/management experts, and a facilitator. The brainstorming sessions produce message narratives, usually in the form of complete sentences. These sentences are then entered as key messages onto the message map template.

Construction of the message map key messages should be guided by theories and principles of risk communication, including mental noise discussed previously. Studies recently conducted by the Center for Risk Communication, for example, indicate that it is crucial for key messages to be concisely stated if they are offered to the news media as sound bites or quotes. Based on an analysis of 10 years of print and media coverage of emergencies and crises in the United States:

- The average length of a sound bite in the print media is 27 words
- The average duration of a sound bite in the broadcast media is nine seconds
- The average number of messages reported in both the print and broadcast media is three
- Quotes most likely to be used as sound bites contained compassion, conviction, and optimism.

With this in mind, the key messages should be organized into sound bites with a total of three bullets containing a maximum of 27 words (combined) that can be spoken in nine seconds. Each of the three bullets should be supported by three additional supporting facts, as described in Step Five. Avoid long explanations. Adherence to the 27 words/9 second/3 message limitation, or 27/9/3 template, helps ensure that spokespersons are quoted accurately and completely in media interviews.

It is often appropriate to provide a brief preamble to the message map or key messages that indicates authentic empathy and compassion, which are crucial factors in establishing trust in high-concern, high-stress situations. The greater the extent to which individuals and organizations are perceived to be genuinely empathic, the less likely it is that mental noise will interfere with the audience's ability to comprehend messages. This is referred to as the **Compassion, Conviction, and Optimism (CCO)** template in risk communication. This preamble does not count in the 27/9/3 message.

An example of the CCO template was the response offered by Mayor Giuliani in New York City following the terrorist attacks on the World Trade Center on September 11, 2001. At the first news conference following the collapse of the second Tower, the Mayor said: "The number of casualties is more than any of us can bear ultimately." He delivered his messages with the perfect balance of compassion, conviction, and optimism.

Additional Key Message Templates and Principles

Professional risk communicators have developed several additional templates for developing effective messages, including the following:

Rule of 3: In high-stress situations, people can process only three messages at a time instead of the seven they could normally process. This is why message maps have three key messages.

Primacy/Recency: Spokespersons should state the most important messages first and last. In high-stress situations, listeners tend to remember that which they hear first and last. Messages in the middle of a list are often not heard or remembered.

Average Grade Level Minus 4 (AGL- 4): During crises, messages should be at the average grade level of the intended audience, minus four. For example, message maps produced for populations in industrialized nations during crises are typically constructed to be easily understood by an adult with a 6th to 8th grade education, instead of the normal 10th to 12th grade level.

Triple T Model: When time permits, present the full message map using the repetitive structure found in the "Tell me, Tell me more, Tell me again model," or "Triple T Model": (1) Tell people what you are going to tell them in summary form, i.e., the three key messages; (2) Tell them more, i.e., the supporting information; (3) Tell people again what you told them in summary form, i.e., repeat the three key messages. The greater the extent to which messages are repeated and heard through various channels, the less likely it is that mental noise will interfere with the ability to comprehend messages.

Negative Dominance (1N = 3P): According to risk communication theory, people tend to focus more on the negative than on the positive in emotionally charged situations. For this reason, it is important to balance negative key messages with positive, constructive, or solution-oriented key messages; offering three positive messages for every one negative. Also, it is important to avoid unnecessary, indefensible, or non-productive uses of absolutes and of the words "no," "not," "never," "nothing," or "none."

Anticipate, Prepare, Practice (APP): Spokespersons should anticipate questions, prepare answers, and practice delivery ahead of time (never wing it).

Cite Third Parties: Spokespersons should cite third parties or sources that would be perceived as credible by the receiving audience. The greater the extent to which messages are supported and corroborated by credible third party sources, the greater the trust and the less likely it is that mental noise will interfere with the ability to comprehend messages.

Address Risk Perceptions: Key messages and supporting information should address emotionally charged factors that influence the way people perceive risks, such as lack of control, dread, unfamiliarity, uncertainty, and effects on children. Research indicates that the greater the extent to which risk perception factors are addressed in messaging, the less likely that mental noise will interfere with the ability to comprehend messages.

Use Graphics and Other Visual Aids: The use of graphics, visual aids, analogies, and narratives (e.g., personal stories) can increase an individual's ability to hear, understand, and recall a message by more than 50 percent. Moreover, because visual aids are processed by a different part of the brain than word messages, they present the opportunity to provide information that can be processed in addition to the 27/9/3 messages.

Step 5. Develop Supporting Facts

The fifth step in message map construction is to develop three supporting facts, information, or proofs for each of the three bullets in the 27/9/3 key message. The same principles that guide key message construction guide the development of supporting information.

Step 6. Test and Practice Messages

The sixth step is to conduct systematic message testing using standardized testing procedures. Message testing should begin by asking subject matter experts who are not directly involved in the original message mapping process to validate the accuracy of information contained in the message maps. Message testing should then be done with individuals or groups who have the characteristics to serve as surrogates for key internal and external target audiences and with partner organizations. Sharing and testing messages with partners promotes message consistency and coordination across organizations.

Step 7. Deliver Maps Through Appropriate Information Channels

The seventh and final step is to plan for the delivery of the prepared message maps through: (1) trained spokespersons, (2) trusted individuals or organizations, and (3) chosen communication channels.

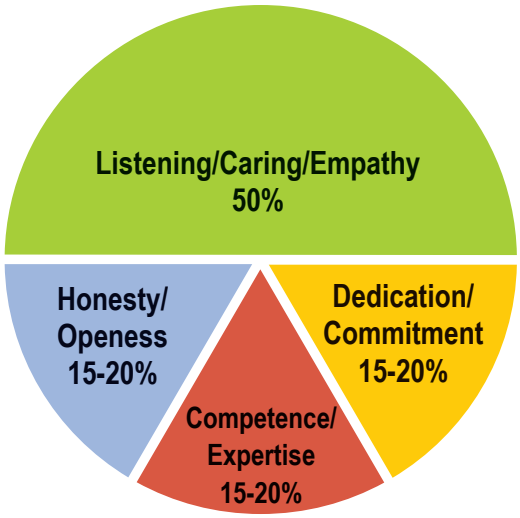
In the event of a significant threat or water security incident, the water utility will work collaboratively with other responsible agencies in managing the response and communicating risk. Depending on the type of incident, this may include local government officials; state and local public health departments; the state water primacy agency; emergency responders; law enforcement; and pertinent federal agencies. Coordination among the partner agencies in selecting the appropriate spokespersons and delivering clear and consistent messages across organizations will enhance communication effectiveness. Having experts available from the various organizations to verify information or answer questions pertaining to their areas of responsibilities will also increase credibility when delivering messages.

As mentioned previously, once developed, message maps can be used to structure news conferences, media interviews, information forums and exchanges, public meetings, web sites, telephone hotline scripts, and fact sheets or brochures focused on frequently asked questions.

Trust Factors for Effective Delivery

Trust factors are extremely critical for effectively delivering messages during a crisis incident. Under non-stressful circumstances, people base opinions regarding the trustworthiness of a spokesperson largely on competence and expertise. During a crisis, however, factors that most influence whether or not people trust the speaker change primarily to perceptions of empathy and trust. Will Rogers, the famous American humorist of the 1930s, put it well when he said "When people are stressed and upset, they want to know that you care before they care about what you know."

Research indicates that during a crisis, listeners will base their opinion of the trustworthiness of a speaker on the following:



It is important to note that during crises, people judge the messenger before the message and they base their judgment in terms of trust, forming their impressions within the first 9 to 30 seconds. Trust is judged primarily through actions, body language, and verbal communication. In Western culture, non-verbal cues that communicate when a speaker is attentive and empathetic include maintaining eye contact, keeping hands above the waist and visible, and maintaining body posture that signals that the speaker is listening such as standing straight or leaning slightly toward the audience while sitting. Other non-verbal factors that have an influence include dress, appearance, and voice inflection.

Crisis Message Delivery Templates

The following five templates will assist in effective message delivery during crisis situations.

1. Bridging Templates: Spokespersons should use statements such as the following to return to the key points or to redirect the communication when the discussion moves off course:

- "However, what is more important to look at is ..."
- "However, the real issue here is ..."
- "And what's most important to remember is ..."
- "With this in mind, if we take a look back ..."
- "If we take a broader perspective, ..."
- "Let me put all this in perspective by saying ..."
- "Before we continue, let me take a step back and repeat that ..."
- "This is an important point because ..."
- "What this all boils down to is ..."
- "What matters most in this situation is ..."
- "Let me just add to this that ..."
- "I think it would be more correct to say ..."
- "In this context, it is essential that I note ..."
- "Another thing to remember is ..."
- "Before we leave the subject, let me add that ..."
- "And that reminds me ..."
- "While...is important, it is also important to remember ..."
- "It's true that...but it is also true that ..."

2. IDK (I Don't Know) Template: Spokespersons should use this approach when they do not know the answer to a question, cannot answer, or are not the best source for the answer:

Steps

- Repeat the question (without negatives)
- Say "I wish I could answer;" or "My ability to answer is limited;" or "I don't know" (less preferred)
- Say why you cannot answer
- Give a followup with a deadline (for media question)
- Bridge to what you can say

Example: (1) "You've asked me about...; (2) I wish I could answer; (3) We're still looking into it; (4) I expect to be able to tell you more by ...; (5) What I can tell you is..."

3. Guarantee Template: Spokespersons should use this template when asked to guarantee an event or outcome:

Steps

- Indicate that the question is about the future
- Indicate that the past/present predict the future
- Bridge to known facts, processes or actions

Example: (1) "You've asked me for a guarantee, to promise something about the future; (2) The best way I know to talk about the future is to talk about what we know from the past and the present; (3) And what we know is ..." OR "What I can guarantee [assure; promise; tell you] is ..."

4. "What If" Template: Spokespersons should use this when asked a "what if, what might happen" question:

Steps:

- Repeat the question (without negatives)
- Bridge to "what is"
- State what is known factually

Example: (1) "You've asked me what might happen if ...; (2) I believe there is value to talk about what is, what we know now; (3) And what we know is ..."

5. False Allegation Template: Spokespersons should use this when responding to a hostile question, false allegation, or criticism.

Steps

- Repeat/paraphrase the question without repeating the negative; repeat instead the opposite; the underlying value, or use more neutral language
- Indicate that the issue is important
- Indicate what has been done or will be done to address the issue

Example: (1) "You've raised a serious question about "x;" (2) "x" is important to me; (3) We have done the following to address "x."

Other Resources

Appendix A presents seven best practices for effective risk communication. Other resources are available in the literature and on the web. Appendix C lists a selection of references used in developing this report.

3. Message Mapping Workshop Products

As mentioned in Section 1, six hypothetical scenarios dealing with water infrastructure crisis incidents were developed for the EPA Message Mapping Workshops and presented to participants. These include incidents involving the following:

1. Potential chemical contamination of a reservoir
2. Physical attack/bomb explosion
3. A credible threat involving an unknown agent and location
4. The loss of electrical power impacting water delivery systems
5. Pesticide contamination
6. Biological contamination

For each of the scenarios, work groups brainstormed to develop lists of anticipated questions and example message maps for a selected subset of the anticipated questions. Work groups included five to seven subject matter experts representing various sized water utilities, public health, emergency response, law enforcement, water sector professional organizations, and local/state/federal water agencies; public information officers and other communication specialists; and policy and management experts.

Stage of Crisis Designation

Work group members recognized that the focus of risk communication may change as a given crisis situation unfolds. The various stages of an incident, as defined in EPA's Response Protocol Toolbox (http://www.epa.gov/safewater/), include the following:

Possible: An incident is considered feasible under the circumstances

Credible: Evidence is available indicating that an incident could have occurred

Confirmed: Analysis and other evidence verifies that an incident has occurred

Remediation and Recovery: Stage begins after an incident has been contained.

The message maps included in this section list the stage of the incident at which workshop participants intended the maps to be delivered.

Scenarios, Questions, and Message Maps

Descriptions of the six individual scenarios, along with lists of potential questions and a set of message maps developed for each, are provided below. The summaries of the scenarios presented are intentionally brief and general in nature for security purposes. They are intended to provide the broad context under which the questions and maps were developed.

Workshop Subject Matter Experts Collaborate to Develop Message Maps.

NOTE

Because of the limited time available during the workshops, the groups focused on developing a small subset of message maps for potential questions that may be asked by the media. The maps have been reviewed by technical experts but not tested as indicated in Step 6 of the message mapping process.

IMPORTANT

Questions and message maps included in this report are intended to serve as examples water sector organizations can refer to while developing questions and maps as part of their own crisis communication planning.

Organizations should use the message mapping process described in Section 2 to identify their own respective key stakeholders, compile lists of pertinent anticipated questions, and develop messages they would most likely need to deliver under various crisis situations they may confront.

The following scenarios represent hypothetical narratives and in no way represent EPA intelligence or opinion related to events perceived as the most probable to occur.

Scenario 1: Hypothetical Credible Threat Involving Chemical Contamination of a Reservoir

Summary of Scenario: Security guards at a local country club noticed two people driving a golf cart along the club fence line in the middle of the night. The fence where the people were spotted separates the country club from a drinking water reservoir. At daybreak, the golf course's grounds crew notifies security that they have found several empty plastic five-gallon containers in the area where the intruders were spotted and that there are dead squirrels in this area. The police find the cart used by the intruders in the club service lot. Hazardous materials responders are called in and their equipment indicates the presence of [insert nerve agent] in the containers by the fence. The incident is in the credible stage since it has not been verified that the water supply has been contaminated.

Hypothetical Credible Threat Involving Chemical Contamination of a Reservoir Questions (alphabetical order)

Refer also to the list of 77 most frequently asked questions in Section 2 of this report.

Are people safe who live near the reservoir?
Are you worried about how bad this could get?
Can people drink the water?
Can people use the water at all and, if so, for what?
Can you adequately treat those who have been exposed?
Can you clean the distribution system to make it safe again and, if so, how?
Can you guarantee that the water in areas outside of the contamination zone is safe to drink?
Can you guarantee that this will not happen again?
Can you provide specifics about the potential water contamination incident?
Has this happened anywhere before?
Have you called experts trained in safely dealing with [insert chemical agent] to assist?
How do you know what to do?
How long will the [insert impacted area] remain closed?
How many people have been harmed or killed?
How much will it cost to clean the system?
How will you know when the water is safe after cleanup?
Is the distribution system contaminated and, if so, how much of it?
Is this an isolated incident?
Should people be worried about our drinking water?
Was this a terrorist attack?
What about people's pets?
What are the symptoms of [insert chemical agent] exposure?
What are you doing about the situation now?
What could you have done to prevent this?
What should people do if they think they have been exposed?
What should people do to protect children and the elderly?
What should people know about [insert chemical agent] poisoning?
What type of security do you have in place to protect the reservoir?
What will happen to wildlife, such as geese, that live on the reservoir?
What would you like people to know?
Where can people in the contaminated area get water from now until after cleanup?
Where should the reporters go, or call, to find updated information?
Who else is working with you to deal with the crisis?
Who are most at risk if they have been exposed to contaminated water?
Who is in charge right now?
Who is responsible for contaminating the water?
Will the reservoir be drained?

Message Maps

For this scenario, workshop participants developed maps for the following questions (see maps on following pages):

1. Can you provide specifics about the potential water contamination incident?
2. What are you doing about the situation right now?
3. Should people be worried about the drinking water?
4. Who are most at risk if they have been exposed to contaminated water?
5. What are the symptoms of exposure?

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, or Police
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: Can you provide specifics about the potential water contamination incident?

Containers with [insert agent name] residue were found near the water reservoir at [insert location].

- [Insert chemical agent name] is a chemical affecting the central nervous system.
- Law enforcement and health officials have begun a full investigation.
- Law enforcement and public health will be providing continuous updates on the investigation. [Refer to law enforcement and public health].

We are testing the entire water system for [insert chemical agent name].

- The water utility is sampling the water in the reservoir and throughout the system.
- They are following testing procedures recommended by the U.S. Environmental Protection Agency.
- We will provide updates as results become available.

People should not use the water until the investigation is complete.

- Bottled water should be used for drinking, cooking, and bathing.
- Water distribution points will be set up at [insert location] by [insert time].
- People should call [insert number] or go to [insert Web site name] for additional information.

Credible Threat Involving Chemical Contamination of a Reservoir Message Map 2

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, Public Health, and/or EMA Director
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: What are you doing about the situation right now?

We are advising people in [insert area] not to drink or use the water until further notice.

- We are providing bottled water to people in the impacted area.
- We have set up distribution centers throughout the affected area at [insert locations], and they are open [insert times].
- Call [insert number] for additional information about [insert chemical name] or visit the city's Web site at [insert Web address] for the most up-to-date information about the situation.

We are testing the entire system.

- Testing will verify whether [insert chemical agent name] is present in the water.
- We are sampling and testing water throughout the water distribution system.
- We are following testing procedures recommended by the U.S. Environmental Protection Agency.

We are coordinating our emergency response actions with partner agencies.

- Our federal partners include the Environmental Protection Agency, the FBI, the Department of Homeland Security, and the Centers for Disease Control and Prevention (CDC).
- Our partners at the state and local level include the state health department, the police, local hospitals, and local healthcare providers.
- We will have updates for the media as we get more information.

Credible Threat Involving Chemical Contamination of a Reservoir Message Map 3

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, Public Health, and/or EMA Director
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: Should people be worried about the drinking water?

We are concerned about any threat to our water system.

- We are working closely with public health and others to minimize any potential harm.
- We have experts on staff trained to respond to events such as this.
- We are using all available resources to protect public health.

We are testing the water system for the presence of [insert chemical name].

- We are testing the water in the reservoir and all associated distribution points.
- We have highly qualified people taking samples.
- We are following testing procedures recommended by the U.S. Environmental Protection Agency.

We ask you be alert and stay tuned for updates.

- People should call [insert number] or go to [insert Web site name] for more information.
- People should stay tuned to local radio or television.
- Until we know more, people in the impacted area [insert area] should use an alternative supply of water.

Credible Threat Involving Chemical Contamination of a Reservoir Message Map 4

Audience/Stakeholder: Public/Media
Spokesperson: Public Health, City Manager, and/or Mayor
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: Who are most at risk if they have been exposed to contaminated water?

Children, the elderly, and others with weaker immune systems are most at-risk.

- Children have less developed body defenses.
- The elderly and people with diseases such as HIV/AIDS or hepatitis may have weakened immune systems.
- Such individuals should take extra precautions.

At-risk persons should avoid contact with tap water.

- Parents should not prepare infant formula or cook food using the water.
- Children and the elderly should not drink beverages prepared with the water.
- Bottled water will be distributed at [insert locations and times].

At-risk persons with symptoms should call 911 or go to the nearest emergency room.

- Early symptoms include [insert symptoms].
- A child or elderly person who has been exposed should not be encouraged to vomit.
- A child or elderly person who has been exposed should not be given liquids.

Credible Threat Involving Chemical Contamination of a Reservoir Message Map 5

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: What are the symptoms of exposure?

The extent of health effects depends on the extent of exposure.

- People may not know they were exposed because [insert chemical agent name] has no taste or odor.
- People exposed to a low or moderate dose may experience symptoms within seconds to hours of exposure such as runny nose, blurred vision, excessive sweating, chest tightness, rapid breathing, confusion, headache, or nausea.
- Exposure to large doses by any route may result in loss of consciousness, convulsions, paralysis, or respiratory failure possibly leading to death.

Antidotes are available.

- Treatment consists of removing [insert chemical agent name] from the body as soon as possible and providing supportive medical care in a hospital setting.
- Antidotes are available for [insert chemical agent name].
- They are most useful if given as soon as possible after exposure.

Mild or moderately exposed people usually recover completely.

- These types of chemical agents have not been associated with neurological problems lasting more than one to two weeks after the exposure.
- Severely exposed people are not likely to survive.

NOTE: A message map for each agent can be prepared regarding symptoms, treatment, and other health effects. CDC fact sheets, at http://www.bt.cdc.gov/agent/, provide the health effects for various specific agents.

Scenario 2: Hypothetical Physical Attack—Bomb Explosion

Summary of Scenario: A terrorist group drives a suicide truck bomb directly through security fencing surrounding the water treatment plant. The truck bomb detonates upon impact, causing significant damage and rupturing chlorine gas canisters within the plant, causing a chlorine leak. The incident is at the confirmed stage.

Hypothetical Physical Attack Questions (alphabetical order)

Refer also to the list of 77 most frequently asked questions in Section 2 of this report.

Are any other water systems impacted?
Are people in the impacted areas safe?
Can people have contact with the water?
Can people use the water for drinking?
Can people use the water for washing, bathing, irrigation, and other purposes?
Could this have been prevented from happening?
Do people need potassium iodide tablets?
Do people need to wash their pets' fur?
Has anyone died?
Have you called for assistance?
Have you sampled the water?
How can people get more information?
How did the attackers do it?
How large an area has been affected?
How long will people be without water?
How many people are at risk?
How much will it cost to fix?
How will a person know if they have been exposed?
How will low-income people get bottled water?
How will people who are sick or disabled get bottled water?
How will you clean up the water?
How will you deal with contamination in people's appliances (water heater or ice maker)?
How will you deal with contamination in people's plumbing systems?
Is anyone sick?
Is bottled water available?
Is the situation under control?
Is there enough bottled water?
Is this an isolated incident?
Should people evacuate or stay inside?
What about people who already drank the water?
What about people who already used the water for other purposes?
What are the alternate sources of water?
What are the dangers for those close to the scene of the incident?
What are the dangers of the chlorine release?
What are the dangers to vulnerable populations, such as the elderly, children, pregnant women, and those with weak immune systems?
What are the long-term effects of exposure to chlorine?
What are the possible health effects of exposure following the bomb explosion?
What are the sample analysis results?
What are the symptoms of exposure to chlorine?
What are you doing about the bomb explosion at the water treatment plant right now?
What are you doing to fix the water system?
What are you doing to protect our water?
What do people need to know about this incident as it relates to our water supply?
What do people need to know and do in order to protect themselves from contaminated water?
What do you want people to do now about the chlorine gas release?
What happened?
What impact will this have on people's plumbing systems?
What is the danger of being exposed to the chlorine?
What is the danger of breathing the air?
What is the danger of drinking the water?
What is the danger of using the water for other purposes?
What is the state of the treatment plant?
What is the worst case – how bad could things get?
What precautions should responders take to be safe?
What should people do to protect themselves from the chlorine release?
What should people do who are located downwind of the cloud?
What should people do who are unable to evacuate?
When will the situation be brought back to normal?
When will the water be safe to use?
Where can people get safe water?
Where do people get alternate sources of water?
Which way is the chlorine cloud going?
Who caused the incident?
Who is at the greatest risk?
Who is to blame?

Who will pay the costs?
Why did they do it?
Why should we believe you?
Will home treatment devices work?
Will people get sick or die?
Will the cloud residue that falls in my yard be dangerous?
Will water bills go up?
Will you be able to supply water to emergency services, hospitals, nursing homes, and other critical facilities?

Message Maps

For this scenario, workshop participants developed maps for the following questions (see maps below and on following pages):

1. What do people need to know about this incident as it relates to the water supply?
2. What are you doing about the bomb explosion at the water treatment plant right now?
3. What are you doing to fix the water system?
4. How long will we be without water?
5. What is the state of the water treatment plant?
6. Is the situation under control?
7. Will you be able to supply water to emergency services, hospitals, nursing homes, and other critical facilities?
8. What do you want people to do now about the chlorine gas release?
9. What are the possible health effects of exposure to chlorine?
10. What do people need to know and do to protect themselves from contaminated water?

Physical Attack Message Map 1

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, and/or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What do people need to know about this incident as it relates to the water supply?

There has been a bomb attack at the [insert name] treatment plant located at [insert location].

- There were casualties as a result of the attack and we will provide more information when we have it.
- The plant has been heavily damaged and will be inoperable for an unspecified period of time.
- The explosion caused a chlorine leak affecting an area of the city [define boundaries].

We ask you not to use the water at this time.

- The water could be contaminated, so people should not drink the water.
- The loss of the treatment plant means the only supply source for our city is not available.
- We need to conserve water now in the system for emergencies—such as fire fighting.

We will provide information as soon as possible on the distribution of emergency water supplies.

- We have contingency plans to establish emergency water supplies for the entire affected area.
- People should stay tuned to radio or TV for information on where water will be supplied.
- We will continue to keep people informed through the media.

Physical Attack Message Map 2

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, and/or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What are you doing about the bomb explosion at the water treatment plant right now?

e
drinking water.

- Because of the attack, the water may be unsafe to drink or use so people should only use alternative water supplies.
- We recommend that people avoid drinking and using the water until further notice.
- We need to conserve water now in the system for emergencies—such as fire fighting.

Teams specialized in handling hazardous materials are assessing the damage.

- The treatment plant and surrounding area have been isolated.
- The treatment plant has been shut down.
- Water supply lines and other facilities are being inspected.

We are currently making arrangements for alternate drinking water supplies.

- Free bottled water will be provided at various locations throughout the impacted area starting this afternoon.
- Please call [insert number] or visit the Web site at [insert Web address] for distribution site locations.
- Additional public announcements will be made as more information becomes available.

Physical Attack Message Map 3

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility and/or City Manager or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What are you doing to fix the water system?

We are assessing the blast damage to the system in order to begin repair.

- Some parts are clearly destroyed.
- Some parts of the treatment plant may be damaged beyond use.
- Much may be useable.

We are determining whether the distribution system has been contaminated.

- We are testing water in the distribution system and storage tanks.
- We will have results for most things in a couple of days.
- We will tell you more as soon as we know.

We are coordinating response efforts with the emergency operations center.

- Technical experts are on site and in the field to determine the scope of impact.
- After an initial determination of impact, we will implement a plan of action.
- Local, state, and federal experts continue to actively work on a solution to the problem.

Physical Attack Message Map 4

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, and/or EMA Director
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How long will people be without water?

Crews are working very hard to determine the extent of damage to quickly and safely restore water service.

- Local, state, and federal teams are in the field actively inspecting and assessing the system.
- This is an ongoing inspection and will continue until the system is fully restored.
- We will provide an update on water restoration at [insert time] this afternoon.

Drinking water is being supplied at designated sites in the affected area.

- We have a coordinated effort to provide drinking water to serve those affected.
- Water is available at points of distribution as listed on [insert Web site] and announced on radio and TV.
- Please call [insert 800-number] for additional information.

Drinking water will be provided until the problem can be resolved.

- People should avoid drinking and using tap water until further notice to prevent contamination.
- People should only use alternative water supplies for all uses.
- People should use alternative water supplies for pets.

Physical Attack Message Map 5

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, and/or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What is the state of the water treatment plant?

The water treatment plant is currently inoperable.

- We are working to determine when we can safely re-enter the plant to assess damage.
- Law enforcement has confirmed that a truck bomb caused the damage.
- Chlorine gas canisters within the plant ruptured and have leaked chlorine.

Local, state, and federal teams are in the field actively inspecting and assessing the system.

- These teams are working very hard to determine the extent of damage and quickly and safely restore water service.
- This is an ongoing inspection and will continue until the system is fully restored.
- We will provide an update on the status of the water treatment plant at [insert time] this afternoon.

Since the water is no longer being treated, it may be contaminated.

- We are asking the public not to drink the water.
- This includes any water remaining in water pipes or faucets.
- The “do not use order” will remain in effect until tests confirm that the water is safe to use.

Physical Attack Message Map 6

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, EMA Director, and/or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Is the situation under control?

Emergency response plans at the local, state, and federal levels are in effect.

- Our emergency response plan contains procedures for responding to a bomb attack.
- We are working closely with our emergency response partners, including law enforcement and public health.
- An emergency operations center has been opened to better coordinate resources and response efforts.

We are conducting an assessment to determine the impact.

- We are checking tanks and water lines for damage and contamination.
- We are taking water samples at points throughout the system to test for possible contamination.
- We expect to have additional information to share with you in the next few hours.

We are working to provide water to our customers.

- Current supplies of bottled water will be distributed at [insert locations].
- Additional supplies of bottled water are enroute from other locations.
- The plan for providing emergency supplies for critical facilities, such as hospitals, has been activated.

Physical Attack Message Map 7

Audience/Stakeholder: Public/Media
Spokesperson: Fire, City Manager, Mayor, EMA Director, and/or Police
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Will you be able to supply water to emergency services, hospitals, nursing homes, and other critical facilities?

We are supporting critical facilities that provide basic emergency services.

- We have notified schools, daycare centers, and other critical facilities.
- We have notified food manufacturing facilities.
- We have notified hospitals, nursing homes, and other health care facilities.

We have worked with hospitals to prepare for water emergencies.

- Hospitals in our area maintain a back-up water supply.
- Hospitals are currently using these back-up water supplies.
- When water service is being restored, hospitals will have high priority.

We have activated the State Fire Response Plan to immediately request needed emergency resources.

- Pump stations should be able to provide enough water for firefighting.
- The fire department has contingency plans to handle loss of water supply.
- Specialist teams are assessing the contamination risk of using the water to fight fires.

Physical Attack Message Map 8

Audience/Stakeholder: Public/Media
Spokesperson: Fire, City Manager, Mayor, EMA Director, and/or Police
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What do you want people to do now about the chlorine gas release?

The chlorine release has been stopped.

- The bomb damage to the chlorine canisters was not extensive.
- The chlorine gas released was easy to track because of the color and odor.
- Our best information available indicates that the chlorine gas has dispersed to insignificant levels.

The chlorine release affected only a small portion of the community [use map to show boundaries].

- The affected population has been advised to stay inside.
- Emergency response personnel continue to advise residents.
- The gas release will have no lasting effects on the impacted area.

Those in the area of the release should remain indoors.

- We are asking residents in the [identify area] area to remain indoors for a little longer.
- We will make an announcement when it is safe for residents in this area to go outdoors again.
- If additional information is needed, please contact the emergency hotline at [insert number].

Physical Attack Message Map 9

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What are the possible health effects of exposure to chlorine?

The extent of health effects depends on the extent of exposure.

- Symptoms include coughing, chest tightness, blurred vision, nausea, or blisters on the skin.
- Other symptoms are difficulty breathing or fluid in the lungs.
- Having symptoms does not necessarily mean that a person has been exposed.

No antidote exists for chlorine exposure.

- Treatment consists of removing the chlorine from the body as soon as possible and providing supportive medical care in a hospital setting.

Long-term health effects rarely occur.

- Long-term complications from chlorine exposure are not found in people who survive a sudden exposure.
- However, in some cases, complications such as pneumonia may occur during therapy.
- Chronic bronchitis may develop in people who develop pneumonia during therapy.

Physical Attack Message Map 10

Audience/Stakeholder: Public/Media
Spokesperson: Fire, City Manager, Mayor, EMA Director, Public Health, and/or Police
S***tage of Crisis***: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What do people need to know and do to protect themselves from contaminated water?

People should use alternative water supplies until further notice.

- Do not drink the water until further notice.
- Avoid using water for pets, laundry, bathing, and other household purposes until further notice.
- Avoid using water for washing cars, watering lawns, or other outdoor purposes until further notice.

Samples are being analyzed to determine if the water has been affected.

- We will continue to collect and test water samples.
- We will have results from the latest round of tests available at [insert time].
- We will provide an update at our next scheduled briefing at [insert time and place].

If you have health concerns, contact your health care provider.

- Urine sampling can show whether you have been contaminated.
- Your health care provider can advise you about urine sampling.
- Additional information is posted on our Web site at [insert Web address], or call the hotline at [insert number].

Scenario 3: Hypothetical Credible Threat

Summary of Scenario: The water utility received a threat note indicating that terrorists had contaminated the water. The note does not specify the risk agent, time, or exact location. Law enforcement has, however, identified the threat as "credible and possible." The incident has not been confirmed as an actual attack at this point.

Hypothetical Credible Threat Questions (alphabetical order)

Refer also to the list of 77 most frequently asked questions in Section 2 of this report.

Are people in danger?
Are there plans to turn off the water?
Are you testing for everything that could cause harm?
Can people use the water?
Can you confirm that there has been a threat to the water supply?
Do people need to buy bottled water?
Do the police have any leads?
Do you have in-line monitoring? What does it show?
Do you think the threat is real?
Have any other systems received similar notes?
Have there been any reports of any unusual patterns of sickness?
Have there been any similar threats to other water systems? If so, what happened?
Have you activated your emergency response plan? If not, why not?
Have you added extra security?
Have you called for assistance?
Have you called in the FBI?
Have you had any unusual events?
Have you notified critical institutions, such as hospitals, schools, and nursing homes?
Have you sampled the water?
Have you tested the system?
Have your facilities been shut down?
How are you responding to the threat?
How can people protect themselves?
How can you tell if the system has been compromised?
How effective is your security?
How sure are you that the water is safe right now?
How was the threat made (e.g., letter or call)?
How will people know if their water is contaminated?
How will you alert the public if you find something is wrong?
How will you know when or if an attack has occurred?
If a person feels ill, who should they contact?
Is it a credible threat? If so, what makes it credible?
Is the water safe right now?
Is there any evidence the water system has been compromised?
Is there anything else people should know?
Should people boil the water?
Should people stop using the water?
Should the public be afraid?
Was the threat directed specifically at the water system?
Was the threat specific as to the nature of harm?
What are the most likely places for an attack?
What are the results from your preliminary tests?
What are you doing now to ensure that the water is safe?
What are you doing to inform the public?
What are you telling your own family?
What can the public do to help?
What can you tell us about the safety of the water system right now?
What can you tell us about the threat to the water supply?
What contaminants are you looking for in your sampling?
What exactly did the note say?
What have you learned from previous threats such as this?
What is the nature of the threat?
What is the worst case scenario?
What other agencies are involved?
What will your response be if the threat is real?
When did law enforcement learn of the threat?
When were you notified of the threat?
Where was the note found?
Who made the threat?
Who's in charge?
Why is our water system so vulnerable to this type of threat?

Message Maps

For this scenario, workshop participants developed message maps for the following questions (see maps below and on following pages):

1. What can you tell us about the threat to the water supply?
2. What can you tell us about the safety of the water system right now?
3. How will you know when or if an attack has occurred?
4. What will your response be if the threat is real to the water?
5. How are you responding to the threat?
6. What are you doing now to ensure that the water is safe?
7. Why is our water system so vulnerable to this type of threat?

Credible Threat Message Map 1

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: What can you tell us about the threat to the water supply?

A written note was received threatening the water supply and law enforcement believes the threat to be credible.

- The written threat was received this morning in the water utility's normal mail delivery.
- The writers of the note threatened to contaminate the water system, but did not specify where or what kind of contaminant would be used.
- We have initiated our threat response procedures and protocols.

We have implemented our emergency response plan.

- We immediately contacted local law enforcement after we received this threat.
- We are informed by the police that they believe this threat is credible and needs to be addressed.
- They are currently conducting an investigation to determine who may have sent this note.

At this time, we have not detected any contamination.

- We are inspecting facilities for breaches and monitoring for contamination within the system.
- We are collecting information to determine any water system impacts.
- We will provide more information as it becomes available.

Credible Threat Message Map 2

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: What can you tell us about the safety of the water system right now?

The threat is considered credible.

- We immediately activated our emergency response plan.
- We are working closely with law enforcement, the health department, emergency response organizations, and local officials.
- We are in communication with critical institutions, including hospitals, schools, and nursing homes.

We are investigating the situation with the support of partner agencies.

- We have increased security at key locations by working with local law enforcement.
- We will provide the media updates as information becomes available.
- We are asking the public for their assistance by reporting any suspicious activities to law enforcement authorities at [insert telephone number].

Our initial inspection indicates that the system is secure.

- We have inspected the water treatment plant, pump stations, and tanks.
- Water samples have been tested from throughout the system.
- We will continue to conduct inspections and take samples.

Credible Threat Message Map 3

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: How will you know when or if an attack has occurred?

Hopefully, we will be able to prevent or minimize the impact of an attack.

- We have security personnel patrolling our system.
- We have alerted the public to be vigilant and report suspicious activities.
- Law enforcement and the FBI are following the threat leads.

We have ongoing water quality testing throughout our system.

- We are using a number of microbiological tests for harmful biological agents.
- We are conducting broad testing for chemical contaminants and other indicators.
- We have laboratories on standby to analyze anything unusual we discover.

We are closely monitoring operations.

- We are looking for unusual changes in things we normally monitor, such as dissolved oxygen levels.
- We are tracking disinfection and other distribution system water quality markers.
- We have also increased levels of disinfectants as an additional protection.

Credible Threat Message Map 4

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: What will your response be if the threat is real to the water?

Protecting public health is our top priority, so we take all credible threats seriously.

- We are working closely with our partners in public health.
- We are working closely with our partners in law enforcement.
- We are working closely with critical institutions, including the fire department, hospitals, and schools.

We have already activated our emergency response plan.

- We are working with local, state, and federal emergency response agencies.
- We have alerted agencies that have alternative sources of water about the situation.
- Utility personnel have been placed on alert.

Water use may be restricted.

- Bottled drinking water will be supplied if needed.
- Water will be available at designated distribution sites.
- People can obtain additional information from our Web site [insert Web site] or toll-free number [insert number].

Credible Threat Message Map 5

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: How are you responding to the threat?

We have taken all reasonable measures to ensure the safety of the water system.

- Our staff is trained and has practiced applying security measures.
- For security reasons, specific measures we have taken must remain confidential.
- We are conducting security activities jointly with law enforcement at the local, state, and federal levels.

Initial testing shows no signs of contamination.

- Our staff is well trained in conducting inspections and monitoring.
- Our staff is well trained in taking water samples.
- Samples have been sent to state and federal laboratories for additional testing.

We will continually monitor the safety of the system.

- We have asked hospitals to be alert for unusual patterns of illness.
- We have asked our partners in public health to be alert for unusual patterns of illness.
- We have asked our partners in law enforcement to provide additional security.

Credible Threat Message Map 6

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: What are you doing now to ensure that the water is safe?

At this time, we have no evidence that any event has occurred.

- Law enforcement believes that the threat is credible.
- We take any threat to the water system seriously.
- The investigation is ongoing.

We have activated our emergency response plan.

- As part of our emergency response plan, we are collaborating with emergency response agencies.
- We are working closely with other local and state officials, including public health.
- We have alerted agencies that supply emergency water supplies, emergency analytical staff, and laboratories.

We have increased our inspection, monitoring, and sampling activities.

- We have elevated our security level.
- We are conducting additional inspection, monitoring, and sampling activities.
- We encourage people to report any suspicious activity by calling [insert number].

Credible Threat Message Map 7

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible ***X Credible*** __ Confirmed __ Remediation/Recovery

Question: Why is our water system so vulnerable to this type of threat?

Our system has hundreds of miles of pipeline and thousands of connections.

- The water utility supplies water to [insert names] Counties in [insert state] and [insert names] Counties in [insert state].
- In order to provide service to this area, there are numerous connections to the system.
- These connections include such things as hydrants, water meters, and transmission lines.

We have a comprehensive emergency response plan for handling crisis events.

- We conduct drills and exercises on a regular basis to test our emergency response plan.
- We partner with local officials in monitoring and sampling.
- Our plan will remain activated until the threat has been cleared.

Since the attacks of 9/11, we have worked vigorously to enhance system security.

- We have inspection, monitoring, sampling, and testing programs to protect the system.
- We work closely with the police and have an active neighborhood water watch program.
- Our employees go through extensive training for various security scenarios.

Scenario 4: Hypothetical Power Loss Incident

Summary of Scenario: There has been a loss of power, due to a major storm, that has impacted the water distribution system for a water utility. Half of the water utility's pumps are currently running on back-up power and the remaining pump stations were damaged or destroyed by the storm and are inoperable. The power utility estimates a minimum of three days before power will be restored. Back-up generators will provide power for approximately 36 hours. The incident is at the confirmed stage.

Hypothetical Power Loss Questions (alphabetical order)

Refer also to the list of 77 most frequently asked questions in Section 2 of this report.

Are other local utilities (power and water) helping?
Can water be brought in from other communities?
Can you guarantee that normal water service will resume once the power comes back on?
Could you do more to help the situation?
Has any of the water been contaminated?
Has the power utility isolated the source(s) of the problem?
Have you prepared for the worst-case scenario?
How could you have prevented this effect on the distribution system?
How do people know if their area is affected?
How do you know the water is safe to drink?
How long can the water utility provide water using the back-up generators?
How long until the pump stations are repaired?
How much damage to the water system do you expect?
How will the damaged roads impact your repair efforts?
How will you know the water is safe when the power comes back on?
Is it safe to drink, cook, and bathe?
The weather is still bad; what happens if we get hit by another storm?
Was anyone harmed?
What does voluntary conservation mean?
What happens if the power is not back up in [insert number] days?
What if you need generator power for longer than [insert number] hours?
What is the water utility doing to address this problem?
What is the worst-case scenario?
What precautions should people take with the water during the power outage?
What should people know about the situation regarding the water supply?
What was the cause of the power outage?
What will you do to better prepare for events of this nature in the future?
When were you notified something happened?
Who will provide water and how will it be distributed?
Why are you mandating conservation?
Why doesn't the utility have more than [insert number of hours] supply of power?
Will people's water bills increase?

Message Maps

For this scenario, workshop participants developed message maps for the following questions (see maps on the following pages):

1. How long can the water utility provide water using the back-up generators?
2. Can water be brought in from other communities?
3. Have you prepared for the worst-case scenario?
4. Can you guarantee normal water service will resume when power comes back on?
5. What should people know about the situation regarding the water supply?
6. What is the water utility doing to address the problem?
7. Why are you mandating conservation?
8. What can you tell us about the situation?
9. How will you know the water is safe when the power comes back on?

Power Loss Message Map 1

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, and/or EMA Director
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How long can the water utility provide water using the back-up generators?

Our generators will enable us to provide water for 36 hours.

- Our generators are functioning properly.
- Our generators are designed to provide back-up power if there is a power outage.
- We can operate at 100 percent capacity using our generators.

We will resume normal operations when full power is restored.

- Treated water will be available soon after power is restored.
- We will use all available resources to resume operations as quickly as possible.
- Water will be safe to drink when normal operations resume.

People can help by conserving water.

- Conservation efforts will help extend the time water is available.
- People should not store water until the system is back to normal.
- People should stay tuned to local radio stations for updates.

Power Loss Message Map 2

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, and/or EMA Director
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Can water be brought in from other communities?

We are in contact with nearby water utilities.

- We are conducting an inventory of water available from other sources.
- We are reviewing various water transportation options.
- We are reviewing various water storage options.

The state health department is helping in this effort.

- We have a state health official on site at the utility.
- The state health department has provided us additional resources.
- We are jointly reviewing the state emergency plan in case of need.

We expect to have reserve water on-site within [insert time].

- [insert number] water tankers are currently on their way from [insert location and supplier].
- We are identifying locations to distribute water to our customers.
- [Insert number] more water tankers are on the way.

Power Loss Message Map 3

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, and/or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Have you prepared for the worst-case scenario?

Our back-up system is designed to provide safe water for [insert time period].

- We are committed to providing safe water to the community.
- We are able to provide water from several sources.
- Through conservation and cooperation, the effects of the power outage can be minimized.

We are evaluating the need for additional resources.

- We are working with other agencies to maintain water service to our customers.
- We are activating our own reserve resources.
- A special task force is determining if additional resources are needed.

State, regional, and federal support is available if needed.

- We have cooperative agreements with other agencies to help in times of need.
- We have made arrangements to receive support from other organizations.

Power Loss Message Map 4

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, and/or EMA Director
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Can you guarantee normal water service will resume when power comes back on?

Water service is dependent upon electricity.

- All available resources have been committed to the recovery effort.
- Back-up generators will operate for [insert time].
- We have partnership agreements with other utilities to provide reserve water if needed.

We are working to minimize impacts on our customers.

- We have requested that our customers conserve water as much as possible.
- We are working with the local and state health departments to make sure hospitals and facilities have the water they need.
- We are coordinating our efforts with the fire department to ensure that fire protection is maintained.

Normal water service should resume soon after power is restored.

- We are coordinating our efforts with the power company.
- Once electricity is restored, it typically takes [insert time] for normal water service to resume.
- We will provide updates through the media, our Web site at [insert address], and our telephone hotline at [insert number].

Power Loss Message Map 5

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, and/or EMA Director
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What should people know about the situation regarding the water supply?

The power outage has affected operations of the water system.

- We are operating undamaged pump stations using emergency generators that will provide back-up power for only [insert time period].
- We estimate that there is [insert time period here] supply in the system with conservation measures.
- The power utility estimates that it will take [insert time period here] to restore service.

The limited water supply available until power is restored must be conserved for emergency services.

- Emergency services include fire suppression and health care facilities.
- We are working with other support agencies to ensure hospital and fire supplies remain available.

We are implementing mandatory water use restrictions.

- Water use should be limited to personal hygiene, cooking and health care.
- We are making arrangements for alternate supply sources of water, if needed.
- We will communicate updates through the media, our Web site at [insert address], and our telephone hotline at [insert number].

Power Loss Message Map 6

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What is the water utility doing to address the problem?

We are following procedures specified in our response plan.

- We have an emergency response plan for this type of situation.
- Our plan calls for mandatory conservation to maintain critical services.
- We will modify operations as necessary to maintain water quality.

We are coordinating our response efforts with other organizations.

- We are working closely with the power company.
- We are working with the local and state emergency response agencies to provide alternate supply sources.
- We are working with the health department to ensure the safety of the water.

We will resume normal operations soon after power is restored.

- Response crews are working around the clock.
- We expect to resume normal operations within [insert time] after power is restored.
- We will work with public health to continue water testing after service is restored.

Power Loss Message Map 7

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, Mayor, and/or EMA Director
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Why are you mandating conservation?

Without power sources, there is no way to add more water to the system.

- Electric pumps are used to refill tanks and reservoirs.
- Without the ability to refill, supplies could be exhausted.
- Previous outages elsewhere have demonstrated that we should prepare for the power not being restored in time.

Some water needs are more pressing than others.

- Conservation is important to meet the needs of firefighters.
- Conservation is important to meet the needs of health care facilities.
- Household use other than for drinking can be temporarily reduced.

Conservation can help meet these needs as long as possible.

- Under normal use, we anticipate depletion of supplies in as little as one day.
- Under normal cases, people use about 100 gallons but drink only about half a gallon of water per day.
- Conservation can substantially lengthen the time we can go without new water.

Power Loss Message Map 8

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What can you tell us about the situation?

A storm came through the area [insert when storm hit].

- The storm caused damage to the power system.
- The power outage affected all parts of the community.
- The power company estimates that power will be restored in [insert time].

We can operate on generators for [insert time period].

- Our generators are reliable and run on gasoline.
- Several pumps were damaged but we have enough pumps to operate the system.
- Our generators were automatically triggered resulting in no loss of service for the time being.

We will resume normal operations soon after power is restored.

- Response crews are working around the clock.
- We expect to resume normal operations within [insert time] after power is restored.
- We will work with public health to continue water testing after service is restored.

Power Loss Message Map 9

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility, City Manager, and/or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How will you know the water is safe when the power comes back on?

We run many tests to ensure water safety.

- Our experts are experienced in water analysis.
- All analyses will be performed according to standard EPA methods.
- State and federal approved labs are prepared to help us with confirming water safety.

Our emergency plans cover restoring the system.

- Water will be treated to meet federal standards.
- Our work crews are experienced with restoring service following other types of disruptions, such as pump failures and main breaks.
- Plans meet or exceed industry standards and local, state and federal requirements.

We will let you know when the water is safe.

- Your safety is our first priority.
- Once power is restored, we will work as hard as possible to restore the water quickly.
- We will provide updates through the media, our Web site [insert Web address] and our telephone hotline at [insert number].

Scenario 5: Hypothetical Pesticide Contamination Incident

Summary of Scenario: The water utility is receiving several taste and odor complaints about the water. In addition, the local health department and 911 are receiving calls about the water making residents ill. In response to the complaints, the water utility collected and analyzed numerous samples. The laboratory analysis indicated that [insert pesticide name] is present in the drinking water; however, the source and extent of contamination is unknown. The incident is in the confirmed stage.

Hypothetical Pesticide Contamination Incident Questions (alphabetical order)

Refer also to the list of 77 most frequently asked questions in Section 2 of this report.

Can people drink the water?
Can people use the water for their pets?
Can people use the water on their lawns?
Can the water be used for firefighting?
Can you clean the distribution system to make it safe again?
Could this have been prevented?
Do you accept responsibility for what happened?
How are you going to clean the system?
How did this happen?
How do you normally know that the water is safe to drink?
How long will it be until people can use the water again?
How many people are affected?
How many people may have been contaminated?
How much will this cost to clean up? Will it result in higher water bills?
How will you know that the water is safe to drink?
If people cannot drink or touch the water, is there anything people can do with it?
Once it is cleaned, how will you know the water system is safe?
Was this a terrorist attack?
What are the symptoms of exposure?
What are you doing about the situation?
What are you doing to help businesses affected by the situation?
What are your qualifications for handling this kind of situation?
What can residents do to help?
What can you tell us about the water contamination?
What do you most want people to know about the situation?
What else can go wrong?
What impact will this contamination have on the plumbing and water heaters in people's homes?
What is [insert pesticide], how is it used, and what impact does it have on people who drink it?
What is the extent of the damage to the water supply?
What is the water utility doing now about the pesticide contamination?
What is wrong with the water?
What kind of treatment is necessary for people who have been exposed to contaminated water?
What should people do if they washed clothes with the contaminated water?
What should people do now for safe water?
What should people do to protect children and the elderly?
What will happen to people who have drunk contaminated water?
What will happen to the people exposed to the pesticide?
When did this happen?
When will the water be safe to use?
When will you provide updates?
Where do people in the impacted areas get water?
Who is in charge?
Who is responsible? Who is to blame?
Who will decide that the water is safe to use after cleanup?
Why wasn't this prevented?
Will the water contamination affect neighboring communities?
Will this incident result in higher water bills?

Message Maps

For this scenario, workshop participants developed message maps for the following questions (see maps on the following pages):

1. What can you tell us about the water contamination?
2. What is the water utility doing now about the pesticide contamination?
3. How many people may have been contaminated?
4. What are the symptoms of exposure?
5. What should people do to protect children and the elderly?
6. If people cannot drink or touch the water, is there anything people can do with it?
7. What should people do now for water?
8. Do you accept responsibility for what happened?
9. How are you going to clean the system?
10. Once it is cleaned, how will you know if the water system is safe?
11. How do you normally know the water is safe to drink?

Pesticide Contamination Incident Message Map 1

Audience/Stakeholder: Public/Media
Spokesperson: City Manager and/or Mayor
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What can you tell us about the water contamination?

We have confirmed the presence of a pesticide in the drinking water.

- The pesticide is [insert name of pesticide], which is used for [insert use].
- Levels of the pesticide are above recommended drinking water standards.
- The drinking water in the following locations has been affected [insert locations].

An investigation is underway to determine the source and amount of the pesticide.

- We are taking samples and conducting tests throughout the system.
- Public health and hospitals are tracking and treating those who are ill.
- Law enforcement is investigating the cause.

Effective immediately, people should not use the water.

- People and pets should not drink the water.
- People should not use the water to bathe, shower, or wash.
- Alternative sources of drinking water will be made available at the following locations [insert locations and show map].

Pesticide Contamination Incident Message Map 2

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What is the water utility doing now about the pesticide contamination?

We are testing water quality throughout the system.

- We are taking samples at various locations.
- [Insert laboratory name] is testing those samples.
- The results of these tests will determine our next steps.

We have begun recovery operations.

- Our recovery operations are being coordinated with local, state, and federal agencies.
- The CDC and other public health experts are advising us on potential health effects.
- The US Environmental Protection Agency and other experts are advising us on how to clean the system.

Effective immediately, people should not use the water.

- People should not drink the water.
- People should not use the water to bathe, shower, or wash.
- Alternative sources of drinking water will be made available at the following locations [insert locations].

Pesticide Contamination Incident Message Map 3

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How many people may have been contaminated?

We are assessing the number of people who might be affected.

- Health officials are tracking calls and complaints.
- Samples have been sent to state laboratories for testing.
- Results of the tests will help us better determine affected areas.

We are working closely with local hospitals.

- Hospitals are prepared to provide treatment.
- Hospitals are also providing medical advice.
- The CDC is providing advice to us and the hospitals.

We are coordinating our response efforts with other organizations.

- In special cases, we will make door-to-door visits.
- Hospitals and nursing homes will receive priority attention.
- Other communities have offered resources and support.

Pesticide Contamination Incident Message Map 4

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What are the symptoms of exposure?

Symptoms depend on exposure.

- Because of the unusual smell and taste, most people will not drink the water.
- Because of the small amounts of pesticide involved, most people will not breathe amounts large enough to cause harm.
- Skin penetration is unlikely unless there has been prolonged contact with the water.

The pesticide can enter the body through drinking, breathing, or skin contact.

- Exposure is typically not life threatening.
- Most people who have been exposed and have symptoms will fully recover.
- The biggest concern is exposure by drinking a large amount of contaminated water.

There are many symptoms.

- People who drank more than a quart of the water may experience nausea, an upset stomach, and vomiting.
- People who are experiencing symptoms should not be encouraged to vomit.
- Call 911 immediately or go to an emergency room if you have symptoms.

Pesticide Contamination Incident Message Map 5

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What should people do to protect children and the elderly?

Children and the elderly need special protection.

- Children and the elderly are more vulnerable to illness than other populations.
- Children are more vulnerable because they have less developed body defenses.
- The elderly are more vulnerable because they may have weakened immune systems.

Children and the elderly should be especially careful not to contact the water.

- Children and the elderly should not bathe using the water.
- Children and the elderly should not swim in the water.
- Children and the elderly should not wash dishes using the water or use dishes washed in the water.

Children and the elderly should be especially careful not to drink the water.

- Children and elderly should drink only bottled water.
- Children and the elderly should not drink beverages prepared with the water.
- Parents should not prepare infant formula using the water.

Pesticide Contamination Incident Message Map 6

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: If people cannot drink or touch the water, is there anything people can do with it?

Our primary concern is the pesticide entering the body through drinking.

- People should not drink the water or cook with it. Boiling does not remove a pesticide.
- People should not drink beverages prepared with the water or make infant formula.
- People should keep children and pets away from the water.

People can water their plants, gardens, and lawns with the water.

- People should wear gloves to prevent skin contact with the water when using a hose.
- Avoid breathing aerosolized water from sprinklers.
- Avoid creating run-off that could contaminate the sewer system.

Skin contact should be avoided, especially if contact is prolonged.

- People should not use the water for washing dishes.
- People should not use the water to take baths or showers.
- It is okay to flush toilets.

Pesticide Contamination Incident Message Map 7

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What should people do now for water?

At this time, people should not use the water.

- People should not drink the water.
- People should not use the water to bathe, shower, or wash.
- Boiling the water will not make it safe.

We will provide regular updates on our testing.

- Updates are available on our Web site [insert Web site].
- Updates will be broadcast through local radio and TV.
- Updates are available from our information line at [insert number].

People from affected areas should drink only bottled water.

- Free bottled water will be available at the following locations [insert location] at [insert times].
- Bottled water should be used for cooking and other uses.
- Bottled water should be used for pets.

Pesticide Contamination Incident Message Map 8

Audience/Stakeholder: Public/Media
Spokesperson: City Manager
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Do you accept responsibility for what happened?

Our most immediate concern is the safety of the water.

- We are working to identify impacted areas.
- We are working to minimize the spread of the pesticide in the system.
- Our goal is to restore normal service throughout the system as quickly and safely as possible.

We will help determine the cause of the incident.

- It is possible that the contamination was unintentional.
- We are working closely with law enforcement as they conduct their investigation of the incident.
- The investigation should identify the source of contamination.

We are responsible for making changes in our operations, if needed.

- After the incident has been addressed, standard procedure is to review our emergency response plan and make any necessary changes to improve it.
- We will review the actions we took following the discovery of the pesticide.
- We will know more once the investigation is complete.

Pesticide Contamination Incident Message Map 9

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How are you going to clean the system?

We are evaluating which parts of the distribution system need to be cleaned.

- We will take samples from throughout the distribution system.
- We will analyze the samples to determine where pesticide is present in the system
- We will also use water-flow models to determine which parts are affected.

We will use flushing and other cleaning methods as applicable.

- We are consulting with experts at federal, state, and local agencies.
- We will select methods that are safe and effective for dealing with pesticides.
- We will select cleaning methods that will enable us to meet regulatory requirements for this pesticide.

We will selectively replace pipes if needed.

- We will replace pipes based on results from the testing program.
- Replacement pipes are readily available.
- We have extensive experience replacing pipes.

Pesticide Contamination Incident Message Map 10

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Once it is cleaned up, how will you know if the water system is safe?

Testing will confirm the absence of harmful levels.

- We will collect water samples at multiple locations along the distribution system.
- Samples will be tested for [insert pesticide name] at laboratories.
- The tests are highly accurate in detecting the pesticide.

Federal and state agencies determine what level is considered safe.

- The water system will not be put back into service until the contamination is reduced below this level.
- This cleanup level is based on protecting human health against long-term effects for all age groups.
- The public health department will verify that levels are safe.

We will continue testing to ensure that levels remain safe.

- We will monitor for elevated levels of the pesticide.
- We will report any problems and take necessary actions.
- Water users should report any unusual odors, coloration, or other problems by calling our hotline at [insert number].

Pesticide Contamination Incident Message Map 11

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How do you normally know the water is safe to drink?

We continuously test the water for safety.

- The law requires us to check water safety daily.
- We continually meet or do better than water quality standards set by the U.S. Environmental Protection Agency.

Testing is done in partnership with the local health department.

- The water utility and the local health department have experts on staff with specialized knowledge of testing procedures.
- Our experts test the water daily.

We will inform you when testing shows that the water is safe to drink and use.

- We will provide updates through the media.
- We also post updates on water quality on our Web site at [insert Web address].
- People can also call our telephone hotline for updates at [insert number].

Scenario 6: Hypothetical Intentional Biological Contamination Incident

Summary of Scenario: The event is first discovered when a high number of residents from a neighborhood visit local drug stores, doctor offices, and emergency rooms complaining of gastrointestinal symptoms. Law enforcement discovers that someone has introduced a bacterial agent into the distribution system. The incident is at the confirmed stage.

Hypothetical Intentional Biological Attack Questions (alphabetical order)

Refer also to the list of 77 most frequently asked questions in Section 2 of this report.

Are any other water systems impacted?
Are people going to get sick?
Are there any health effects associated with the use of chlorine?
Are there long-term effects of exposure?
Can it happen again?
Can people stay in the area?
Can people use the water at all (bathing, washing dishes, making coffee)?
Can people use water from their water heaters?
Can the fire department use the water to fight fires?
Can the illness spread?
Can you guarantee that the sampling/testing will detect all cases of contamination?
Do you know exactly where the contaminant is within the drinking water system?
Does the contaminant react differently when heated—such as when the water is used to fight fires?
Has anyone died?
Has this happened before – here or elsewhere?
Have people been drinking contaminated water?
Have the perpetrators been caught?
Have you sampled/tested all the water?
How can people decontaminate their appliances (such as the water heater or ice maker)?
How can you be sure this won't happen again?
How contagious is the illness caused by the affected water?
How did public health find out that there is contamination?
How did the city find out that there is contamination?
How did the terrorists do it?
How did they get the biological agent?
How did this happen?
How do people know if they have been harmed?
How do people treat water in their homes?
How far has the contaminated water spread?
How long did it take for you to find it?
How long has the contaminant been in the water?
How long will it be until people can use the water?
How many people are ill?
How or where can people in the affected area get safe water?
How will low-income people get bottled water?
How will people know if they have been exposed?
How will people who are sick or disabled get bottled water?
If people leave the area to stay with relatives, will the people they visit get sick?
Is it safe to drink the water?
Is the contamination contained?
Is the contamination harmful to special populations (e.g., children, the elderly, people who have weak immune systems and pregnant women)?
Is the situation under control?
Is there enough bottled water?
Is this a terrorist act?
What about people's kids?
What about people's pets?
What about the water supply to hospital and nursing homes?
What are the health effects associated with exposure to [insert biological agent]?
What are the results from the sampling/testing?
What are you advising people to do?
What are you doing to fix it?
What are you doing to prevent this in the future?
What are you doing to stop the spread of the contaminant?
What are you not telling us?
What are your qualifications to handle the situation?
What can we expect next?
What can you tell us about this contamination event?
What cautions should people take to be safe?
What do people do if they are sick?
What do people do if they think their homes are contaminated?
What do you not know yet?
What effect will this have on water bills?
What effects will this have on the plumbing systems of people in the impacted areas?

What is the worst case – how bad could things get?
What steps are being taken to make sure this will not happen again?
When can people drink the water?
When did you find out it was a terrorist act?
When is the system going to be fixed?
Where can people get more information?
Where do people go for medical attention?
Where will people in the impacted areas get water?
Who did it?
Who is at greatest risk?
Who is going to pay to fix the problem?
Who is in charge of the investigation?
Who is in charge of the overall response?
Who is taking care of the problem – law enforcement, public health, the utility?
Who is to blame?
Why should we believe you?
Why wasn't it prevented?
Will people be able to drink the water?
Will people be able to use the water for other than drinking purposes?
Will people be allowed to stay in the area?

Message Maps

For this scenario, workshop participants developed message maps for the following questions (see maps below and on following pages):

1. What happened?
2. What can you tell us about this contamination event?
3. Do you know exactly where the contaminant is within the drinking water system?
4. How did public health find out there was contamination?
5. Can people in the affected area use the water at all (bathing, washing dishes, making coffee)?
6. What are the health effects associated with exposure to [insert biological agent]?
7. How did the city find out there was contamination?
8. How or where can people in the affected area get safe water?
9. How did this happen?

Biological Attack Message Map 1

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What happened?

Terrorists contaminated part of the water system with [insert biological agent].

- People have reported gastrointestinal illness.
- [Insert biological agent] causes nausea, vomiting, and diarrhea, but it is generally not life threatening.
- If you are experiencing symptoms, please seek immediate medical attention.

We have contained the contamination [insert map showing system and indicating affected area].

- The affected area has been isolated from the rest of the water system.
- Sampling for additional contaminants is currently being performed.
- Additional public announcements will be made as more information becomes available.

We recommend people living in this area [insert boundaries] boil their water.

- Bring your water to a rolling boil for [insert number] minutes and let cool before drinking.
- Fact sheets and other information are available on the following Web site [insert Web site] or at our toll-free telephone line [insert telephone number].
- Alternative drinking water is available at [insert address of location].

Biological Attack Message Map 2

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What can you tell us about this contamination event?

There has been an intentional contamination of the water system.

- We are currently working with local law enforcement and the FBI in response to this event.
- We know the location of the point of introduction [insert location], and are currently working to define the area affected.
- We are also working to sample our entire system for indication of other areas that may be contaminated.

Most people infected with this bacterium will have mild to moderate illness.

- [Insert biological agent] infection can cause diarrhea and vomiting.
- The very young and old, and people with weakened immune systems are typically most at risk.
- If people are having symptoms, they should consult their physicians.

We have issued a "do not use" notice in response.

- "Do Not Use" means do not use the water for drinking, bathing, or cooking. It is safe to flush toilets.
- We are recommending the use of alternative sources (such as bottled water) until we lift the "do not use" notice.
- We are working to contain and clean up this contamination and will provide more information as soon as it becomes available.

Biological Attack Message Map 3

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Do you know exactly where the contaminant is within the drinking water system?

We know the source of the contamination.

- The police and FBI have identified a location in the [insert name] neighborhood where the contaminant was introduced.
- The police are currently treating this contamination event as an act of terrorism.
- Evidence collected at the scene confirms that the source of the water contamination came from this location.

We are currently working to clearly define the area affected.

- We are sampling and analyzing the water system around that location.
- We are looking at the water distribution system to specifically define the affected area.
- Sample results can be expected from the laboratory within 48 hours.

At this time, illness has been reported only in this area [insert boundaries].

- In addition to the localized sampling, we are sampling throughout the system for evidence of contamination.
- Preliminary water quality testing indicates that this contamination has not spread throughout the system.
- If you have questions as to whether or not you may be affected by this event, please call our 24 hour hotline at [insert number].

Biological Attack Message Map 4

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How did public health find out there was contamination?

RODS – our public health surveillance system – showed a higher than normal number of illnesses in the community.

- The Real-time Outbreak Disease Surveillance (RODS) system examines emergency department data from area hospitals and over-the-counter drug sales.
- Recent RODS data has shown an increase in the number of emergency room patients with diarrhea and GI symptoms.
- RODS data has also shown an increase in the sale of over-the-counter anti-diarrheal medications from local drug stores.

Water samples were collected by the water utility.

- Samples were collected within the impacted areas.
- Samples were collected throughout the distribution system.
- Additional sampling and analysis will be conducted as needed.

Further investigation indicates that the public water system is the likely source.

- The health department interviewed patients to investigate the cause of their illness.
- Clinical laboratory tests supported the diagnosis.
- The health department worked with the water department to verify the cases occurred within the water department's service area.

Biological Attack Message Map 5

Audience/Stakeholder: Public/Media
Spokesperson: Water Utility
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: Can people in the affected area use the water at all (bathing, washing dishes, making coffee)?

If you live in the affected area (see map), your water may still contain [insert biological agent].

- This bacterium can cause illness when people come in direct contact with it.
- The "do not use" notice is based on taking a conservative stance to protect against any resulting illness.
- The protection of public health and safety is the basis for all aspects of this advisory and response.

This should not affect fire fighting.

- The fire department has informed us that they will continue to use this water as needed to fight fires.
- Bacteriological contamination of this type does not prohibit its use for firefighting purposes.
- Fire protection will continue during the emergency.

People should avoid direct contact with this water at this time.

- People in this area are advised to not drink, cook, bathe, give to pets, or otherwise use the water where personal contact may occur.
- We are working as quickly as possible to resolve this issue and restore full use of the drinking water system in the affected areas.
- We will inform you of any change in the use advisory.

Biological Attack Message Map 6

Audience/Stakeholder: Public/Media
Spokesperson: Public Health
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: What are the health effects associated with exposure to [Insert biological agent]

[Insert agent] is a bacteria that affects the gastrointestinal system.

- Frequent hand washing will help control the spread of [insert agent].
- The water utility has treated the water with higher but safe levels of chlorine to kill the [insert agent].
- Use alcohol-based hand cleaners until the water is safe to drink.

Symptoms will generally last for 7 – 10 days.

- Primary symptoms include nausea, vomiting, and diarrhea.
- People with symptoms should contact their health care providers for treatment information.
- People can call the public health hotline at [insert number] for more information about [insert biological contaminant].

[Insert agent] does not typically cause long-term health effects.

- [Insert agent] is generally not life threatening.
- The most vulnerable groups include small children, the elderly, and people with weak immune systems.
- [Insert biological contaminant] infection is treatable by [insert treatment].

NOTE: A message map for each agent can be prepared regarding symptoms, treatment, and other health effects. CDC fact sheets, at http://www.bt.cdc.gov/agent/, provide the health effects for various specific agents.

Biological Attack Message Map 7

Audience/Stakeholder: Public/Media
Spokesperson: City Manager
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How did the city find out there was contamination?

Hospital reports from [insert names of hospitals] indicate higher numbers of cases of ill patients than normal.

- [Insert number] hospitals have reported a total of [insert number] cases during a [insert number]-day period.
- The number of hospital patients with gastrointestinal symptoms is well above normal.
- The reports were provided to the health department as part of the community's medical tracking system.

The health department identified [insert biological contaminant] in the water system as the cause.

- The health department conducted interviews with ill patients to determine the cause.
- The health department's investigation also included laboratory tests.
- The health department contacted the water authorities and indicated there may be a waterborne problem.

The water utility reports [insert biological contaminant] in samples collected from the water system.

- The water utility initiated testing after notification from the health department.
- The water utility is identifying impacted areas.
- The water utility will continue to sample and test the water, and we will keep you posted.

Biological Attack Message Map 8

Audience/Stakeholder: Public/Media
Spokesperson: City Manager
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How or where can people in the affected area get safe water?

Water is being made available to households in the affected area [insert boundaries].

- The city is setting up distribution centers for the affected area.
- We are able to distribute [insert number] gallons of water per person.
- Disabled or other individuals who cannot get to a distribution center should call [insert number] for assistance.

Hospitals in the affected area will have supplies of safe drinking water.

- The water utility has arranged for the provision of water treatment units for the hospital system.
- People should not go to a hospital for their household's supply of emergency water.
- Health clinics in the area are also receiving supplies of emergency drinking water.

Please follow the "do not use" drinking water order.

- People are not to use the water for cooking, bathing, or any other personal contact uses, including for pets.
- Ongoing samples of the water system are being taken.
- We will let you know when the water is again safe to use.

Biological Attack Message Map 9

Audience/Stakeholder: Public/Media
Spokesperson: Law Enforcement
Stage of Crisis: __ Possible __Credible ***X Confirmed*** __ Remediation/Recovery

Question: How did this happen?

A terrorist group has claimed responsibility.

- Police found a note at [insert location].
- The group who left the note is on the FBI watch list.
- The investigation to find the perpetrators is ongoing.

Terrorists introduced the bacteria into the location's plumbing system.

- Police found equipment at the location.
- Laboratory results verify traces of [insert bacterial agent] in containers near the equipment.
- Initial tests by the water utility confirm traces of [insert bacterial agent] in the water system in the vicinity of this location.

Authorities have found the contamination source.

- Residents reported suspicious activities in and around this location.
- Equipment at the location is consistent with this kind of attack
- Fact sheets related to [insert biological agent] bacteria were found as well.

4. Conclusion

Successful implementation of the guidelines for developing and delivering message maps presented in this report will improve the effectiveness of risk communication during crisis situations. Amid the uncertainty and high stress of such events, good risk communication will minimize negative impacts of fear and concern, increase knowledge and understanding, enhance trust and credibility, encourage appropriate behaviors, and potentially help save lives.

As with many other activities, good risk communication requires anticipation, preparation, and practice. This involves anticipating scenarios requiring risk communication, preparing key messages, and practicing delivery in advance of crisis events. Preparing for effective risk communication is an ongoing process that should be an integral component of overall crisis response planning.

The United States Environmental Protection Agency's National Homeland Security Research Center (NHSRC) has researched the state of the science in risk communication and produced a set of tools and reference materials to assist those responsible for providing information during emergency events.

In addition to conducting message mapping workshops and publishing this report, NHSRC has conducted a National Water Security Risk Communication Symposium (proceedings available on CD) and produced a DVD video presentation of basic principles of crisis communication by Dr. Vincent Covello. Please visit the Web site at http://www.epa.gov/nhsrc for more information.

Appendix A

Seven General Rules of Risk Communication

The following are seven best practices for effective risk communication developed by Dr. Vincent Covello.

1. Accept and involve stakeholders as legitimate partners

- Demonstrate respect for those affected by risk management decisions by involving people early, before important decisions are made
- Include in the decision-making process the broad range of factors involved in determining public perceptions of risk, concern, and outrage
- Involve all parties that have an interest or a stake in the risk in question
- Use a wide range of communication channels to engage and involve people
- Adhere to highest ethical standards: recognize that people hold you professionally and ethically accountable
- Strive for win-win outcomes

2. Listen to people

- Do not make assumptions about what people know, think or want done about risks
- Take the time before taking action to find out what people are thinking: use techniques such as interviews, facilitated discussion groups, information exchanges, availability sessions, advisory groups, toll-free numbers, and surveys
- Let all parties who have an interest or a stake in the issue be heard
- Let people know that what they said has been understood and what actions will follow
- Identify with your audience and try empathetically to put yourself in their place
- Acknowledge the validity of people's emotions
- Emphasize communication channels that encourage listening, feedback, participation, and dialogue
- Recognize that competing agendas, symbolic meanings, and broader social, cultural, economic, or political considerations often exist and complicate the task of risk communication

3. Be truthful, honest, frank, and open

- If an answer is unknown or uncertain, express willingness to get back to the questioner with a response within an agreed-upon deadline
- Disclose risk information as soon as possible (emphasizing appropriate reservations about reliability); fill information vacuums
- Do not minimize or exaggerate the level of risk; do not over reassure
- Make corrections quickly if errors are made
- If in doubt, lean toward sharing more information, not less – or people may think something significant is being hidden or withheld
- Discuss data and information uncertainties, strengths and weaknesses – including the ones identified by other credible sources
- Identify worst-case estimates as such, and cite ranges of risk estimates when appropriate
- Do not speculate, especially about worst cases

4. Coordinate, collaborate, and partner with other credible sources

- Take the time to coordinate all inter-organizational and intra-organizational communications
- Devote effort and resources to the slow, hard work of building bridges, partnerships, and alliances with other organizations
- Use credible and authoritative intermediaries between you and your target audience
- Consult with others to determine who is best able to take the lead in responding to questions or concerns about risks: establish and document agreements
- Do not attack those with higher perceived credibility
- Cite credible sources that believe what you believe; issue communications together with, or through, other trustworthy sources

5. Meet the needs of the media

- Be accessible to reporters; respect their deadlines
- Prepare a limited number of key messages in advance of media interactions; take control of the interview and repeat or bridge to your key messages several times
- Provide information tailored to the needs of each type of media, such as sound bites and visuals for television
- Provide background materials on complex risk issues
- Say only those things that you are willing to have repeated by the media: everything you say is on the record
- Keep interviews short: agree with the reporter in advance about the specific topic of the interview and stick to this topic during the interview
- Always tell the truth
- If you do not know the answer to a question, focus on what you do know and tell the reporter what actions you will take to get an answer
- Stay on message; bridge to important messages
- Be aware of, and respond effectively to media pitfalls and trap questions
- Avoid saying "no comment"
- Follow up on stories with praise or criticism, as warranted
- Work to establish long-term relationships of trust with specific editors and reporters

6. Speak clearly and with compassion

- Use clear, non-technical language appropriate to the target audience
- Use graphics and other pictorial material to clarify messages
- Avoid embarrassing people
- Respect the unique communication needs of special and diverse audiences
- Understand that trust is earned – do not ask or expect to be trusted by the public
- Express genuine empathy; acknowledge, and say, that any illness, injury, or death is a tragedy and to be avoided
- Personalize risk data: use stories, narratives, examples, and anecdotes that make technical data come alive
- Avoid distant, abstract, unfeeling language about harm, deaths, injuries, and illnesses
- Acknowledge and respond (in words, gestures, and actions) to emotions that people express, such as anxiety, fear, anger, outrage, and helplessness
- Acknowledge and respond to the distinctions that the public views as important in evaluating risks
- Use risk comparisons to help put risks in perspective; avoid comparisons that ignore distinctions people consider important
- Identify specific actions that people can take to protect themselves and to maintain control of the situation at hand
- Be sensitive to local norms, such as speech and dress
- Strive for brevity, but respect a person's desire for information and offer to provide needed information within a specified period of time
- Always try to include a discussion of actions that are underway or can be taken
- Promise only that which can be delivered, then follow through

7. Plan thoroughly and carefully

- Begin with clear, explicit objectives – such as providing information, establishing trust, encouraging appropriate actions, stimulating emergency response, or involving stakeholders in dialogue, partnerships, and joint problem solving
- Identify important stakeholders and subgroups within the audience – respect diversity and design communications for specific stakeholders
- Recruit spokespersons with effective presentation and personal interaction skills
- Train staff – including technical staff – in basic, intermediate, and advanced risk and crisis communication skills: recognize and reward outstanding performance
- Anticipate questions and issues
- Prepare and pretest messages
- Carefully evaluate risk communication efforts and learn from mistakes
- Share what you have learned with others

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