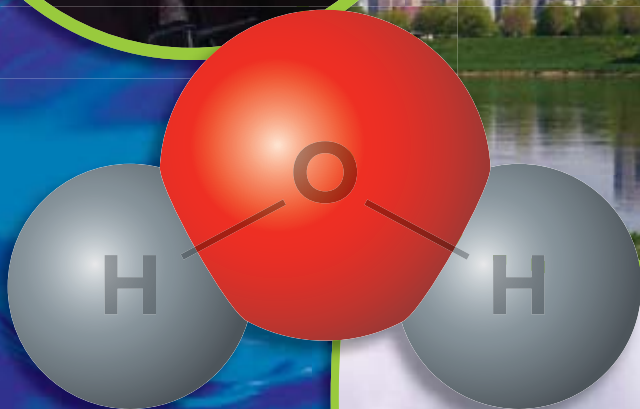**EPA** United States
Environmental Protection
Agency

National Water Security Risk Communication Symposium

Office of Research and Development

National Homeland Security
Research Center

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SUMMARY REPORT

National Water Security Risk Communication Symposium
San Francisco, CA
May 20-21, 2004

United States Environmental Protection Agency

Office of Research and Development
National Homeland Security Research Center
Cincinnati, OH

Office of Water
Water Security Division
Washington, DC

Table of Contents

Executive Summary

The U.S. Environmental Protection Agency (EPA) hosted a 2-day Symposium about communicating risks to drinking and waste water systems on May 20-21, 2004, in San Francisco, California. The Symposium provided an opportunity to inform key water security stakeholder groups about the state-of-the-art in crisis risk communication; a forum to share effective risk communication strategies, best practices, tools, and existing projects; and an opportunity to gather information and advice to support activities in developing and implementing successful risk communication strategies, tools, and plans. More than 100 participants attended the Symposium, from drinking water and wastewater utilities, public health agencies, state and local drinking water and wastewater agencies, local emergency response organizations, elected officials, and the media.

The Symposium began with opening remarks by Scott Minamyer, Symposium Chair, EPA Office of Research and Development (ORD); Wayne Nastri, Administrator for EPA Region 9; Jonathan Herrmann, National Homeland Security Research Center (NHSRC); Steve Dennis, Alameda County Water District, California; and Susan Dolgin-Ruggles, EPA Office of Water, Water Security Division.

Session 1 on May 20, **"Risk Communication During and Following A Crisis**," began with an informative keynote presentation by Peter Sandman of key elements in crisis and risk communication, 25 fundamental steps in message planning and delivery, how the construction and delivery of a message influences public reaction, and strategies for effective communication and media interaction that build public reassurance, confidence, cooperation, and trust. (Refer to web site at www.psandman.com/).

A stakeholder panel on risk communication during a crisis, moderated by Ms. Kerry Kirk Pflugh, Manager, Office of Outreach and Education, Division of Watershed Management, New Jersey Department of Environmental Protection, focused on the lessons learned by various organizations upon implementing their risk communication plans. Terri Stratton, Risk Communication Co-Lead, California Department of Health Services (DHS), discussed risk communication planning actions taken by the State of California and lessons learned during the fires that occurred in Southern California during October-November 2003. David Ropiek, with the Harvard Center for Risk Analysis, discussed the psychology of risk perception and provided examples from his long previous experience as a journalist. Denise Clifford, with the Washington State Department of Health, Office of Drinking Water, discussed the use of risk communication to support efforts to assure safe and reliable drinking water. Steve Frew, Manager of Security and Emergency Preparedness, East Bay Municipal Utility District in California, discussed the communications and interactions that occurred with the media and public throughout a significant water supply contamination incident. Ed Welch, Chief, New York City Department of Environmental Protection (DEP) Environmental Police, provided insights on communication as experienced in the largest rescue operation in New York City history on September 11, 2001. An audience question and answer period followed the panelist presentations and addressed a variety of lessons learned from these experiences, clarification of experiences during the risk communication process, risk communication planning, and effective methods for interaction.

Paul Biedrzycki, Manager, Disease Control and Prevention for the City of Milwaukee, provided an in-depth case study discussion of the 1993 *cryptosporidium* outbreak, including a chronology of events, risk communication methods, lessons learned, corrective actions taken for the water system and risk communication, planned activities, and a question and answer session. An important issue still being addressed is the loss of public confidence in the safety of drinking water that meets regulatory standards.

Following this case study, Ms. Pflugh facilitated an audience discussion on Session 1 topics, other crisis and post-crisis event issues, needs, and emerging tools. Day 1 of the Symposium ended with a demonstration of a variety of risk communication tools and websites.

Session 2, on May 21, "Risk Communication in Preparation for a Potential Crisis Event," began with opening remarks from Scott Minamyer, EPA ORD, and a presentation by Marsha Vanderford, Acting Director, Office of Communication, at the Centers for Disease Control and Prevention (CDC), on her experiences with and lessons learned from CDC risk communication activities during the anthrax contamination events in October 2001.

Vincent Covello, Director, Center for Risk Communication, New York City, provided an informative keynote presentation of key risk communication and message techniques and skills to consider using during a potential crisis and how the message impacts human behavior. (Refer to www.centerforriskcommunication.org).

Stanley States, Water Quality Manager with the Pittsburgh Water and Sewer Authority, discussed a variety of incident response training sessions conducted nationwide and the risk communication lessons learned from the tabletop and live exercises included in this training. Dr. States also provided two case studies (pre- and post-9/11) of risk communication and response for water supply contamination threats. A question and answer session addressed the role of the spokesperson, dealing with multiple points of view by responders, and the importance of a unified command system focused on consensus.

A panel on water security communication initiatives, lead by Linda Reekie, American Water Works Association Research Foundation (AwwaRF), presented several research projects underway in the areas of risk communication and planning. Dr. Rebecca Parkin, with George Washington University, discussed the development of a systematic, science-based approach to anticipate and communicate about emerging contaminants and their risks. Dr. Parkin also discussed a second research project focused on three-way collaborations and the development of a framework for action to help build such collaborations. Dr. Thomas Rockaway, with the University of Louisville, discussed efforts underway to build a large database of utility knowledge on responses to certain types of events that can support risk communication and response planning. Susan Dolgin-Ruggles, with the EPA Office of Water, Water Security Division, discussed the newly released module of the EPA Response Protocol Toolbox – Public Health Response Module 5, which addresses the steps involved in the public health response to a contamination threat or incident (http://www.epa.gov/safewater/watersecurity/pubs/guide_response_module5.pdf).

A stakeholder panel on best practices for planning, moderated by Kerry Kirk Pflugh with the New Jersey Department of Environmental Protection, focused on the experiences of various organizations in risk communication planning, processes, and tools. Mayor John Horensky, Washington Township, New Jersey, discussed the challenges of risk communication planning in a small municipality and his experiences as an employee of the health department. James McDaniel, Deputy Assistant Manager, Los Angeles Department of Water and Power, presented the risk communication challenges faced by a large water utility serving a diverse population and the risk communication planning and tools that have resulted from these experiences. Scott Szalkiewicz, with the Connecticut Department of Public Health, discussed current efforts to implement emergency response planning and risk communication throughout the State of Connecticut. Edward Dadosky, District Chief with the Cincinnati, Ohio, Fire Department, discussed a number of examples of incidents requiring crisis and/or emergency risk communication and the lessons learned from these experiences. Tom Kahler, with the Newport News Waterworks, addressed post-9/11 communications planning; the importance of identifying, developing, and maintaining relationships with potential responders; and experiences in recovering from the damage caused by Hurricane Isabel in 2003. An audience question and answer period followed the panelist presentations and

addressed the incident command system, notification systems, and the role of law enforcement during incident response.

Robin Halperin, Risk Manager with the Division of Water in Cleveland, Ohio, provided a case study of the experience of this water utility during the massive power grid outage in 2003. Topics included a chronology of the power outage, water utility responses, and water supply changes to customers; risk communication activities throughout the event; challenges faced in both returning the water system to service, effectively communicating with the public, and the role of elected officials; and lessons learned that are being translated into preparedness planning for future events. A question and answer session examined responses to a post-event customer survey, reactions of hospitals to loss of water supply, and future plans for use of water buffaloes (portable drinking water storage tanks) as a temporary water supply for the public.

Following this case study, Ms. Pflugh facilitated an audience discussion on Session 2 topics. The Symposium ended with a request for post-meeting feedback on risk communication needs that EPA should be addressing.

Introduction and Statement of Goals

The U.S. Environmental Protection Agency (EPA) hosted a 2-day Symposium about communicating risks to drinking and waste water systems on May 20-21, 2004, in San Francisco, California. Risk communication is a process to develop two-way communication between various parties that meets the needs and addresses the concerns of all potentially affected parties. It is an important component of the risk management scheme and should be factored into every step of the risk management process.

The Symposium objectives were to:

- Inform participants of the state-of-the-art in risk communication

- Provide a forum to share effective risk communication strategies, best practices, tools, and existing projects

- Gather information and advice that would inform the subsequent development of a framework or similar product by EPA that local stakeholders can use to develop and implement successful risk communication strategies and tools.

Attending the Symposium were more than 100 participants, primarily from the following key water security stakeholder groups: drinking water and wastewater utilities, public health agencies, state and local drinking water and wastewater agencies, local emergency response organizations, elected officials, and the media.

Session 1: Risk Communication During and Following a Crisis

Opening Presentations

Scott Minamyer, Symposium Chair, with EPA Office of Research and Development (ORD), opened the Symposium, thanked the audience for attending, the speakers for their participation, and the organizing committee.

Wayne Nastri, Administrator for EPA Region 9, thanked everyone for the opportunity to host this Symposium and noted that EPA takes the role of protecting drinking water very seriously and this Symposium is one of the many first steps to prepare for a host of potential events that hopefully will never happen. Communication during such events is critical and information must be presented in as timely and accurate manner as possible. He noted that many in attendance may be called upon to provide information to those who are scared, concerned, or panicked. How these events transpire and how the different agencies communicate during such times is critical to the outcome. The program for this Symposium brings together premier players in risk communication, and emphasizes that effective risk communication is absolutely critical and requires training and rehearsal. Mr. Nastri also noted how much has been accomplished and so quickly since the events of September 11, 2001; such as completion of many water vulnerability assessments.

Jonathan Herrmann, National Homeland Security Research Center (NHSRC), also thanked everyone involved in putting together this Symposium and recognized the contributions of the Office of Water, which has responsibility for implementing many of the activities identified by NHSRC and ORD. Mr. Herrmann noted that many things changed after September 11th and one of those was the need to be prepared, not only from the perspective of physical protection, but also being able to respond to the public's concerns about the water they use every day. Over the next couple of days, participants would be learning from the experiences of others and from case studies. Mr. Herrmann requested feedback from participants on what EPA activities are working best and what products for risk/crisis communication will be most helpful for EPA to develop.

Steve Dennis with the Alameda County Water District, CA, offered a local perspective on risk communication and welcomed all the participants on behalf of all of the water districts in the San Francisco area. He emphasized that the importance of understanding, preparing for, and practicing for crisis communication cannot be overstated. Emergency response plans have recently been updated to address potential acts of terrorism and other intentional acts to contaminate U.S. water systems. Such plans traditionally addressed fire, power outages, and other California-specific issues. Communication is very critical in this new area of response planning and when transitioning from day-to-day water management into crisis management, it is imperative to understand the "who, what, when, where, and how" of crisis communications, because effective emergency response requires effective crisis communication.

Mr. Dennis also described how, following September 11th, the large San Francisco Bay area water utilities began to address these challenges by forming a collaborative organization, the Bay Area Security Information Collaborative (BASIC), in recognition of the need to exchange information, understand the stakeholders, and unify responses to threats. The original group has grown from six to eight members that service a total of 6 million customers; EPA, California Department of Health Services (DHS), and the Federal Bureau of Investigation (FBI) have also been included. Communication occurs throughout the response to a threat and there may be no other element of an emergency response more important than how to communicate with the public in a crisis.

Susan Dolgin-Ruggles with the EPA Office of Water, Water Security Division, discussed the role of good communication in emergency planning; with the goal being to protect public health and safety in the event of a crisis, whether an unforeseen natural disaster or a terrorist attack. Ms. Dolgin-Ruggles suggested the participants consider the five P's when planning for emergencies:

- *Partner* – with emergency responders, law enforcement officials, health practitioners/officials, other utilities, local government, and the community

- *Plan* – conduct emergency response planning and learn from existing guidance; work together cooperatively; hold exercises/drills to ensure preparedness; reach out to new, nontraditional partners such as law enforcement; and call on neighborhood watch to assist in detection

- *Procure* – information such as guidance available from EPA (e.g., for small/medium water supply systems, a response protocol tool box, and other readily available information), tools developed by the Centers for Disease Control and Prevention (CDC), and through participation in conferences such as this one

- *Practice* – hold drills to test strategy and communication (include media and concerned citizens); take advantage of lessons learned, such as those presented in this forum; be an advocate for communication; build networks; and help EPA to identify gaps (what is needed and how to fill them).

- *Promote*

Keynote Presentation

Dr. Peter Sandman provided an informative discussion of key considerations in crisis communication. Because the material presented by Dr. Sandman is copyrighted, we cannot directly include it in the Proceedings. Details of his presentation are, however, provided in a video summary by Dr. Sandman under "Keynote Speakers" on the Proceedings Main Menu. Materials covered are also available free of charge from Dr. Sandman's web site at www.psandman.com.

Stakeholder Panel on Risk Communication during a Crisis

Kerry Kirk Pflugh, Manager, Office of Outreach and Education, Division of Watershed Management, New Jersey Department of Environmental Protection, served as moderator for a panel session focused on the experience of various organizations when their risk communication plan was implemented either in a real or practice scenario – how communication was accomplished, what was learned, what worked, what did not work, and what might be done different for the next time. The session consisted of five presentations followed by a question and answer period.

Risk Communication during the 2003 Southern California Fires

Terri Stratton, Risk Communication Co-Lead, California Department of Health Services (DHS), Emergency Preparedness Office, noted the importance of knowing your community before a crisis occurs and how this may be done as an assessment in the very beginning of the planning process. She used California as example, noting that communication goals are to: be prepared in advance of an event, instill public confidence in the ability to respond, practice response to emergencies in order to build skills and the ability to utilize knowledge/training in an emergency situation, and work in collaboration or in partnerships with local, state, and federal agencies.

The preparation strategy in California involved:

- Transparency of the planning process and in all press releases and public information materials

- Use of an echo strategy to ensure consistency in the message to the public (e.g., state echoes CDC, local health department echoes state agency, etc.)

- Multi-language focus to be able to communicate with the public in a way that they will understand and in a way that will ensure that they receive the message

- Use of partnerships and collaboration, which are very important during a crisis but must be built in advance of a crisis

- Tools and training with examples provided of the CDC website and the state website (www.dhs.ca.gov)

- Coordination of all efforts by a team, which in this case involved a Public Information Officer (PIO), Department of Mental Health, emergency services, multicultural health, and others that can help guide the development of messages and plans

Recommendations for emergency preparedness and response planning activities include:

- Develop a public relations/media plan in advance to keep actions during an emergency focused; California requires all local health departments to have a risk communication plan

- Educate using more than the press, such as websites and hotlines

- Train a spokesperson so they are prepared to be in front of a camera in a crisis

- Conduct outreach to local health departments since all emergencies happen at the local level (e.g., water district, county, etc.)

- Develop a message and have a series of pre-messages in advance of an actual emergency as this helps to maintain credibility with the public and helps the public prepare; focus on how to prepare, what to do to protect, and what public can do in the emergency

- Conduct risk communication training

- Develop partner and stakeholder relations as well as conduct state agency outreach

An example of the application of crisis and risk communication actions is the response to the fires in October-November 2003, the largest in California history. Planning efforts at the time focused on bioterrorism and other emergencies rather than fire with loss of property and resources. Some observations resulting from this experience include:

- Involve risk communicators early in the response (from the beginning)

- Issue public health messages that give the public clear guidance on what to do (e.g., how to boil water effectively); the public did not want to hear a series of options on how to boil water

- Use press releases to get out information on early actions taken, indicate if conditions are uncertain and what might happen, and target messages to specific audiences (such as toward parents regarding concerns about children)

- Address the issues that are in the mind of the public, such as notifications that emergency operations center is being opened, to establish involvement and credibility

- Provide consistency in the message by sending press releases to partners at same time as they are sent to the press

- Build the partnerships now for those resources that may be needed in an emergency, such as assistance from Department of Education or Mental Health for assistance in crafting messages to address stress or other public concerns.

Overall lessons learned from this experience include:

- Involve risk communication early in the process

- Pre-establish a quick approval mechanism for press releases, materials, and documents in an emergency so information is timely

- Involve partners from the beginning of the planning process

- Hold to core strategies in the emergency and provide as much information as possible

- Collaborate with others involved in the response

The Psychology of Risk Perception

David Ropiek, a former journalist with the Harvard Center for Risk Analysis, discussed his interest in the psychology of risk perception with examples drawn from real world experience. He noted that there is an emotional component to events and that component may be even more important than the risk of the situation itself. Risk communication is all about that emotional component – the outrage not the hazard, how we react to the event, and what fuels "high" or "low" outrage during a crisis.

The first and most important factor is trust. The more people can trust, the less afraid they are, and vice versa. This is real and should not be dismissed as irrational. Therefore, risk communication can be more about what is done rather than what is said. An example of this was a series of press releases about government response to an incident of mad cow disease that began with statements that this was an isolated incident, then saying that the affected cow was not processed into food for other cattle, and then finding out that was also incorrect.

Trust comes from honesty and this means many things – constant communication, openness, availability. An important aspect is to avoid over-reassuring; acknowledging and respecting public fear is also important. Despite the richness of psychology and other studies of fear and risk, there persists a common assumption in the scientific community that if the public is given the scientific information, they will think the way the scientists do. Personal risk decision making is not always a rational process.

Trust can come from competence if it can be seen from a person's past that they are able to handle a situation. Trust also comes from shared control and stakeholder input enabling everyone to feel involved and a part of what is being done and said. Therefore, how much a person is trusted in a crisis depends on what they do day-to-day. This type of trust is hard to build and easy to destroy.

Other relevant risk perception factors include:

- Personal risk, which differs from person to person, and whether you are the one who is asked to drink the bottle of contaminated water – the only acceptable personal risk is zero

- How awareness increases concern and vice versa, which enables a person to focus on something that might otherwise be ignored

- Lack of control causes certain responses (such as building bomb shelters) to assert some control, which is often viewed as irrational but is in reality a very personal response

- Uncertainty, which can be scary, particularly with a new technology, disease, or catastrophe

- Affective underpinnings, such as risk to children being perceived as worse than the same risk to adults

The concluding thought is to make the messages and actions more trustworthy and the public will be more receptive to the messages and move in the desired direction. Using top-down monologues to tell people what to think will not work.

Communicating During a Crisis: Creating a Framework in the State of Washington

Denise Clifford, Office of Drinking Water, Washington State Department of Health, discussed the use of risk communication to support efforts to assure safe and reliable drinking water. Communication is critical when an emergency is underway, regardless of the type of emergency or whether the situation represents an acute health risk. The concepts are the same and the key is to practice in advance. We often find that communication has not occurred or we only begin to think about risk communication during the event where such skills are needed. Therefore, it is useful to put the strategies and communication ideas in place before an event occurs so everyone will be ready.

Ms. Clifford discussed the differences between risk and crisis communication. Crisis communication occurs during an emergency, such as when a pipeline exploded in the City of Bellingham. Risk communication includes non-emergency situations and is used for both risk and crisis situations, such as explaining about lead in drinking water.

Ms. Clifford offered a case study involving the City of Seattle where vandalism occurred in a downtown reservoir. The first responders arrived in HazMat suits, which implied to residents that the water might not be safe. Also, many agencies were involved, including the City of Seattle, the Washington Department of Health, and public health agencies for Seattle-King County. Each organization had different ideas on how to approach the situation as well as different messages they desired to deliver to the public – some wanted to be open with the public and others wanted to say nothing. Key questions to consider in such circumstances are: What are the facts? What are the messages? What will the perception be? Who makes decisions? Of particular importance is being clear on what the risks are to health.

The various agencies met after the incident to establish a framework—Public Health Emergency Response Relationships—that outlined objectives, roles/responsibilities, coordinated roles/responsibilities (outside of collective relationships), emergency response and who to notify, communications strategies, and agreements. This laid out objectives for assuring timely response, making timely health decisions, and specifying roles/responsibilities (e.g., epidemiologists, water utility, those overseeing response).

Another step being taken is to link important players together such as the State Department of Health, local health department and health officers, and the water utility. Supporting this will be workshops conducted across the State of Washington to explore cross-jurisdictional coordination and communication issues, among other goals. In addition, three table top exercises are being conducted across the State of Washington to practice coordination between agencies, identify gaps in emergency response plans, and better understand the roles/responsibilities of each responder. Anticipated benefits are improved emergency response, partnerships, and an overall strategy for better communication.

Ms. Clifford stressed the need to be diligent about risk communication and integrating it into every aspect of work and planning for a variety of issues – proactive management of the political environment, water resource management (a big issue in the State of Washington), customer concerns regarding their water, and establishing budgets and priorities of government organizations. This requires preparation to address and lower the outrage levels of the public and others. Ms. Clifford ended the session noting that risk communication is a constant learning experience.

Case Study of Communication during a Drinking Water System Contamination Event

Steve Frew, Manager of Security and Emergency Preparedness with East Bay Municipal Utility District (MUD), has responsibilities for keeping the emergency response process flowing and keeping all responding parties informed during an emergency; communicating with the public is the responsibility of the public relations personnel. Mr. Frew discussed a significant water supply contamination incident and the communications that occurred throughout with the media and public.

The event began on the afternoon of Friday, December 22, just before the Christmas holidays, and employees had been allowed to leave early. The roof on the Piedmont reservoir collapsed and 200,000 gallons of contaminated water were introduced into the water supply. The initial information came from a resident near the reservoir who witnessed the event. Initially, East Bay MUD did not know if contaminated water was in fact being supplied to Oakland consumers. Initial responses were to summon the emergency team and send workers to isolate the water supply, take samples that were rushed to laboratories for analysis, examine maps to determine where water from the reservoir might have gone and how to address it, and contact the California DHS for guidance.

Upon determining that it was necessary to issue "Boil Water" orders to 15,000 people, two radio stations were notified and agreed to provide the announcement live. A version was also drafted for the media to distribute with the challenge to make the distribution as wide as possible yet without causing undue alarm. By 5 pm that day, the utility was being contacted by the television stations who wanted to help get the word out and did so in a clear, serious, and calm manner using veteran reporters who did not overplay or underplay the situation, did not create panic, and followed the East Bay MUD lead on tone – all of which was a tremendous help. At the same time, the call center began receiving many telephone calls, which required a quick briefing of call center staff on a standard script to use and what could or could not be said. All this occurred in parallel with trying to develop a sound sampling and analysis strategy for the reservoir.

By evening, the source had been isolated and fire hydrants had been flushed. While it was believed that contaminants had not reached customers, more testing was conducted to verify. All testing was completed within 36 hours and by Sunday, December 24, the test results and follow-up results indicated no contamination, so a media release was prepared rescinding the "Boil Water" order and reporters issued it promptly.

This case study is a classic example of how an emergency team worked together with the trust of the public, who did not panic.

Lessons Learned from the New York City Experience

Ed Welch, Chief, New York City Department of Environmental Protection (DEP) Environmental Police, provided insights on communication as experienced in the largest rescue operation in New York City history on September 11, 2001. Key aspects in effective response are planning, procedures, communication, and information.

In an emergency, someone must assume command and make decisions as they see fit. This can only be done through practice. Information must be communicated in both directions, and the process must provide for factual decision. Lessons can be learned either by making our own mistakes or learning from the mistakes of others. As an example, Mr. Welch discussed the many errors that occurred in responding to the Chernobyl incident – by workers, managers, the government, and the responders.

Proper training and education of the public is essential to smooth evacuation and response. On September 11, 2001, people in the twin towers were initially told not to leave. In another incident involving a chlorine spill drill, participants were directed to assemble in an area that was downwind of the incident.

Since September 11th, there has been no higher priority than water supply security and New York developed a three-tiered strategic framework designed to secure, protect, and defend the water supply. His organization has both a Detective Bureau and Intelligence Division that are involved in all long-term investigations relating to pollution, crime, and terrorism, and also assist in the vital role of prevention through the gathering of intelligence and information sharing. A part of these efforts involves hardening physical boundaries (protection) and implementing an identification program to badge visitors, employees, and contractors. Other actions include protection of infrastructure through canine units (looking for bombs), patrols by boat and bicycle, and, soon, a trained scuba team.

Other recommendations include:

- Subscribe to WaterISAC, an excellent resource

- Draw on anglers, hunters, and others who use the water supply to call in their observations as they are a useful source of detailed information

- Provide security training drawing on police academies with a note that many are not focused on water security and the environment, which can be addressed through supplemental training

- Provide security training agency-wide and tailored to each level to have everyone understand the importance of security

- Practice speaking on the radio or other emergency communications equipment in advance to be able to communicate clearly

- In an emergency, prepare in advance what to say and deliver the message in a calm manner

- Develop a culture of cooperation within the organization and build trust with the local community

- Prepare the public for emergencies such as developing a citizen's guide for emergency preparedness

- Anticipate system failures (such as lack of telephones or radios) in emergency planning so there are redundant communications and people available to deliver messages if needed

Communication is the most important dynamic of any organization. The New York DEP regularly holds large- and small-scale drills, and communication is often a primary problem. Communication is essential to timely, accurate information flow not only to keep an emergency response functional, but also to relieve stress and panic. An important aspect is to be able to communicate with specialized teams – scientists, health/medical professionals – in a common language.

Facilitated Panelist Question and Answer Session

Kerry Kirk Pflugh, with the New Jersey Department of Environmental Protection, facilitated the question and answer session following the panelists' presentations. Topics addressed include:

- How the incident at the Atlanta Olympics was well-handled from an emergency response perspective in that the response was quick and allayed fear, but perhaps not so well-handled from an investigation perspective

- The need to work with law enforcement during an incident to understand what kind of evidence may be needed

- How to identify the transition from crisis to risk communication, which is an incremental process that begins with the release of initial facts (and how to release them), moves to releasing new information as it becomes available, and is identifiable by the transition from the initial chaos into a mode of operational recovery/back to business

- The importance of anticipating questions about an incident prior to the actual crisis, use of focus groups to determine what they might ask, and working with communications personnel to develop strategies to release information

- The need to train the call center staff on how to effectively communicate with the public during a crisis

- Alternate approaches (such as use of mini-test kits) in the first response to incidents in residential areas other than full HazMat personal protective equipment (PPE), which may elevate concerns unnecessarily

- The importance of media preparation beyond just the message—for example, where to park their equipment, strategies for each type of media interaction (e.g., print, local television, national television), the usefulness of involving the local media in conducting this planning, and the need to tailor the message for each media type

- How to handle effectively the initial contact by the media if the message is not yet available, such as telling them the message is in preparation, asking for their deadline time, telling them you will get back with them, and preparing an initial message (in conjunction with your media person) that includes several facts

- Factors that are different for a bioterrorism event than natural disasters, such as a higher level of public outrage, greater fear of a human-made risk, and greater fear of a risk that is imposed by others

- Differences today in response to the City of Seattle's potential reservoir contamination event include a different response communication that would be prepared by the State Health Department, communication to the public that vandalism is now taken very seriously with serious consequences, and preparedness in how to respond to the media and talk to the community

- How to handle questions from the public for which the communicator is not prepared or does not have the information, such as honestly stating what is and is not known; relating concern and identifying what is being done to find our more information; speaking in a reassuring manner; and interacting respectfully

- Use of the topic of bioterrorism to obtain media interest in reporting on efforts to prepare for such incidents, what is or is not known, efforts to harden the infrastructure, and other pre-event actions to help build public confidence

Case Study – 1993 *Cryptosporidium* Outbreak in Milwaukee, Wisconsin

Paul Biedrzycki, Manager of Disease Control and Prevention for the City of Milwaukee, discussed the largest documented waterborne disease outbreak in the United States. A key message is to connect with local agencies because many of the health departments have developed protocols for communication and have received significant amounts of funding post-9/11 for these types of actions.

Contaminants in the water supply were initially suspected because of the magnitude of the outbreak (indicating massive exposure), symptoms were consistent with ingestion, there were recent and persistent water quality complaints (to the water authority but not to the health department) in the two weeks before the outbreak, and no other plausible theory. Almost two weeks passed after the initial outbreak before the problem was determined. This time period needs to be shortened to reduce morbidity and mortality from

the event. There were many impacts, including hospitalization, more than 100 deaths, lost time from work and school, as well as settlements for various lawsuits filed in the aftermath.

Of particular note was that the water in the area most heavily impacted by the outbreak was in total compliance with all requirements; although some changes in water had been noted (e.g., turbidity). Corrective actions taken after the event to prevent its recurrence include the addition of treatment with ozone, coagulation, then enhanced filtration, and extending the affected intake to avoid possible watershed effects.

The news media was the biggest risk communication method at the time even for the health department and water utility personnel. Yet, this is a classic story of breakdown or absence of communications between the water utility and public health organizations (i.e., the water utility assumed this was the flu, a respiratory disease), between public health and health care providers (first report came from a doctor seeing multiple *cryptosporidium* cases), and between government and consumers (ignoring two weeks of complaints about the water). In 1993, they did not have an emergency communications plan, a PIO, pre-identified audiences, pre-established channels of communication, clear and authoritative message content, or identified community resources. At the time, they lacked a relationship between the Milwaukee Water Works (MWW) and the Milwaukee Health Department, had no response protocols, were not tracking over-the-counter (OTC) sales of anti-diarrheal and other medications, and lacked efficient data collection/reporting. Response efforts were also affected by professional arrogance and cultural gaps (e.g., distrust, lack of respect for other disciplines, trying to appear expert in another discipline), over-reliance or focus on regulatory compliance, and insensitivity to customers. As a result of these findings, current practices now include the issuance of Consumer Confidence Reports, sending special advisories to targeted audiences, developing press releases, development and implementation of training modules, and investigation/application of community-wide surveillance networks and other methods to support trend analysis, centralized disease reporting, and emergency notifications.

By working with health agencies or emergency department, it is possible to leverage existing notification systems and tools such as blast FAX in addition to website, hotline, and media releases of information. Other tools include SURVNET (to support trend analysis of disease in large areas that are inclusive of the water system), EMSystem to help post health advisories (have used it for SARS), and CDC-funded Health Alert Network for the states. Public notification considerations include the importance of identifying target audiences, incorporating multi-cultural considerations (e.g., one message may not work for all populations), using multimedia approaches, and being clear and authoritative.

An interdepartmental work group at the operational level was key to bringing together issues, building consensus, and focusing on the same mission. The work group includes Milwaukee Water Works (operations, engineering), public health (laboratory, environmental, epidemiological), Department of Public Works (storm/sewer infrastructure), Wisconsin Department of Natural Resources, Milwaukee Metropolitan Sewer District, and policymakers (e.g., Mayor, others). When convened, the work group reviews data, develops consensus on response, conducts public notification, initiates interventions, and performs after-action review. This work group has convened for ozone outages, SDWA Tier 3 violation, intake rupture, and a potential finding of *cryptosporidium*.

Lessons learned from this contamination event include:

- Build and foster relationships between water utilities and public health agencies in advance, including professional respect
- Routinely share data and expertise
- Develop a broad, diverse public notification strategy using tiered approaches so no one is left out

- Pre-identify community resources and partners to help craft the message
- Establish a PIO, joint information center, and a plan centered on a single point of contact and one voice during communication
- Engage the media early, often, and at your schedule not theirs
- Be up front and forthright in what is or is not known
- Have emergency notification and response protocols in place
- Use multiple, perhaps redundant, methods of communicating to the public
- Cross-train and prepare through exercises
- Be prepared for the unexpected

New actions being taken include:

- Combining syndromic and environmental surveillance data to compare water quality information against diarrheal data reported during the same time period
- Joint training and exercises enabling response members to work together
- Jointly redefining risk by comparing watershed and beach data with wastewater treatment plant effluent data on specific *cryptosporidium* species since they do not all have the same impact on humans

Future considerations in the planning effort include: interfacing the SCADA (*supervisory control and data acquisition*) system with public health in real-time, assessing new disinfection technologies as well as the risk/benefit of their by-products, and developing new partnerships to include law enforcement such as the FBI and the new discipline of forensic epidemiology as a joint investigative technique.

A question and answer session followed the presentation to clarify the outbreak, the response, and lessons learned. Topics addressed included:

- Calls to the MWW from the public during the first two weeks that primarily focused on the color, odor, and taste of the water with some reporting that the water was making them sick
- Conduct of syndromic surveillance using multi-faceted biological surveillance (e.g., ambulances, poison control, health care hotline, OTC sales) that are put together so results of all sources can be viewed at once, with a key difficulty being to establish a threshold for the community
- Difficulties in overcoming consumer confidence and continued allegations that the water is not of high enough quality despite data that indicate the water is of high quality, and the need to engage other partners to assist in overcoming this hurdle
- Whether bottled or filtered water is better than drinking tap water and that there are no current state regulations for certifying bottled or filtered water as there are for tap water
- Measurement of individual filter turbidities (in raw water and post-filter water), which was done as a once per shift grab sample with effluent turbidity measuring higher than that of raw water
- Genotyping of *crytosporidium* by strain or source (e.g., wild animal, domestic animal, human) as part of a CDC study of water and wastewater streams to determine which are important as a human pathogen
- Loss of public confidence in compliance because of this outbreak demonstrated that regulatory compliance is not always sufficient to protect the public all of the time
- Use of the public health organization to serve as the primary spokesperson and to interface with the media, which enabled the water utility to focus on their activities

- Potential for use of SURVNET (a Milwaukee tool) and EMSystem (commercially-available) for bioterrorism, water security, and other possible alert needs

- Interest in strategies to standardize tools and communication methodologies to help communities be more proactive with reference to the three-prong CDC approach—strategic positioning of supplies, monitoring, and syndromic surveillance

- Reductions in combined sewer outflow (CSO) incidents (from 40 to 2) along with declines in the slaughterhouses and related industries that reduce possible recurrence, while influences continue from suburban and agricultural runoff upstream that are outside the Milwaukee agencies' areas of responsibility

Facilitated Audience Discussion

Kerry Kirk Pflugh, with the New Jersey Department of Environmental Protection, facilitated an audience discussion of other crisis and post-crisis event issues not covered in Session 1, needs, and emerging tools. Key topics included:

- Use of Maximum Contaminant Level Goals (MCLGs) that may be more stringent than Maximum Contaminant Levels (MCLs) and whether educating the public on the difference would achieve greater public acceptance of existing water treatment, which MWW noted was unlikely to occur

- How to help the public understand acceptable risk (and that zero risk does not exist), including the timing of such educational efforts, which is not productive to do following an event that is endangering the water consumer

- How to obtain and/or set up a program for training on risk communication, including upcoming American Water Works Association (AWWA) workshops on crisis communication; training offered by the State of Washington and EPA; resources available through CDC, including a website with names of certified trainers and a CD-ROM with tools (CDCynergy); California DHS tool kit currently in development; templates, guidance, and workshops provided by EPA; and contacting public health departments whose programs are expanding through bioterrorism funding

- The use of preplanning to understand potential audiences, to identify their issues/concerns, and to otherwise anticipate their questions

- The value of identifying ethnic backgrounds and language skills, how they obtain their information, who they trust, what their priorities are, and their prior experience with agencies potentially involved in a crisis, so as to design effective communication strategies and avoid repeating past mistakes

- Addressing bold water filtration claims of technology providers by: (1) involving the health department and/or State Attorney General rather than the water utility responding itself, (2) never claiming that drinking water is safe as that implies zero risk, and (3) possibly developing a message involving a sequence of true statements about the water or the state/status of water treatment

- The need to balance full disclosure and honesty in risk communication with the need to safeguard information, noting the public's distrust through past experience of the validity of such claims made by the government and a more preferable path of telling the public what it wants to know and omitting what the terrorists may want to know, which are usually sufficiently different

- The need to consider risk communication training, which can be expensive, as a cost of doing business, to build those costs into budgets, to consider bringing in an expert to conduct training rather than sending personnel to training, and to form partnerships, joint initiatives, or other co-sponsorship of training or drill activities to help reduce costs

- The importance of understanding both the delivery and receipt of information in order to be an effective communicator, noting that no matter how well orchestrated the plan, there is no guarantee that the same message will be equally perceived by everyone

- The desire to have a manual that covers, in a simple, understandable way, all of the risks (perhaps in checklist form) and what can be done to prevent or respond, noting that one process cannot address every situation and good planning requires going into the community and understanding them, their frame of reference, their economic background, and other factors

- The majority of the value of a communications plan comes from the planning process rather than the plan itself, and the learning and connections that are made when going through the planning process are important to long-term success—there are many nuances that cannot be anticipated by simply following a canned formula

Risk Communication Tools Demonstration Evening Session

A variety of website demonstrations, CD-ROMs, handouts, and posters were made available to Symposium participants, including:

- Physician preparedness for acts of water terrorism and the clinician role in community readiness and risk communication; demonstrating the Physician On-Line Reference Guide (see www.WaterHealthConnection.org)

- EPA National Homeland Security Research Center (see www.epa.gov/nhsrc)

- Risk communication with Dr. Peter Sandman (see www.psandman.com)

- CDC toolkit on CD-ROM – *CDCynergy, Your Guide to Effective Emergency Risk Communication Planning* (see www.cdc.gov/communication/cdcynergy.htm)

- EPA Water Security Division (see www.epa.gov/watersecurity)

Session 2: Risk Communication in Preparation for a
Potential Crisis Event

Opening Presentations

Scott Minamyer, Symposium Chair, opened the second day of the Symposium by thanking the audience for attending and the Association of State Drinking Water Agencies for their support to this symposium.

Marsha Vanderford, Acting Director, Office of Communication, at the Centers for Disease Control and Prevention (CDC), discussed the CDC experience with water security and general principles of communication that are often overlooked in haste; such as the content element and relational element of a message. An illustrative example involved the anthrax events in Washington, DC, in October 2001. Early on, CDC had been criticized for acting too slowly and appearing to contradict itself. When postal workers started becoming ill, an emergency communication was developed in the late evening for immediate release. The internal review/approval process prior to release focused on whether the message was factually correct and clearly understandable. Overlooked was the fact that this was the first time doxycycline was to be recommended rather than Cipro (which had been specified to U.S. Senators as the preferred medication). CDC had just determined that doxycycline is a good alternative to Cipro since it is just as effective, has fewer side effects, and is more available and less expensive. The next morning, CDC received many angry telephone calls and emails and the postal workers understandably felt disenfranchised. CDC had, in its haste, not taken into account what the postal workers had already heard (i.e., that Cipro was the preferred medication). The emergency message focused on content and ignored the relational aspects – respect, caring, and the implied relationship/power between the message sender and receiver. This is relayed in tone, use of personal pronouns, and taking into account the cares/concerns of the audience to be reached.

Trust is a big part of any message and this was known as far back as Aristotle. People consider the following to assess whether someone is a reliable source: Do you care about my concerns? Are you honest? Do you know what you are talking about? Do you have the power and authority to do what you say you will do? If any parts of this are missing, it will be difficult for the communicator to be believed.

Furthermore, trust is built on long-term relationships, like an investment bank to draw on in an emergency. This relies on understanding what the audience already knows, what misconceptions they might have that need to be addressed, and what their concerns might be. This is difficult to do during a crisis; therefore, it is important to develop such materials with an audience ahead of time. For water security, this means considering what are the likely water security scenarios, the likely agents to be added, etc., and generally thinking ahead to what people would want to know in those circumstances.

CDC has gone through this process involving 55 focus groups for different hazards – biotoxins, radioactive, and others. Initially, participants' first concerns were the location and safety of their families, followed by wanting to know about the agent, where it is, whether they can be exposed, what it will do, and what can the individual do if infected/exposed. This feedback formed the basis of a series of First Line Fact Sheets, some of which are posted on the CDC website or are available should an event occur. While it is not possible to anticipate everything needed, preparing for some of this in advance will help CDC focus on the event itself and the unanticipated rather than conducting communication research at the same time.

Keynote Presentation

Vincent Covello provided an informative overview of key risk communication issues to consider in preparing for a potential crisis. Because the material presented by Dr. Covello is copyrighted, we cannot directly include it in the Proceedings. Details of his presentation are, however, provided in a video summary by Dr. Covello under "Keynote Speakers" on the Proceedings Main Menu; along with a related presentation and article on Message Mapping authored by Dr. Covello, which he provided as handout materials at the Symposium.

Case Study: Synopsis of Risk Communication Issues from Multiple Crisis Tabletop Exercises

Stanley States, Water Quality Manager with the Pittsburgh Water and Sewer Authority, discussed lessons learned from a variety of training courses that include tabletop exercises conducted throughout the United States in the last 1½ years. The scope of the various exercises varies, but typically involves classroom training, group discussion, tabletop exercises (participants play various roles then discuss responses, interpretations, etc.), full staff exercises (individuals from specific organizations fulfill their roles as they would in a real situation), and a full-scale exercise. Almost all of the training course scenarios involve the use of weapons of mass destruction (WMD) (biological or chemical) or the intentional introduction of a contaminant into drinking water that results in injuries and fatalities. The goal in each case is to obtain hands-on training utilizing recently published response guidance such as the EPA Response Protocol Toolbox and the National Incident Management System (NIMS) for incident command and emergency operations. All of the training includes a public information aspect, regardless of scope and with/without a professional Public Information Officer (PIO).

Lessons learned from these exercises include the following:
- All participants appreciate the importance of effective crisis communications and recognize how critical this is to effective response
- Participants readily understand the need for a common message and a single spokesperson, and realize the confusion that can result from contradictory messages from different agencies
- Participants understand the necessity for being honest and forthright with the media and the public as well as the consequences of not being honest
- Many participants view the relationship with the media as adversarial, which can interfere with effective communication to the public
- Some participants may be overly reluctant to share information with the public, particularly the water industry which tends to be conservative and focused on delivering safe water
- Participants have difficulty in sharing information with the public that has the shock value of terrorism and WMD agents
- Various agencies have difficulty determining "who is in charge" during various phases of the incident and therefore who is responsible for delivering the message to the public
- Difficulties in maintaining a balance between the risk of overreacting to a false alarm and the risk of under reacting to a real situation, particularly when there is a very short time period for issuing public notifications and health alerts

Two real past events were also offered as learning experiences. The first occurred in December 1980 in an area outside of Pittsburgh where a water utility strike was underway. Someone injected chlordane (a pesticide) through an air vent into the municipal water supply system, and starting that evening, people

began claiming that the water smelled like gasoline (which is common since chlordane is often carried in a kerosene container). Most people did not drink the water because of the smell, but some got sick, and the utility had to replace hundreds of hot water tanks and portions of the distribution system that could not be flushed adequately. The incident was reported, people were advised of what happened and what to do, and the public did not perceive the incident as dire.

A second incident occurred two days into the Iraqi war and the threat level had been raised to orange (indicating high risk of attack). A call came in that a yellow substance had been placed into an open reservoir. While responders were on the way to the reservoir, efforts were initiated to isolate the reservoir and the health department was asked to meet the utility personnel at the reservoir. Upon arrival of the responders at the reservoir 10 minutes after the call, they discovered that members of the media were already present. The incident appeared to involve a heavy deposition of pollen. A real challenge from a public information perspective was to hold private conversations among the various responders (utility, public health, emergency medicine, police, fire) to discuss the possible problem and solution with the media present. In this case, media personnel were respectful and stayed away from the discussions; but it was all in view of the cameras. Samples were collected in plain clothes, and an emergency analysis was done that substantiated that the substance was pollen. All communications involved a single voice and when laboratory results were available an hour later, the results were immediately released. The situation was covered well by the media.

A question and answer session followed the case study presentation. Topics addressed included:

- When encountering difficulty in balancing the "reaction" to an incident during training, participants tend a bit toward over-reaction, but under-reaction happens as well

- The choice between under-reacting (and people getting sick) and over-reacting (and people becoming concerned) is difficult, particularly because there is a limited amount of time for decision-making

- The need to involve more risk communicators (e.g., Public Information Officers) in these training exercises, which is a challenge in that many utilities, particularly small utilities, do not have them and many that are invited do not attend

- The importance of tabletop drills to practice the command center operation and to stay focused on who the appropriate speaker should be, noting that elected officials often want to take control of the situation and use their PIOs for public communication

- Uncertainties of whether a single spokesperson is possible or desirable as there may be value in showing the public that there are diverse agency opinions and there is perhaps a need to warn the public that they will hear different opinions----An alternate viewpoint was that the goal of incident command is to integrate these various opinions and develop a consensus

- Use of a sole spokesperson that presents what the stakeholders have agreed upon and who also hands off specific questions to other stakeholders (such as technical experts) for the answer

- The need for the decision makers and elected officials to participate in the tabletop exercises

- Clarification of the concept of single voice rather than single spokesperson and the confusion that the public can have when different persons provide different opinions at the same time

- The difficulty of handling differing opinions and whether to fake a consensus to have one message or go with honesty and have several messages, and the experience in training that participants prefer not to be dishonest and strive toward consensus for the public good

- Unified incident command as a successful method for working out disagreements behind the scenes and agreeing on a unified message given the importance of credibility and avoiding confusion of the public early in the crisis, which may lose their support and make managing the crisis difficult

- The need to recognize limitations in spokesperson representation, such as inappropriateness of the health department speaking for the Department of Defense

- How communication is a large part of the effort in an actual incident and that the public cannot be left for a long period of time with nothing being said

Panel on Water Security Communication Initiatives

Linda Reekie, American Water Works Association Research Foundation (AwwaRF), Panel Chair, provided a brief overview of AwwaRF and introduced the panelists. AwwaRF is a member-sponsored organization whose mission is to make drinking water safer and more affordable. The organization conducts research on improving, protecting, and treating drinking water to improve quality, as well as water security and improved communications. This panel provided an overview of research underway in communications and drinking water, and consisted of three presentations.

Communication for Emerging Contaminants and Water-Related Health Risk

Dr. Rebecca Parkin, with George Washington University, discussed several research projects currently underway with AwwaRF. The first involves the development of a systematic, science-based approach to anticipate and communicate emerging contaminants and their risks. The research activities included a literature review, case studies, application of mental models (neural networks) and a classification model, and development of a strategic decision making aid.

Key findings from this emerging contaminants research project include:

- Risk communication is a different type of communication and is an integral part of risk management

- Strategies must be based on scientifically-derived information rather than guesses, and must be specific to a particular area

- Plant managers are viewed as being responsible for providing information and they need clear, visible, open support by their senior management as well as the training and support to interact with the community and understand what the community is able to understand

- Communication activities must fit with the community's interests and preferences, which requires interaction to develop this understanding as well as establishment of a visible, positive presence before a crisis occurs

- Risk communication is a part of every step of the risk management process

The literature review showed that risk perceptions are affected by gender, ethnicity, education, socioeconomic status, geographic location, and sensory perception. Those who will be most worried about water problems include women, minorities, lower educational levels, and those who are poor or live in stressed urban neighborhoods, and these groups require different outreach and communication efforts. Also, in more heterogeneous communities, the media is more likely to frame issues as problems without solutions and this requires more complex, creative communication methods.

Recommendations for the corporate level of water utilities as an outcome of the research include:
- Base strategies on facts not guesses
- Plant managers are responsible and need support
- Be visibly present in the community
- Proactively initiate dialogues
- Build professional capacity

A second study is an effort to advance three-way collaborations for addressing water-related risk and communication. A primary output is a framework for action to help develop collaborations. Only two-way collaborations were noted in the literature, even though three-way collaborations are also known to exist. Surveys were conducted of 98 water utilities, 150 public health agencies, and numerous clinicians across the United States. Most of the utilities had worked with a local or state health agency, and many health agencies had worked with clinicians on water security. The findings overall were that (1) each entity has many other parties to consider and they have incomplete knowledge about each other--perhaps only assumptions, and (2) utilities and clinicians have much more contact with health agencies than each other.

This project has just begun. Key points and lessons learned to date include:

- The various parties have limited knowledge of what risk communication is or how to use it strategically
- Scientific knowledge is available but under-utilized
- Experience with collaboration is limited
- Knowing community concerns builds trust
- Preparing for strategic risk communication is important

Emergency Communication with Local Governments and Communities

Thomas Rockaway, with the University of Louisville, discussed a research project jointly sponsored by EPA, WERF, and AwwaRF on emergency response planning. Dr. Rockaway noted that having one set plan usable by all organizations is not feasible as each plan must be adapted to the local community and much is learned in the planning process.

A lesson learned is that a utility is most likely to be prepared for more common or anticipated events. Examples included annual spring flooding in Louisville and annual fire threat each summer in Southern California. The area of difficulty for utilities is dealing with unexpected events such as wildfires experienced three years ago in Eastern Kentucky where it would have been useful to tap into the Southern California experience to help with planning and response.

The goal of this research project is to build a large database of utility knowledge on large and small events. Some utilities are very good at being prepared for certain types of events. However, when Louisville handled notification of a water main break by hanging a notice on the doorknobs of homes, they found that many did not get the message; but they did when a sign was placed in their yard. Another finding was that it was important to state information that seemed obvious, such as "even if you have water at your tap, this [boil water order] applies to you." The goal of this database is to help distribute these experiences.

Other products anticipated from this research effort include the development of an emergency communication management system, a template to assist utilities in the decision making process, and a template for an action plan for emergency communications. Research activities will include reviewing communication plans of a small sample of utility companies, determining a set of probable crisis events and creating scenarios, and determining the effectiveness of warning and emergency messages to local government and the public. The focus of these efforts is on communications and ways to assist, but not perform, response planning.

Response Protocol Toolbox: Public Health Response Guide

Susan Dolgin-Ruggles, with the EPA Office of Water, Water Security Division, discussed the newest module to be released for the EPA Response Protocol Toolbox – Public Health Response Module 5 (www.epa.gov/safewater/watersecurity/pubs/guide_response_module5.pdf). Ms. Dolgin-Ruggles presented the process that the toolbox sets forth and noted that this particular module is used when a threat is considered credible and public health response actions should be underway.

The main components of Module 5 are consequence analysis, containment options, public notification, and alternate water supply. The process is not linear and there are times when consequences are such that it is necessary to move right to the public notification step. There is a decision tree for public notification and the issuance of specific actions (e.g., boil water advisory). The Module emphasizes the need for collaboration.

Public health consequences to be considered include contaminant properties (health effects, toxic/infectious dose, routes of exposure, fate/transport) and spread of contaminant through the water system (manual estimation methods and models). Public notification guidance includes content, format (short, simple, all languages common in the area), and delivery vehicles. In addition, short-term alternate water supply considerations include water for consumption and sanitation (bottled, emergency supply stored by consumers, bulk water hauled in) and water for fire fighting.

Overall, the Module discusses the public health response to a contamination threat or incident, and helps the user to think through the actions necessary to protect public health in a progressive manner. The overall toolbox has been released in draft final form and can be found at www.epa.gov/safewater/security. EPA is working on an electronic format to enable the user to quickly get to the information needed since parts of the module are quite long. There are also plans to develop a simplified document, develop and conduct training, and develop support tools.

Stakeholder Panel on Best Practices for Planning

Kerry Kirk Pflugh, with the New Jersey Department of Environmental Protection, served as moderator for a panel session focused on the experience of various organizations in risk management planning, processes, and tools. She noted that there is a tendency to ask for a specific tool, a quick fix, and whether there is an existing plan or exercise that will provide the answer for risk communication; noting that many view risk communication planning as something added at the end. Quite the opposite, risk communication planning is part of the entire effort and must address constituent groups throughout the community, earn trust and credibility, and be able to explain risk. There are many models and tools and in her experience, she has found most useful the 7-step process that begins with issue identification and goal setting, and continues through developing messages and methods to evaluating outcome. To be successful, a risk communication plan must be in place in advance of an incident with all involved parties knowing in advance what is expected and what their roles are. This approach yields a more positive risk communication outcome. The panel consisted of five presentations followed by a question and answer period.

Risk Communication in Washington Township, New Jersey

Mayor John Horensky, Washington Township, NJ, discussed the challenges of risk communication planning in a small municipality with five part-time elected officials, four full-time personnel, and 25 municipal employees. Washington Township is incorporated, consists of 14.5 square miles, and is a split suburban (large lot) and rural area. The water source is primarily groundwater so there are no reservoirs

or open water supply issues. For emergency and bioterrorism planning, there is little threat except to wellheads. The distribution system is privately owned.

Mayor Horensky also holds a full time job with the health department and, unlike many elected officials, deals with risk communication on a daily basis, including message mapping. He noted that without this experience and training, there would be very little risk communication occurring at the municipal level and that it is important to rely on the utilities and have the risk communicators work with them when there is a water problem. Incident command training is not required for local government, although Mayor Horensky has had such training as a result of his job. He has begun developing relationships with adjacent mayors to address such issues.

In his area, there is a strong belief that the water supply must be protected because of increased demand for a limited water supply (groundwater) as a result of growth in the Township. As mayor, his goals for the Township are to provide accurate information and reduce the risk of panic. Objectives in such circumstances are to identify credible information sources, provide timely updates, convey concern (built up through a lot of government interaction with citizens of the Township), and establish trust and confidence that their best interests are at heart and the information/services required can be provided.

In building relationships, there is a need to identify partners and advocates, the stakeholders (e.g., residents and businesses), adversaries (those who wish to derail the risk management program by trying to make it work for them the way they want), and the apathetic people, which is largely the general public until an event occurs. Once an event occurs, the apathetic population may move to denial and refuse to understand that there is a major risk to address, so it is important to communicate with them in advance. In Washington Township, the water company goes into the schools, secures grants for schools, and is viewed as a credible resource that will assist in a crisis.

Examples of where risk communication has been used effectively in his area include:

- Recent droughts where information was distributed to the local community about water conservation measures

- Pollution episodes that caused discharges to recreational swimming and fishing sites

- Siltation from construction activities that polluted waterways

- Elevated levels of naturally-occurring radium and mercury in water

- How to protect wellheads in their area as part of enhanced security

A key component of successful risk communication is developing partnerships. This provides a mechanism for sharing accurate information, understanding who knows what, and who to go to for what type of information. This in turn helps to establish credibility; without credibility, the public will not believe the message.

Risk Communication at the Los Angeles Department of Water and Power

James McDaniel, Deputy Assistant Manager, Los Angeles Department of Water and Power (LADWP), presented risk communication from a big city perspective. LADWP is California's largest retail water supplier, serving 3.8 million people over 465 square miles of service area.

LADWP has recent experience with risk communication through a number of incidents: high chlorine in the system due to misfeed from a chlorine injector (issued "Do Not Use" alert), Northridge earthquake (issued "Boil Water" advisory), incidents of noncompliance (sent required health notices that raised

questions requiring explanation), and post-9/11 issues and precautions. In addition, when taking steps for their system in response to the *cryptosporidium* outbreak in Milwaukee, LADWP found a large potentially impacted population involving immuno-compromised individuals (e.g., having AIDS or undergoing chemotherapy) that required communication with care givers rather than the affected individual.

From this response experience, LADWP has evolved a series of response steps that include a risk communication component:

- What happened – where, when, who is affected, why

- Utility response – assessment, actions to take, expected outcome, and outreach to pre-identified community partners, including feedback at early stages of expected outcomes

- Advice for consumers – notice of risk, options to manage risk, mechanisms for feedback or customer access, periodic/scheduled updates via the media, and return to service notice

- Wrap-up – evaluations for internal improvement and external messages

Some lessons learned include the need to begin planning for lifting a "Boil Water" advisory upon issuance, giving the public a context for risk management options (e.g., this is like we did for the earthquake last year), and working with the media on their news cycle schedules. Another challenge was that people other than the PIO often want to deliver the messages to the public and LADWP has had good experience in having the various PIOs discuss this together and strategize on how to get the message out to the public.

Tools used to assist in communicating the risk message have included:

- Signage and road barriers to cover a large affected area

- Stand-by and contracted language translators to cover 16 languages, minimum, in the service area

- Mapping tools for hard copy and electronic delivery, including pre-planning to identify pressure zones and identifying geographic boundaries to use in notifications and return to service messages

- Standard templates for "Boil Water," "Do Not Use," and "Return to Service"

Also important is the identification of special subpopulations that either need special information or require special methods to get the information to them. Therefore, it is necessary to understand how these special subpopulations get their information and who they trust. One approach is to build on networks such as caregivers for the immune-compromised, schools, hospitals, senior centers, restaurants, large commercial water users, and those who distribute low flow toilets in the community. Other avenues for accessing consumers include putting information in the annual report and current actions to create 120 neighborhood councils who can be notified by email.

Partnerships are not easy to maintain, but they are worth the investment of time to do so and to keep up with changes over time. Partnerships for the water community include regulators (EPA, state/local health departments), WaterISAC (for fact sheets on contaminants that are specific to the water industry), rapid response providers (neighboring utilities and wholesalers), local law enforcement, first responders (county sheriff, county health, State OES, State Department of Justice), and referral services with other utilities to share information on laboratories and mutual aid.

Credibility of the message is critical. Water utilities must resist the pressure to appear to be medical professionals and should enlist the health department to address such issues. Water utilities must also resist the pressure by elected officials to be over-reassuring in messages to the public. A more productive

strategy is to select the right spokesperson from the most credible institution, avoid discussion of comparative risks, and be timely, accurate, and useful in all communications.

Communication Initiatives at the Connecticut Department of Public Health

Scott Szalkiewicz, with the Connecticut Department of Public Health, discussed current efforts to implement emergency response planning and risk communication throughout the State of Connecticut, which has over 3,000 regulated public water systems, of which 618 are community water systems. After the events of September 11, 2001, there has been a dramatic change in the number and types of organizations with which the Department of Health must interact.

The incident command system (ICS) is recognized as the foundation for an effective all-risk emergency planning and response capability, with a modular organization and consensus orientation in which all opinions will be heard. Three key steps in building this capability are to communicate (achieve real-time, two-way communication), coordinate, and cooperate. Connecticut has held four regional workshops for first responders and public drinking water system personnel, formed a Security Advisory Committee (to develop lines of communication), and formed an Emergency Response Group (to build skills). Cross-training is becoming very important to eliminate pre-conceptions and lack of understanding, such as law enforcement personnel thinking fire hydrants are controls or utility personnel understanding that a break-in must be handled as a crime scene. In addition, Connecticut has targeted all community water systems for vulnerability assessments and has not limited the effort to those meeting the EPA minimum criterion.

In conducting these activities, a number of issues have arisen that must be addressed:

- Lack of continuity for all who need to receive security and other training

- Importance of having law enforcement attend training/workshops, which has been difficult

- Lack of electronic communications access by all entities

- Apathy from burnout

- Numerous conflicting activities

- Independent ("cowboy") behavior, most commonly by law enforcement and water utilities

A key lesson learned is that there is no substitute for professional accountability in providing good, safe drinking water that has the trust of the consumer, particularly if the health department is brought into the water utility message. Another critical piece is to coordinate with law enforcement and water suppliers.

To date, over 600 have attended four regional drinking water security workshops, including elected officials, emergency coordinators, law enforcement, and others. The focus of the workshops was on a small pocket guide being given to operators with telephone numbers and other information. This was a Washington State product that Connecticut refocused to meet its needs.

Other preparation activities underway include:

- Tying all systems (Wide Area Notification System, broadcast FAX, telephones, etc.) into a broad structure to help spread emergency messages with a focus on calling 911

- Eliminating mass mailings and placing all information on the Health Department website

- Making organizational changes

Mr. Szalkiewicz concluded by noting that the keys to success are professionalism, responsibility, and accountability.

Crisis and Emergency Risk Communication at the Cincinnati, Ohio Fire Department

Edward Dadosky, District Chief, with the Cincinnati, OH, Fire Department, presented a number of examples of incidents requiring crisis and/or emergency risk communication and the lessons learned from these experiences. In his area, there is involvement in both response and response planning not only by the City of Cincinnati and Hamilton County, but other parts of Ohio, Kentucky, and Indiana as well. Hazard sources in the area come from fixed facilities (80 percent) and transportation (rail, highway, barge, and pipeline).

Some of the communication lessons learned from incidents and drills in the area include:

- Effective communication is two-way between local and federal entities and each has responsibility to communicate with each other whether addressing a rumor or a true emergency
- The importance of obtaining facts about a situation before proceeding into crisis management mode, such as a report by a local company of an inventory shortage of a chemical that could contaminate the water supply that turned out to be an inventory error rather than theft
- Use of effective, rather than disruptive, communication strategies with the public as demonstrated by a 3 am notification for an oleum spill using the air raid siren only to wake up nearby residents and then tell them to shelter in place
- The need to work with the media in advance to address potential communication needs and strategies
- Use of the health department in the lead communication role in a water contamination event because the head of the water utility may not be credible to the public
- Communication failures can severely limit the response

Notification techniques currently in use include:

- Outdoor warning sirens, with usage to be modified as described in the example above
- Emergency alert system, which recently had difficulties in properly delivering a message to the television system
- Telephone trees, blast FAXes, and blast emails
- NOAA weather radio, which can be used for non-weather-related emergencies
- Disaster Radio Network to notify hospitals of the types/number of casualties to expect

Learning continues from drills and exercises, which has resulted in reorganization of equipment (e.g., what is being bought), changes in how people are processed (e.g., not separating parent and child regardless of gender difference), and the need to upgrade speakers in SCBA. In another drill, they learned that people responded better to direction than general statements such as "fire" or "don't panic." Using state-of-the-art sound systems and messages that follow the 27/9/3 rule enabled better control of the crowd as well as credibility with the crowd.

Plans for future incidents include drawing on the system of community councils, cities, and townships in the area as focal points for communications and providing central locations for the communicators, media, and the public to assemble and share information. A Terrorism Early Warning Group is in development that will include all emergency responders and establish one point-of-contact in each discipline (e.g., police) that will keep all counterparts in that discipline apprised of the situation and actions. Also in development is an encrypted communication device (e.g., text messaging, secure messaging) for use by all emergency responders.

Communication and Response Planning at the Newport News Waterworks, Virginia

Tom Kahler, Operations Support Manager, with the Newport News Waterworks, discussed post-9/11 communications planning and the importance of developing and maintaining relationships with potential responders and those who may be affected by the loss of the water supply. The Newport News Waterworks is in a unique position of being located in the middle of the largest military-industrial complex in the world, including weapons, military installations, and nuclear-powered vessels as well as being only three hours from another potential major target, Washington, DC.

Key questions raised during the events of 9/11 included: From whom will we get our help? As Security Manager for the utility, who do I need to talk to? He identified the initial emergency responders (fire department, law enforcement, emergency management services), and began meeting with the various organizations to develop both communications and assistance should an event occur. Recommendations from this process and experience include:

- Meet and brief law enforcement in all service jurisdictions, including the military

- Help the SWAT and bomb squads get to know your plants, how to get through them, how to communicate with the plants and law enforcement within the plant, which may include provision of maps, briefing patrol commanders/officers on how to get around within the plants, etc.

- Provide tours, information on who to contact within the utility, GIS maps, and the dispatch number in case they find something you need to know about (e.g., pipe bomb near a dam)

- Educate them on the consequences that could exist for the public and vital services should the water supply be disrupted, as law enforcement needs to know this to be able to help the water utility in an emergency

- Develop relationships, brief uniformed personnel, and provide HazMat and security information and maps

All of these activities are a matter of education and it is important to regularly visit/brief these organizations to let them know of concerns found through vulnerability assessments, what actions are to be taken in an emergency, etc. His experience demonstrated that none of the law enforcement personnel had any knowledge of water system vulnerabilities or that the water system is one of the eight critical infrastructures (identified in the Bioterrorism Act). Conducting this education and building these relationships is critical because the water utility must rely on law enforcement assistance in an emergency. Recommended pre-event actions for a water utility include:

- Discuss risks and consequences with municipal government(s) as well as areas of mutual assistance

- Review Memoranda of Understanding with signatory organizations and address with them the unique problems that may be encountered for response and recovery

- Conduct tabletops and other live exercises

- Interface with first responders and incident commanders regularly since personnel may change over time

- Convey to the public and to large utility users (in his case, two military and one brewery) what to expect in an attack

Another important element is communicating with interdependent utilities and vendors to understand service restoration priorities (for example, whether electrical power is restored to hospitals first and water utilities second); to get to know key players for water utility recovery such as electrical, gas,

telecommunications, and other critical suppliers; and to develop the relationships and interface regularly. In a crisis, having all the players know each other personally helps the response process.

A critical but often overlooked area is access and debris removal. Access to plants and other facilities is essential for recovery. If debris cannot be removed, it may not be possible to get personnel to vital facilities. Therefore, pre-planning for access is important, including pre-arrangement of support services (whether it is by contractor or from the local public works department), and inclusion of all these services in tabletop exercises.

A final point was to plan for having no functional communication systems and to develop alternatives in advance for communication needs. Loss of electrical power can mean no landline telephones, no radios, and no cell phones. After Hurricane Isabel, Newport News Waterworks went without all of these communications systems for 7 days. Some organizations have generators, and Newport News Waterworks was able to get messages to the local paper that had a generator and was able to go to print and circulate information to the public.

Facilitated Panelist Question and Answer Session

Kerry Kirk Pflugh, with the New Jersey Department of Environmental Protection, facilitated an audience question and answer session on the panelist presentations. Key discussion topics included:

- Elaboration on Incident Command Structure (ICS) training, which is provided by FEMA, instituted through the New Jersey State Police, and passed down to the local level through local emergency management offices. This ICS training is a multi-tiered program that takes the user through the various stages of incident command.

- Several panelists discussed automated telephone notification systems. The Los Angeles Department of Water and Power (LADWP) is also looking into such a system, recognizing that there are concerns about the ability to keep the information current, the desire to use their own database of customer accounts/contacts, and plans to test out concepts through the Request for Proposal (RFP) process.

- Methods to draw local elected officials into the risk communication process, such as inclusion of the Mayor of Los Angeles in an annual workshop with LADWP.

- Concerns over the role of law enforcement in incident response and how the incident command system is an interdisciplinary process that does not allow for control by one entity such as law enforcement. Difficulties have been encountered in the interactions between water utilities and law enforcement where law enforcement initially directed the utility to take certain actions that were not feasible (e.g., translation of potential contamination of one open aqueduct into a response to shut off the entire water supply for 9 million people). This further emphasized the need to develop interdisciplinary understanding in advance of actual events.

Case Study: Massive Power Grid Outage in 2003 in Cleveland, Ohio

Robin Halperin, Risk Manager, Risk Management Group, Division of Water, Cleveland, OH, discussed the experience of the water utility during a massive power grid outage, focusing on the risk communication aspect. The Division of Water services 72 surrounding suburbs through four service areas and nine pressure districts over 600 square miles. Of particular note is the reliance of this system on pumps because source water is Lake Erie, which is at a lower elevation than the water collection and treatment system.

The power outage occurred late afternoon when water supplies were at their lowest. All four water treatment plants were reported out, which is very unusual for a system of this size and diversity. Within

one hour, the public was requested to begin conserving water. Not many in the public had made the connection that if there is no power, eventually there is no water. At the same time, some customers began losing water. By 10 pm, the question became whether to continue distributing water or conserve it in case the outage would last several more days. Overnight, more customers lost their water supply, the Division of Water lost the ability to make more water, and "Boil Water" advisories had to be issued. Power restoration to one water treatment plant at 4 am the next day began the road to recovery, with setbacks encountered when the water system was caught in rolling blackouts. Water system impacts included extensive depressurization and dewatering, lots of air in the pipelines, water quality concerns, and loss of water supply to hospitals, the fire department, and other critical customers.

The major difficulty in planning, implementing, and managing a response to this situation was the lack of information on when the power would return, where Division of Water was on the priority list, and what to restart first once power was available. Other difficulties encountered included:

- Lack of response to telephone calls for information by the power company

- Absence of the County Health Department during the response despite previous understanding that they would take over water distribution

- Limited ability to find suppliers of potable water and obtain their support

- Balancing the need to stop distribution and conserve water in strategic locations for later distribution if the power was out for several days (which would make system restart easier) with the need to continue the fire water supply

- How to restart the depressurized water system

- How to keep pumps from tripping when the system is dry

- Whether to pump water before treating

- Uncertainties as to when power would return to each part of the system, which directly affected restart efforts

- Customers losing water after system restart because the water storage in their part of the system had run dry

- Lack of system maps that had to be remedied during the crisis

- Communication difficulties where cell phones and pagers did not work

- Broadcast information that provided limited utility or could not reach its intended audience (such as "Boil Water" advisories to individuals without power for their television/radios)

- Whether to flush the system until clean water or any water is obtained

- Whether to issue "Boil Water" advisories to just the customers in potentially affected areas or to all water customers

Lessons learned in the risk communication area included:

- Bringing in all internal players to discuss the risks, how these risks affect the system and its customers, and to agree on the message to the public, was extremely important

- Managing interpretation of the message by external participants, particularly elected officials, can be difficult and can result in misinformation (e.g., changing the standard templates for "Boil Water" advisories from a 3-4 minute boil time to a 45 minute time when issued to media)

- Accepting the presence of the media and developing an appropriate frequency for press conferences or press releases as it is possible to have too many press interactions without new information

- Having elected officials defer specific questions to key personnel present such as was done by Mayor Giuliani of New York City, but recognizing that this is not always possible

- Having an up-to-date and accurate point of contact list for local government, responders, and major customers is important

- Developing a concise and clear message to keep the public informed, while recognizing that the media may still interpret or change it

- Providing a 24-hour call center so that the public can talk to a live person while balancing the potential for misinformation through use of multiple call-in lines

- Determining appropriate locations to stage water buffaloes (portable drinking water tanks)

A customer survey one month after the incident involved over 150 persons in each of the nine water districts and addressed their experiences with the power outage, water outage, and "Boil Water" advisory as well as whether they would support an increase in their water bill to pay for backup generators. Findings include:

- Elderly customers were least likely to have heard about the "Boil Water" advisory

- Television was the primary source of information

- Less than 50 percent of those who knew of the water advisory followed the instructions (women and younger respondents were most likely to have done so)

- Confusion over who had to comply with the "Boil Water" advisory, which implied the message was not as clear as the Division of Water had thought

- Confusion about the length of the "Boil Water" advisory

- Little use of the water buffaloes despite fairly widespread knowledge that they were available

The next steps for the Division of Water in response to this experience include:

- Improving the standard public relations language, scenarios, and communication plans

- Coordinating more with the Mayor's press office

- Developing more templates and scripts

- Re-evaluating who should be presenting the message, for example, a doctor

- Evaluating the use of a reverse-911 system to overcome communications issues

- Developing a plan for water distribution in a crisis

- Coordinating with county officials (health department, emergency management)

- Maintaining up-to-date point-of-contact lists

- Developing better ways to educate the public on what these water notifications mean in an emergency so that a "do not use" order is not taken as lightly as the "boil water" advisory was

- Obtaining backup power for the water system

A question and answer session followed the presentation to clarify the response, survey results, and lessons learned. Topics addressed included:

- Finding significant customer willingness to pay additional fees for acquisition of a backup power supply

- How Y2K planning did not help to address the challenges encountered in the power outage, such as Y2K budgetary decisions to not buy backup power generators (as power providers assured that would

not be a problem) and the technical inability of companies that distribute electricity to take on the role of power generation

- When concerns began to recede (about 4-6 hours after the initial outage) upon recognition that this was not a terrorist event

- Diverse reactions of hospitals to loss of the water supply or "Boil Water" advisory and the absence of hospital plans/preparedness for such contingencies

- The preference to use water buffaloes for longer-term (more than 30 hour) emergencies given the difficulties encountered in their use – instance of arrival full of sanitization solution rather than empty, required maneuvering space for delivery truck despite small size of an individual buffalo, refilling in place with potable water, and lack of authority to force potable water delivery by private companies

Facilitated Audience Discussion

Kerry Kirk Pflugh, with the New Jersey Department of Environmental Protection, facilitated an audience discussion of other issues not covered in Session 2, as well as any other needs. Key topics included:

- Public concerns in Cleveland over dirty water upon system restart were more significant than their understanding of why they needed to boil their water

- Increased apathy and denial in New England that water security is an issue, which is making it more difficult to properly maintain the equipment and the procedures developed to address such issues

- The need for water utilities to understand the importance of transparency, candor, and not being over-reassuring in their crisis communications, which is unfamiliar to many, and how to bring out more interest in the importance of these skills

- Using a more personal approach to go beyond the Cleveland customer survey in order to understand from the general public why the communications during the event did not work as intended and to do this before developing the next round of educational materials

- Obtaining customer feedback 3, 6, or even 12 months after an incident as a better source of information to help build a communications plan and budgets for communication

- Seeking out local organizations who may be able or interested in helping to acquire the "why" information from the Cleveland experience or who may provide the funding for the Division of Water to do so

- Conserving water helped in some areas of the Cleveland power outage, yet the majority of water supply loss was the result of system design and the point of water usage for the day at which the power outage occurred, which could not be offset by conservation

- Incorporating into crisis communication planning the concept that this is counter-intuitive and the importance of involving someone trained in crisis communication not only in the response but also in the post-crisis review and evaluation to help in learning from the experience

- Increasing chlorination for a few days after restoration of the Cleveland water supply turned out to be inadequate additional protection because the chlorine demand of the system was underestimated as a result of the extensive depressurization; this led to the need to increase chlorination and for longer periods of time while not violating regulatory limits

- The need to train speakers, particularly executives, and the near-term availability of an executive communication module developed by CDC that will be suitable for insertion into various programs that executives may attend

Symposium Close-Out

Jonathan Herrmann, with the NHSRC, thanked everyone for attending and participating. He noted that the Symposium involved much successful information exchange and interaction. He offered to all participants a homework assignment to be received shortly after the Symposium – to identify and communicate to EPA three take-home messages from this Symposium and the three most challenging issues that EPA should be addressing. (Send any input to minamyer.scott@epa.gov).

Susan Dolgin-Ruggles, with the EPA Office of Water, Water Security Division, also thanked everyone for their attention and participation, expressed her interest in participants providing the feedback requested by Mr. Herrmann, and offered the opportunity for interested Symposium participants to form a working group to address the suggestions received.

Appendix A   Agenda

National Water Security Risk Communication Symposium, San Francisco, CA

Thursday, May 20, 2004

Session 1:   **Risk Communication During and Following a Crisis**

8:00 – 8:05   Opening and Introductions by Symposium Chair, *Scott Minamyer, USEPA Office of Research and Development*

8:05 – 8:15   Welcome, *Wayne Nastri, USEPA Regional Administrator for Region 9*

8:15 – 8:20   USEPA Office of Research and Development, *Jonathan Herrmann, National Homeland Security Research Center*

8:20 – 8:30   Local Risk Communication Perspective, *Steve Dennis, Alameda County Water District, CA*

8:30 – 8:45   USEPA Office of Water, *Susan Dolgin-Ruggles, Water Security Division*

   Keynote Presentation

8:45 – 10:00   Overview of key issues in crisis communication, *Peter Sandman, Internationally recognized risk communication expert and consultant (Refer to www.psandman.com)*

10:00 – 10:20   ***Break***

10:20 – 11:20   Peter Sandman overview---Continued

11:20 – 11:45   Facilitated Q&A for Peter Sandman

11:45 – 1:00   ***Lunch (on your own)***

   Stakeholder Panel on Risk Communication during a Crisis

1:00 – 1:15   Facilitator Opening and Introductions, *Kerry Kirk Pflugh, New Jersey Department of Environmental Protection*
1:15 – 1:30   *Terri Stratton*, California Department of Health Services
1:30 – 1:45   *David Ropeik*, Harvard Center for Risk Analysis
1:45 – 2:00   *Denise Clifford*, Washington State Department of Health
2:00 – 2:15   *Steve Frew*, East Bay Municipal Utility District
2:15 – 2:30   *Ed Welch*, New York City DEP Environmental Police

2:30 – 3:00   Facilitated Q&A for Panelists

3:00 – 3:30   ***Break***

3:30 – 4:15   Case Study: 1993 Cryptosporidium Outbreak in Milwaukee, WI, *Paul Biedrzycki, Disease Control & Prevention, City of Milwaukee Health Department* (30-minute talk and 15-minute facilitated Q&A)

4:15 – 5:00   Facilitated Open Discussion with Audience (What are other crisis/post crisis event issues not covered today, what is needed, what are emerging tools?), *Kerry Kirk Pflugh*

Risk Communication Tools Demonstration Session (5:00 – 7:00 PM)
Stations set up for Tools Information Sharing, Demonstrations, and Discussions

Friday, May 21, 2004

Session 2:   **Risk Communication in Preparation for a Potential Crisis Event**

8:00 – 8:05   Opening and Introductions, *Scott Minamyer*

8:05 – 8:15   Centers for Disease Control and Prevention, *Marsha Vanderford*

                         Keynote Presentation

8:15 – 9:15   Overview of Key Risk Communication Issues in Preparation for a Potential Crisis, *Vincent Covello, Director, Center for Risk Communication, New York City, NY (Refer to www.centerforriskcommunication.org)*

9:15 – 9:45   Facilitated Q&A for Vincent Covello

9:45 – 10:15   ***Break***

10:15 – 11:00   Case Study: Synopsis of Risk Communication Issues from Multiple Crisis Tabletop Exercises, *Stanley States, Water Quality Manager, Pittsburgh Water and Sewer Authority* (30-minute talk and 15-minute facilitated Q&A)

11:00 – 11:45   Panel on Water Security Communication Initiatives
Susan Dolgin-Ruggles, USEPA Office of Water, Water Security Division
Linda Reekie, American Water Works Association Research Foundation
Rebecca Parkin, George Washington University

11:45 – 1:00   ***Lunch (on your own)***

                         Stakeholder Panel on Best Practices for Planning

1:00 – 1:15   Facilitator Opening and Introductions, *Kerry Kirk Pflugh*

1:15 – 1:30   *Mayor John Horensky*, Washington Township, NJ
1:30 – 1:45   *James McDaniel*, LA Dept of Water
1:45 – 2:00   *Scott Szalkiewicz*, Connecticut Department of Public Health
2:00 – 2:15   *Edward Dadosky*, Cincinnati Fire Department
2:15 – 2:30   *Tom Kahler*, Newport News Waterworks

2:30 – 3:00   Facilitated Q&A for Panelists

3:00 – 3:30   ***Break***

3:30 – 4:15   Case Study: Massive Power Grid Outage in 2003*, Robin Halperin, Division of Water, Cleveland, Ohio* (30-minute talk and 15-minute facilitated Q&A)

4:15 – 5:00   Facilitated Open Discussion with Audience (What are other issues not covered today, what is needed?), *Kerry Kirk Pflugh*

5:00 – 5:10   Close Symposium, *Scott Minamyer*

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Slide 1

CDC

Communicating Effectively in an Emergency:

National Water Security Risk Communication Symposium
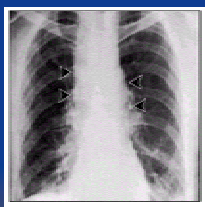
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Slide 2

CDC

Learning the Lessons of Anthrax

- October 27, 2001

- What did we do wrong?

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Slide 3

CDC

Context

Noise

Source Message Encoding/Language Channel(s) Audience Meaning

Feedback

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Slide 4

CDC

Messages

- Content Element
  - Explicit information
- Relational Element
  - Implications about respect & caring
  - Implied statements about power
    - Watzlawick, Beavin, & Jackson 1967

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Slide 5

CDC

Credibility: Can I trust you?

- Do you care and my concerns?

- Are you honest?

- Do you know what you are talking about?

- Do you have the power and authority and do what you say you will do?

  - Aristotle
  - Max Weber

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Slide 6

CDC

Audience Analysis

- What competing beliefs do audiences hold?
  - What misconceptions need to be addressed?
- What are they most concerned about?
  - Addressing their concerns before expecting them to attend to other messages.

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Applying Lessons Learned from Anthrax

- Increase time available for developing incident-specific information by
  - Pre-event development, audience testing, and clearing public information
    - Non-incident specific information on bio, radiation, chemical threats and shell documents
- To decrease perception of contradictions
  - Environmental scanning: address changes/differences
    - What new information have we discovered?
  - Anticipate changes to come
    - Acknowledge current uncertainties
    - Present guidelines and conclusions as "interim" or "contingent"

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Practice Informed by Research

Target Audience	Botulism	Plague	Radiological	Chemical	Total
Urban African Americans	1	2	2	2	7
Rural African Americans	1	1	1	1	4
Urban Hispanics	1	2	2	2	7
Rural Hispanics	1	1	1	1	4
Urban Caucasians	1	2	2	2	7
Rural Caucasians	1	1	1	1	4
Urban Asians	1	1	1	1	4
English as second lang.	1	1	1	1	4
Native American	1	1	1	1	4
First Responder	1	1	2	1	5
Public Health	1	1	2	1	5
Total	11	14	16	14	55

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Information Needs: Across all Agents

- What is the agent?
- Where is the agent found?
- How could I have been exposed?
- What are the health effects?
- How can I protect myself and those I care about from exposure/infection?
- What should I do if I think I've been exposed/infected?
- Where can I get more information?
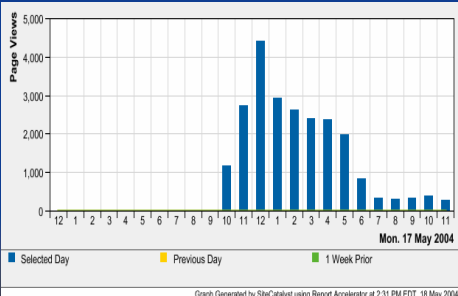
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First Line Fact Sheets

- Chemicals: Abrin/Ricin, Lewisite, Sulfur Mustard, Sarin, Cyanide, Paraquat, Phosgene, Sodium Azide, Soman, Tabun

- Radiation

- Biotoxins: Ricin, Cholera, Ecoli, Typhoid Fever, Tularemia

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CDC's Sarin Fact Sheet: 23,118 page views

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Slide 1

"The 1993 Milwaukee, WI Cryptosporidium Outbreak – Improving Communications from a Public Health Perspective"

USEPA Water Security Symposium
May 20-21, 2004

Paul A. Biedrzycki, MPH, MBA
Director of Disease Control & Prevention
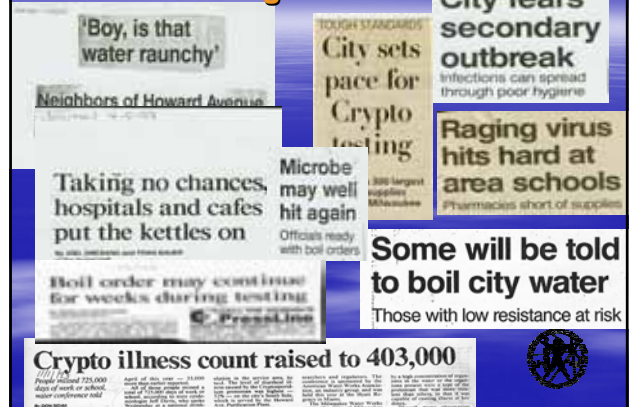**City of Milwaukee Health Department**

Slide 2

The Milwaukee Water Works (MWW)

- The MWW is a self-financing business enterprise
- The utility is operated 24 hours a day, 365 days a year
- In 2002, the utility pumped and distributed 45 billion gallons of water to 833,000 people in 15 communities
- Average 126M gal/day (2003)
- 2000 miles of distribution line
- Approximately 350 employees in water purification, distribution, engineering, customer service, billing & water meter installation and maintenance

Slide 3

A Water Utility's Worst Nightmare?

"Water, water, everywhere, nor any drop to drink."

Slide 4

Big news ….

'Boy, is that water raunchy'

Neighbors of Howard Avenue

City sets pace for Crypto testing

City fears secondary outbreak
Infections can spread through poor hygiene

Taking no chances, hospitals and cafes put the kettles on

Microbe may well hit again
Officials ready with boil orders

Raging virus hits hard at area schools
Pharmacies short of supplies

Boil order may continue for weeks during testing

Some will be told to boil city water
Those with low resistance at risk

Crypto illness count raised to 403,000

Slide 5

Seeds of syndromic surveillance and … unexpected benefits to tourism??

## Slide 6
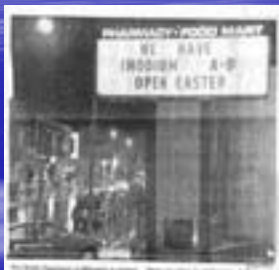
Consumer Confidence in the "Crypto Capital"
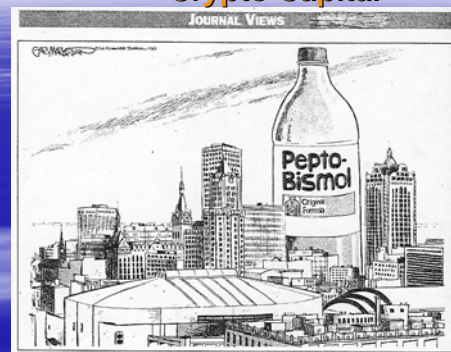
People had a variety of concerns and questions …

- Will my pets get *Crypto*?
- Can I use tap water to rinse my contact lenses?
- Can I use the water to wash dishes?
- Will hot chocolate and ice at County Stadium be safe for the Brewers' home opener?
- Can babies get the germ through breast-feeding.
- Did *Crypto* in drinking water cause miscarriages that occurred?

Cryptosporidium
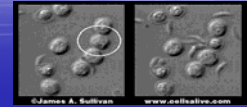
- 4-7 microns in size
- Not sensitive to chlorine
- Removed from water primarily by coagulation and filtration
- Also can be impacted by ozone, UV, microfiltration
- Can be removed in 1 micron absolute filtration units, inactivated by boiling 1 minute, reverse osmosis, distillation

Cryptosporidiosis

- Caused by ingestion of as few as 30 oocysts (DuPont, et al,1995), usually *C. parvum*
- Little information regarding infectivity in immunocompromised
- Diarrheal illness with 1-12 day incubation
- Illness can last 30 days (usually 2 wks)
- Conferred immunity unknown

Other Impacts …

- Loss of time from work
- Serious illness or death in hyper-susceptible populations
- Chronic or recurrent illness?
- Health care cost
- Economic Impact

Why suspect the water ???

- Magnitude of outbreak (massive exposure)
- Symptoms consistent with ingestion
- Recent and persistent water quality complaints (odor, color and taste)
- Absence of any other immediate and plausible theory

Timeline of 1993 Milwaukee Crypto Investigation

March   April   May
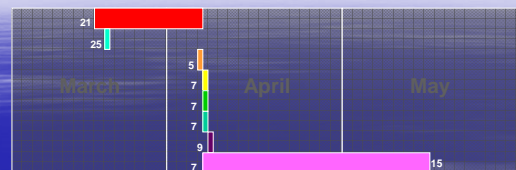
- March 23 - April 5, Increased turbidity in treated water at South plant
- March 25, Ice sample
- April 5, MHD requests State help investigating unusual number of diarrheal illnesses
- April 7, Two area labs confirm Crypto in7 stool samples
- April 7, Boil-water advisory
- April 7, MHD Surveillance for illness
- April 9, South plant closed temporarily, Ice Sample #2
- April 7 –appx April 27, Reporting of Crypto cases continues (late April="secondary transmission"

So how did it occur …
(an unusual confluence of events???)

- Watershed "plume"
- Meteorologic conditions (rain, snow melt)
- Lake turnover and turbidity (seasonal)
- Water intake location (depth and position)
- Flocculant Efficacy
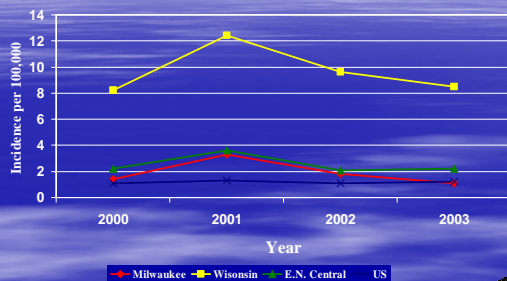- Unidentified factors??
  - CSOs
  - cross connections
  - cows

Other often asked questions …

- Howard Avenue plant recorded high turbidities before and during outbreak, but all regulations met
- No mechanical breakdown of flocculators or filters
- No other obvious treatment plant failure
- All existing MWW protocols followed

Cryptosporidium cases in the Community

Source: 2001-2002 Data - MMWR Summary of Notifiable Diseases, 2000 (http://www.cdc.gov/mmwr/summary.html)

2003 - MMWR Morbidity Tables (http://www.cdc.gov/mmwr/distrnds.html)

The bottom line …

- 403,000 sickened,
- 44,000 doctor visits,
- 4,400 hospitalized,
- more than 100 deaths,
- 725,000 lost work or school days,
- $96 million in lost wages and medical expenses
- $90 million for a new water purification system.

More of the bottom line …

- > 4,000 people filed notices of injury
- ~1,400 filed claims seeking damages of $25 million
- Consolidation into class-action lawsuit (about 540 total)
- City settled for $100,000
- General Chemical Corp., settled for $1.5 million.
- ~ 50 cases - $13,500 after attorneys' fees.

New and improved water treatment plant processes …

Crypto oocyst Rarely detected, 0.006-0.251/L → Ozone   ½ to 1 log reduction

Coagulation, Flocculation

2 log reduction

****Enhanced Filtration****

2 log reduction

Disinfection Residual
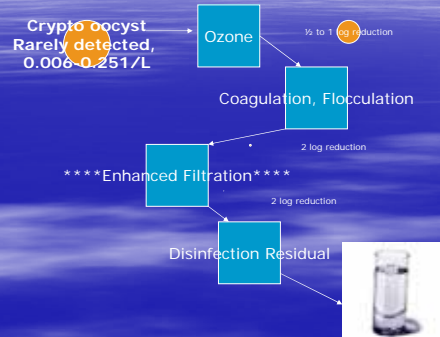
Other measures …

- Howard Avenue intake extended to avoid possible effects of watershed
- Ozone and enhanced filtration installed
- Routine watershed environmental monitoring for pathogens began
- Water/Health Technical Subcommittee formed (joint protocols developed)
- Disease Surveillance enhanced

Communications

Risk Communication during Emergency Events

"Getting the <u>right information</u> to the <u>right person</u> at the <u>right time</u>"
(can make all the difference)

"Crypto"
A classic and timeless story of the breakdown (or absence) in communications…

- Between the water utility and public health (where's the flu?)
- Between public health and healthcare providers (the "astute clinician")
- Between government and consumers (complaint log "insensitivity")

Communications-
(What we didn't have in 1993)

- A emergency communications plan
- A public information officer or POC
- Pre-identified audiences
- Pre-established channels of communication
- Clear and authoritative message content
- Identified community resources and partners
- Media strategy

Communications –
(to make matters worse)

- Lack of relationship between MWW and MHD
- Lack of any response "protocols"
- Lack of efficient data collection and reporting
- Professional arrogance and cultural gaps
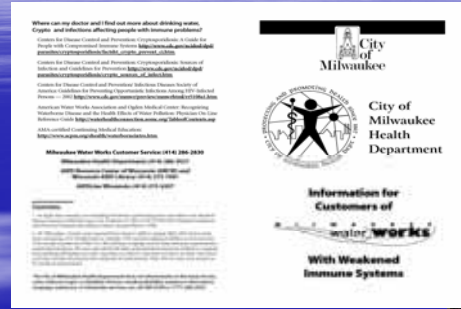- Over reliance/focus on regulatory compliance
- Desensitization to customers

Risk Communication-External
(current practices)

- CCR
- Special Advisories
- Press Releases
- SDWA Notices
- Training Modules
- SURVNET Alerts
- Website postings

Special population concerns …

"Alert Messaging"

- Survnet
- HAN/LRN
- EMSystem™
- Blast Fax
- Website
- Hotline
- Media

Regional Communications

AFTER SURVNET

Secure Web Messaging …

Public Notification Considerations

- Target audience
- Multi-cultural
- Clear and authoritative
- Multi-media
- Useful Content
- Format sensitive

Communications – Internal
(Routine Information Sharing!)

- Interdepartmental Workgroup at operational level
- Joint Data Sharing & Review
- Emergency Notification & Response Protocols
- Review of alterations to treatment plant Practices
- Professional and Community Presentations
- Joint Emergency Preparation & Planning

Members of Interdepartmental Workgroup

- MWW (operations and engineering)
- Public Health (lab, env. and epi)
- DPW (storm and sewer infrastructure)
- WDNR (regulatory)
- MMSD (wastewater treatment)
- Policymakers (Mayor and CC)
- Others??

When to Convene??

- Turbidity, PC, disinfectant threshold excursions
- Treatment plant process failure
- Environmental contamination
- Natural Disasters
- Disease Surveillance

Interdepartmental Protocol

- Convene meeting (24/7)
- Review data
- Consensus recommendations
- Conduct public notification
- Initiate interventions
- After-action review

Examples of Water/Health Interagency Communications & Collaborations

- Ozone outages
- *Crypto* that wasn't *Crypto* (PCR tests negative, contracted Lab did original *Crypto* test—probably algae)
- Cold Water Ozone Press Release (Immunocompromised Brochure)
- SDWA Violation (Tier 3), turbidity measurement schedule

March 26, 2004 Howard Plant Intake Rupture

- Howard Plant closed, out of service for months
- Linnwood Plant Served City (surge capacity)
- Minimum number of water complaints
- Health Department notified per agreement

Key Communication Lessons Learned …

- Build and foster relationships between water utility and public health in advance
- Routinely share data and expertise
- Develop broad and diverse public notification strategy
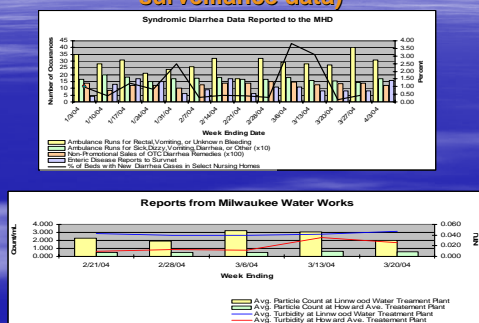- Pre-Identify community resources and partners

Key Communication Lessons Learned … (cont.)

- Establish PIO and JIC and a plan
- Engage media early and often
- Be upfront and forthright in what you know and don't know
- Cross-train and exercise
- Be prepared for unexpected!

New paradigms: "Sharing Data"
(Combining syndromic and environmental surveillance data)

Syndromic Diarrhea Data Reported to the MHD

- Ambulance Runs for Rectal, Vomiting, or Unknown n Bleeding
- Ambulance Runs for Sick, Dizzy, Vomiting, Diarrhea, or Other (x10)
- Non-Promotional Sales of OTC Diarrhea Remedies (x100)
- Enteric Disease Reports to Survnet
- % of Beds with New Diarrhea Cases in Select Nursing Homes

Reports from Milwaukee Water Works

- Avg. Particle Count at Linnwood Water Treatment Plant
- Avg. Particle Count at How ard Ave. Treatment Plant
- Avg. Turbidity at Linnwood Water Treatment Plant
- Avg. Turbidity at How ard Ave. Treatment Plant

New Paradigms: Joint training and exercises

From MWW's 2002 Annual Report:
Water Purification Plant
Emergency Preparedness Training with the
Milwaukee Fire and Health Departments, and
County Emergency Management
**Ammonia and
Chlorine Leak Response**

New paradigms: "Jointly redefining risk"
(Cryptosporidium Genotypes)

Water Source	WWTP Effluent	Watershed and beach
% Positive	26	22
(n=)	177	27
Percent, by Genotype		
C. parvum (human)	31	16.5
C. parvum (mouse)	2	–
C. canis	2	–
C. felis	2	–
C. andersoni (cow)	45	50
C. muris	11	–
C. genotype W4 (deer)	7.3	–
C. baileyi	–	16.5
C. unknown	–	16.5

Future Considerations

- **Vulnerability Assessment and Water Security**
- SCADA system interface with PH
- New Disinfection Technologies (UV, microfilitration)
- Disinfection By-Products (risk/benefit analysis)
- New partnerships (EM, FBI, HazMat, DHS)

Water Security …

- Physical Plant Hardening
- Cyber Security Measures
- Water Quality Monitoring
- **Communications**
- Integrated Emergency Planning

Vulnerabilities

- Distribution system
- Disinfectant resistant organisms
- **Emergency Response planning, protocols and training**
- Hazardous Materials handling and storage
- Cyber assaults
- Deteriorating infrastructure
- Inter-Utility Cooperation

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Communicating During A Crisis:
Creating a Framework in Washington

Denise Addotta Clifford
Office of Drinking Water

PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND
HEALTHIER WASHINGTON

Washington State Department of
Health
Division of Environmental Health
Office of Drinking Water

HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

Office of Drinking Water Mission

To protect the health of the people of Washington State by assuring safe and reliable drinking water.

Communication is Critical

"The biggest problem with communication is the illusion that it's been accomplished"
- George Bernard Shaw

Public Health and Risk Communications

- **Risk Communication**
  - **Controversial**
  - **Critically important**
  - **High risk or emergency situations**

1

Risk vs. Crisis Communication

- *Crisis communication* occurs during an emergency

- *Risk communication* includes non-emergencies
  - Used for both risk and crisis situations

Drinking Water Examples

- Security Breach
- Water Quality Concerns
- Health Advisories
- Drought / Floods
- Emergencies

Case in Point: City of Seattle

- Cross Jurisdictional Issues:
  - City of Seattle
  - WA Dept of Health
  - Public Health Seattle – King Co.
    - What are the facts?
    - What are the messages?
    - What will the perception be?
    - Who is on first?
    - Who makes decisions?

Establishing a Framework

- Public Health Emergency Response Relationship
  - Objectives
  - Roles and Responsibilities
  - Coordinated Roles and Responsibilities
  - Emergency Response: Notification
  - Communications

Taking it on the Road

- Link Important Players Together
  - Department Of Health
  - Local Health – HEALTH OFFICERS
  - Water Utility
- Conduct Workshops Around the State
  - Explore cross-jurisdictional, coordination, and communication issues
  - Training on Risk Communications
  - Develop a template for a framework that will work for them

2

Emergency Response Tabletops

- **Three exercises around the state:**
  - *Coordination between agencies*
  - *Identify the gaps in emergency response plans*
  - *Better understand the roles / responsibilities of each responder*
- **Benefits**
  - *Growth*
  - *Partnerships*
  - *Better overall communications*

Constituent Relations:
Risk Communication Everyday

- **Proactive Issues Management**
- **Response to Political Environment**
  - **Fluoride – Supreme Court Ruling**
  - **Water Resource Management**
- **Customer Concerns**
  - **Aesthetic vs. Public Health Problems**
- **Budget and Priorities of Government**

For more information:

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  - **(360) 236-3110, denise.clifford@doh.wa.gov**
  - **www.doh.wa.gov/ehp.dw**

Risk Communication: Core Slides

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Risk Communication – Definition

"A Science-based Approach for Communicating Effectively in:

☞ High-Concern

☞ High Stress

☞ Emotionally Charged, or

☞ Controversial Situations"

Risk Communication: Key Messages

- Risk communication is a science based discipline

- High stress, high concern situations change the rules of communication

- The key to communication success is anticipation, preparation, and practice

---

Risk Communication Science

- 8000 Articles in Peer Reviewed Scientific Journals
- 2000 Books
- Reviews of the Literature by Major Scientific Organizations (e.g., US National Academy of Sciences; Royal Society of Great Britain)

"...the major public health challenges since 9/11 were not just clinical, epidemiological, technical, issues. The major challenges were communication. In fact, as we move into the 21st century, communication may well become the central science of public health practice." (December, 2001) Edward Baker, MD, MPH, Assistant Surgeon General

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"Emergency Risk Communication CDCynergy:

A Guide to Emergency Risk Communication Planning"

CD ROM

Message Develpment

95% Rule

"95% of all questions and concerns that will be raised by any stakeholder in any controversy can be predicted in advance."

Implications?

Identifying Stakeholders and Their Specific Concerns

- Historical Record (e.g., meeting documents; media reports; logs)
  - Specific
  - Related
  - General
- Subject-matter experts
- Role Playing

Risk Communication Templates

1) **AGL-4 (clear messages)**

2) **27/9/3 (concise messages)**

3)

4) …

5) …

6) …

AGL-4

AGL-4 Template (Message Clarity Rule)

Average Grade Level Minus 4

27/9/3 Template

Slide 1

27/9/3 Template

- 27 words
- 9 seconds
- 3 messages

Slide 2

Risk Communication Literature

- Message
- Messenger
- Means/Media

Slide 3

Risk Communication Templates

1) AGL-4 (clear messages)
2) 27/9/3 (concise messages)
3) Message Maps
4) …
5) …
6) …

Slide 4

Message Maps (Tiered Layers of Triplet Messages)

Slide 5

Key Word Message Map 1

Message Map
Stakeholder:
Question/Concern:

Key Message/Fact 1.	Key Message/Fact 2.	Key Message/Fact 3.
Keywords: Supporting Fact 1.1	Keywords: Supporting Fact 2.1	Keywords: Supporting Fact 3.1
Keywords: Supporting Fact 1.2	Keywords: Supporting Fact 2.2	Keywords: Supporting Fact 3.2
Keywords: Supporting Fact 1.3	Keywords: Supporting Fact 2.3	Keywords: Supporting Fact 3.3

Slide 6

Key Word Message Map 1

Message Map
Stakeholder:
Question/Concern

Key Message/Fact 1. I came	Key Message/Fact 2. I saw	Key Message/Fact 3. I conquered
Keywords: Supporting Fact 1.1 Long journey — The journey was long and hard.	Keywords: Supporting Fact 2.1 Large armies — The enemy armies were large.	Keywords: Supporting Fact 3.1 Engage — **We engaged them immediately**
Keywords: Supporting Fact 1.2 Heavy Losses — We suffered heavy losses along the way.	Keywords: Supporting Fact 2.2 Well armed — They were well Armed and equipped.	Keywords: Supporting Fact 3.2 Fought bravely — Our legions fought bravely
Keywords: Supporting Fact 1.3 Arrived safely — Despite the difficulties, we arrived safely.	Keywords: Supporting Fact 2.3 Well positioned — They were well positioned.	Keywords: Supporting Fact 3 Defeated enemy — **The enemy is (totally) defeated.**

Overarching Message Map (O Map)

- Addresses:
  - What should people know about "x"
  - What you want them to know about "x" regardless of questions asked
  - What you would put in your opening statement about "x"
- Be sure it gets delivered
  - "Bridge" to it if necessary: e.g., "I want to remind you again…"
- Serves as a "A port in a storm"

Message Maps

- O Map (Overarching, Core, Key Messages)

- Informational Maps

- Challenging Question Maps

Message Maps: Uses

- **Information Forums**
- **Fact Sheets**
- **Press Releases**
- **Video Scripts**
- **Scripts for Hot Lines**
- **Web sites**

Information Forum

From: *Risk Communication PowerPoint Slides*, Vincent T. Covello, Ph.D., Director, Center for Risk Communication/Consortium for Risk and Crisis Communication

Risk Communication Templates

1) AGL-4 (clear messages)

2) 27/9/3 (concise messages)

3) Message Maps

4) IDK

5) …

6) …

Risk Communication Templates

1) AGL-4 (clear messages)

2) 27/9/3 (concise messages)

3) Message Maps

4) IDK

5) …

6) …

I.D.K. (I Don't Know) Template: Short Form

☞ Say You Don't Know/Can't Answer/**Wish You Could Answer***

☞ Give the Reason Why You Don't Know or Can't Answer*

☞ Indicate Follow Up with Deadline*

I.D.K. (I Don't Know) Template

☞ Acknowledge/Repeat the Question

☞ Say You Don't Know/Can't Answer/Wish You Could Answer*

☞ Give the Reason(s) Why You Don't Know or Can't Answer*

☞ Indicate Follow Up with Deadline*

☞ Bridge to What You Can Say

I.D.K. (I Don't Know) Template: Uses

☞ You are not prepared to answer

☞ You are not the expert

☞ You are not the responsible party

☞ You don't have information or data (e.g., it is being investigated)

☞ You are limited in what can say (e.g., (national security; litigation; privacy

Risk Communication

• Message

• **Messenger**

• Means/Media

Messenger

• People judge the messenger before the message

• People judge the messenger primarily in terms of trust

• Information about trust comes from non-verbal communication, verbal communication, and actions

Implications?

Trust Factors In High Concern Situations
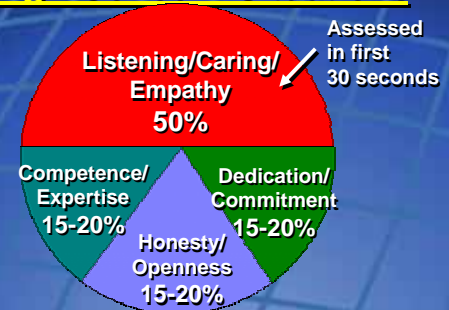
Listening/Caring/Empathy 50%

Assessed in first 30 seconds

Competence/Expertise 15-20%

Dedication/Commitment 15-20%

Honesty/Openness 15-20%

Risk Communication Templates

1) AGL-4 (clear messages)

2) 27/9/3 (concise messages)

3) Message Maps

4) IDK

5) CCO

6) …

CCO Template (Churchill)

• Compassion

• Conviction

• Optimism

Risk Communication Templates

1) AGL-4 (clear messages)

2) 27/9/3 (concise messages)

3) Message Maps

4) IDK

5) CCO

6) 1N = 3P

Trust

Non-Verbal Communication

• 75% Rule

• Negative Dominance

• Cultural Meaning

Risk Communication-

Non-Verbal Communication

• Eyes
• Hands
• Posture

Risk Communication-

Non-Verbal Communication

• Eyes
  -- Eye contact
• Hands
  -- Visible; waist level; small
     movements
• Posture
  -- Slight lean forward; relaxed;
     avoid repetitive motions

Additional Templates

- **Guarantee Template**
- **Interrogation Template**
- **False Allegation Template**
- **Worst Case Template**

GUARANTEE TEMPLATE

Main Point:

Bridge to known facts, processes procedures or actions - "Here's what I can guarantee (assure; promise…)"
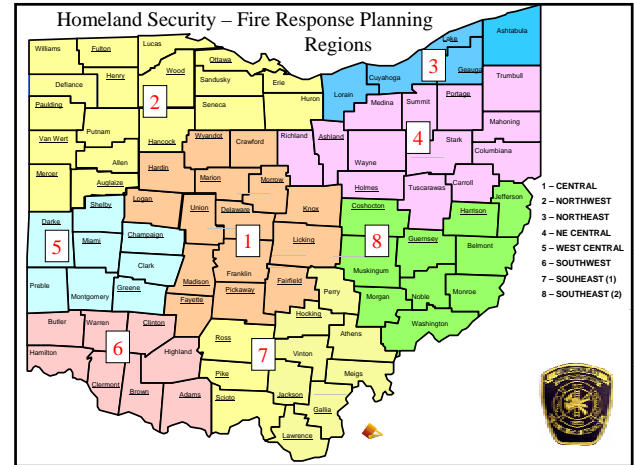

Guarantee Template
Short Form

"What I can [guarantee; assure; tell; promise] you is…"

Risk Communication:

Key Messages

- **Risk communication is a science based discipline**

- **High stress, high concern situations change the rules of communication**

- **The key to communication success is anticipation, preparation, and practice**

1 – CENTRAL
2 – NORTHWEST
3 – NORTHEAST
4 – NE CENTRAL
5 – WEST CENTRAL
6 – SOUTHWEST
7 – SOUHEAST (1)
8 – SOUTHEAST (2)

Crisis and Emergency Risk Communication impacts

5 organizational concerns:

1. Execute response and recovery efforts
2. Decrease illness, injury, and deaths
3. Avoid misallocation of limited resources
4. Reduce rumors surrounding recovery
5. Avoid wasting resources

ALL HAZARDS

Sources of Hazards/Toxics

- Fixed Facilities 80%

- Transportation 20%
  - Rail
  - Highway
  - Barge
  - Pipeline

1

Hazardous Materials Emergencies

- Accidental or intentional spills, releases, or discharges into the environment
- Some are large and result in harm to people and property
- Air dispersion modeling programs
  - Protective Action Decision
    - Evacuation
    - SIP

CINCINNATI

- The public can be notified in the following ways:
  - **NOAA weather radios**
  - **Outdoor warning sirens**
  - **TV/radio via Emergency Alert System**
  - **Door-to-door notification**
  - **ARTIMIS message boards**
  - **Email and fax system**
    - **Phone trees**
  - **Public address system from vehicles**

NOAA Weather Radios

- All Hamilton County schools, licensed day care centers and senior centers have NOAA weather radios
- Many citizens have weather radios (but not 100% coverage)

Disaster Network

- The Hamilton County Disaster Radio Network consists of a series of radios with a dedicated frequency issued to Greater Cincinnati area hospitals. The system is designed to facilitate the distribution and flow of patients of multi-casualty incidents to area hospitals by providing a means of communication among emergency responders and receiving facilities.
- Once activated, the "Net" links on-scene command personnel with area hospitals.
- It alerts area hospitals that a mass casualty incident has occurred, provides hospital patient capability information to scene personnel, and provides incoming patient information to receiving facilities.

DISASTER NET WAS NEEDED

Killer Tornadoes - 1974

Who Concert - 1979

Beverly Hills - 1977

Air Canada - 1983

TERRORISM INCIDENTS

What Do People Feel Inside When a Disaster Looms or Occurs?

Psychological barriers:
1. Denial
2. Fear, anxiety, confusion, dread
3. Hopelessness or helplessness
4. Seldom panic

TERRORISM INCIDENTS

ON SCENE COMMUNICATIONS

2002 Paul Brown Stadium Exercise
-Victims confused and disoriented

2003 SORTA Exercise
-Sound system added to evolution
-SCBA and APR 'speaker' upgrade

5 communication steps that boost operational success

1. Execute a solid communication plan
2. Be the first source for information
3. Express empathy early
4. Show competence and expertise
5. Remain honest and open

Paul Brown Stadium

PBS Tornado Warning

TORNADO WARNING
The National Weather Service has issued a TORNADO WARNING for the Cincinnati area. Conditions may exist that include lightening, heavy rain, and hail and a tornado. In an orderly manner, please take shelter immediately in the concourse area, restrooms and/or parking garage seeking the lowest level available. Stay away from all areas having windows. If necessary, public address announcements will be made with further instructions.

Great American Ball Park

SEVERE THUNDERSTORM WARNING

- The National Weather Service has issued a Severe Thunderstorm Warning for the Cincinnati area until.
- Conditions may exist that include lightning, heavy rain, and hail and/or high wind.
- In an orderly manner, please take shelter immediately in the concourse area, restrooms and/or parking garage.
- Stay away from all areas having windows.
- If necessary, public address announcements will be made with further instructions.

Communication failures that kill operational success

-Mixed messages from multiple experts
-Information released late
-Paternalistic attitudes
-Not countering rumors and myths in real-time
-Public power struggles and confusion

Community Relations

-Community acceptance through community involvement
-Resource multiplier for volunteer "door to door" communication
-Involving stakeholders is a way to advance trust through transparency
-Our communities, our social capital, are a critical element of a nation's security

COMMUNITY COUNCIL NOTIFIER

- (52) Cincinnati Community Councils
- Hamilton County has (49) cities/townships
- Pre Incident
- Incident concurrent
- Post Incident
  - Local incident*
    - Biowatch
    - Air Parts Flight
  - Terrorism threat level increase
  - Incident in another part of United States
  - World incident

City of Cincinnati

- Terrorism Early Warning Group
- Mobile Data Computer Project
  - City/County Fire
  - City/County Health
  - City/County Police
  - Other City/County Departments
  - 33 Hospitals in Tri State Region
  - 8 Communications Centers

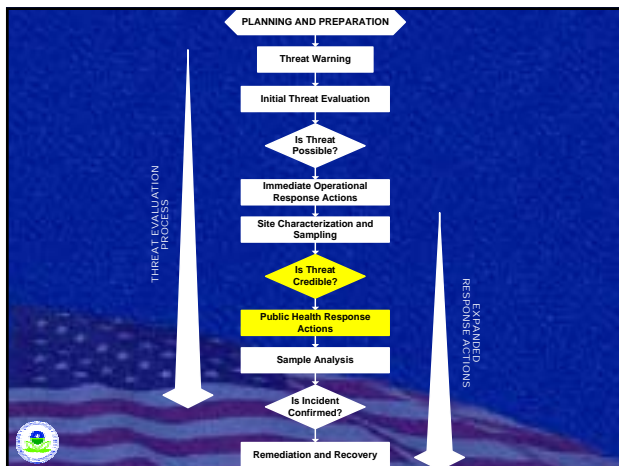# Response Protocol Toolbox: Public Health Response Module 5

Susan Dolgin
USEPA, Water Security Division

Water Security Risk Communication Symposium
San Francisco, CA
May 20, 2004

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  - Drinking water utilities and organizations
  - State drinking water programs
  - US EPA: OGWDW, NHSRC, OSWER
  - Centers for Disease Control & Prevention

PLANNING AND PREPARATION
Threat Warning
Initial Threat Evaluation
Is Threat Possible?
Immediate Operational Response Actions
Site Characterization and Sampling
Is Threat Credible?
Public Health Response Actions
Sample Analysis
Is Incident Confirmed?
Remediation and Recovery

THREAT EVALUATION PROCESS

EXPANDED RESPONSE ACTIONS

Module 5 Overview

- Consequence analysis
- Containment options
- Public notification
- Short-term alternate water supply

Public Health Response

Determine Public Health Consequences of Contamination

Implement Operational Response Actions

Issue Public Notification

Implement Alternate Water Supply
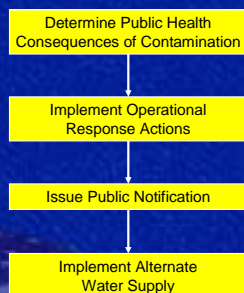
Public Health Consequences

- Contaminant properties:
  - Acute and chronic health effects
  - Toxic or infectious dose
  - Routes of exposure
  - Fate and transport in treated water
- Spread of contaminant through system:
  - Manual estimation methods
  - Distribution system models

1

Decision Tree for Public Notification

- Assess threat credibility and public health consequences
- Evaluate ability of operational response actions to protect public health
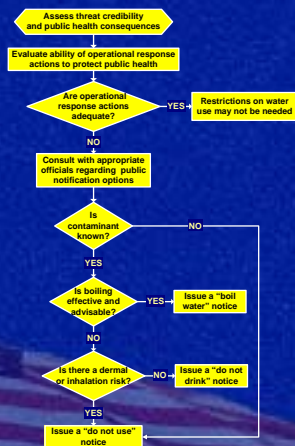- Are operational response actions adequate? — YES → Restrictions on water use may not be needed
- NO
- Consult with appropriate officials regarding public notification options
- Is contaminant known? — NO
- YES
- Is boiling effective and advisable? — YES → Issue a "boil water" notice
- NO
- Is there a dermal or inhalation risk? — NO → Issue a "do not drink" notice
- YES
- Issue a "do not use" notice

Public Notification Guidance

- Content:
  - Specific instructions to consumers
  - Explanation of situation
  - What is being done to address it
- Format:
  - Short and simple
  - In all languages commonly used in area
- Delivery vehicles
  - Broadcast media
  - Distribution through community centers

Short-Term Alternate Water Supply

- Water for consumption and sanitation:
  - Bottled water
  - Emergency water stored by consumers
  - Bulk water hauled to distribution center
- Water for firefighting:
  - Pumper trucks filled from neighboring supply
  - Untreated water
  - Contaminated water if no other immediately available alternative

---

Summary

- Public health response to a contamination threat or incident:
  - Actions to protect public health in response to a credible threat or confirmed incident
  - Containment may be effective, alone or in combination with other actions
  - Public notification may be necessary to prevent exposure
  - Consider public health response actions in a progressive manner

---

RPTB - Next Steps

- Integrate all Modules into an *e-RPTB*
- Develop a "simplified" RPTB
- Develop and conduct training
- Develop tools to support the RPTB

Availability of RPTB

www.epa.gov/safewater/security

Blackout 2003: The Cleveland Division of Water's Experience

Robin Halperin
Risk Manager
Cleveland Division of Water

Overview

- Brief CWD System Overview
- The Blackout - Sequence of Events @ CWD
- Water System Impacts
- Lessons learned
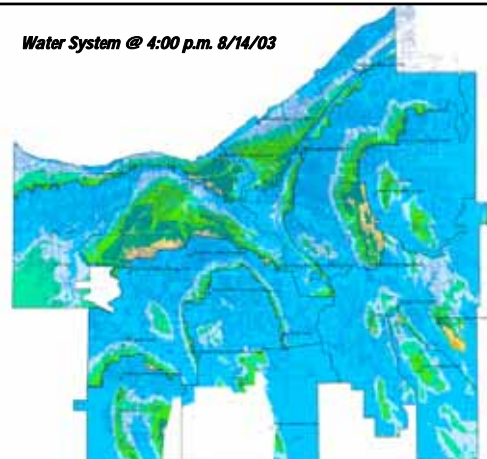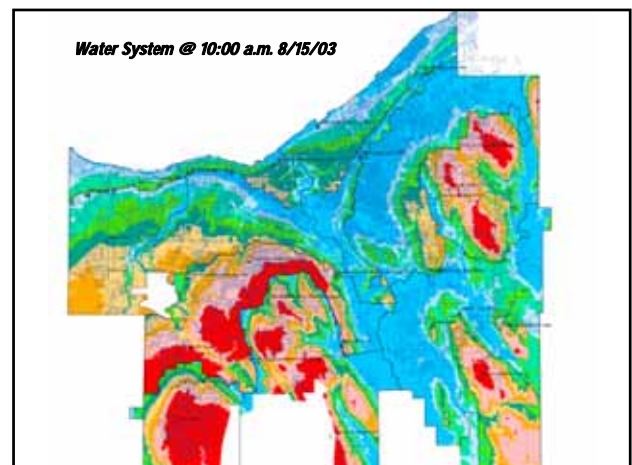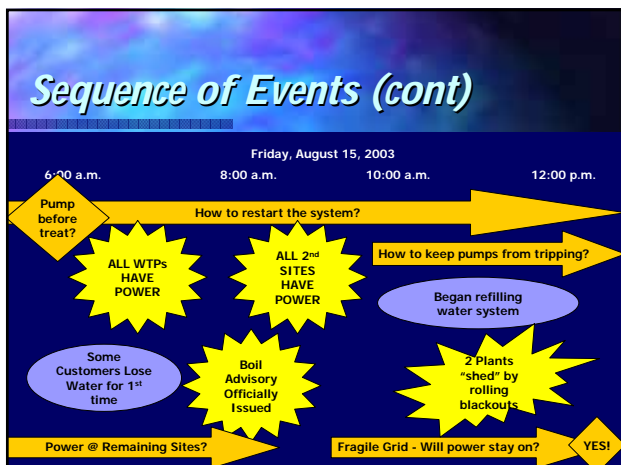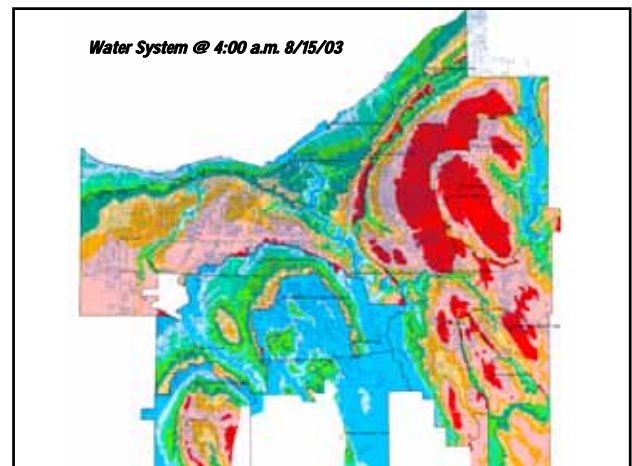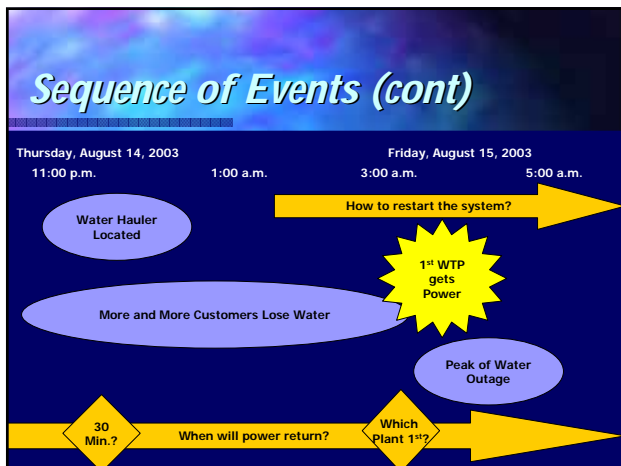- Risk Communication Issues
- Questions?

THE PLAIN DEALER
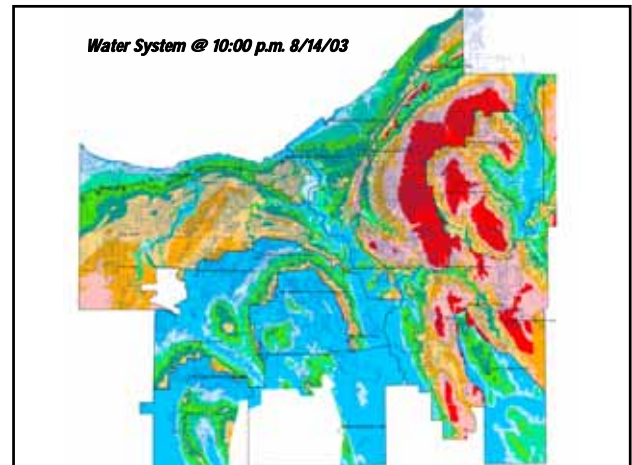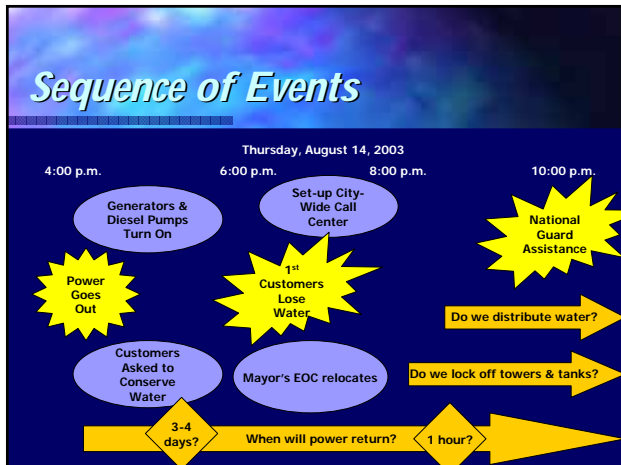BLACKOUT
Millions struggle without power

System Elevation Schematic

August 14, 2003

Water System @ 4:00 p.m. 8/14/03

Sequence of Events

Thursday, August 14, 2003

4:00 p.m.	6:00 p.m.	8:00 p.m.	10:00 p.m.

- Generators & Diesel Pumps Turn On
- Set-up City-Wide Call Center
- National Guard Assistance
- Power Goes Out
- 1st Customers Lose Water
- Do we distribute water?
- Customers Asked to Conserve Water
- Mayor's EOC relocates
- Do we lock off towers & tanks?
- 3-4 days?
- When will power return?
- 1 hour?

Water System @ 10:00 p.m. 8/14/03

Sequence of Events (cont)

Thursday, August 14, 2003		Friday, August 15, 2003	
11:00 p.m.	1:00 a.m.	3:00 a.m.	5:00 a.m.

- Water Hauler Located
- How to restart the system?
- 1st WTP gets Power
- More and More Customers Lose Water
- Peak of Water Outage
- 30 Min.?
- When will power return?
- Which Plant 1st?

Water System @ 4:00 a.m. 8/15/03

Sequence of Events (cont)

Friday, August 15, 2003

6:00 a.m.	8:00 a.m.	10:00 a.m.	12:00 p.m.

- Pump before treat?
- How to restart the system?
- ALL WTPs HAVE POWER
- ALL 2nd SITES HAVE POWER
- How to keep pumps from tripping?
- Began refilling water system
- Some Customers Lose Water for 1st time
- Boil Advisory Officially Issued
- 2 Plants "shed" by rolling blackouts
- Power @ Remaining Sites?
- Fragile Grid - Will power stay on?
- YES!

Water System @ 10:00 a.m. 8/15/03

Sequence of Events

Friday, August 15, 2003

| 2:00 p.m. | 4:00 p.m. |

Air Only?

Flushing Debate

Dirty H₂O?

FULL WATER SERVICE RESTORED

Bacteria ...ected

Water System @ 8:00 p.m. 8/15/03

Sequence of Events (cont)

Saturday, August 16, 2003

| 8:00 a.m. | 10:00 a.m. | 12:00 p.m. | 2:00 p.m. |

Water System storage @ 50%

Water System back to "Normal"

2nd Batch of Bacteria Samples Collected

Refilled Water Buffalos as needed

Sequence of Events (cont)

Sunday, August 17, 2003

| 10:00 a.m. | 12:00 p.m. | 2:00 p.m. | 4:00 p.m. |

BOIL ADVISORY LIFTED!

BLACKOUT EVENT OVER

Water Buffalos removed by National Guard

---

Water System Impacts

- Extensive Depressurization & Dewatering of System
- Lots of air in pipes
- Increased H_2O Main Breaks

Resulting Risks to Public Health & Welfare

- Potential for Bacteria in Water System
  - Boil Advisory
  - Where?
  - Who was affected?
  - We were operating "in the dark"
- Loss of Fire Protection
- Critical Customers without water

NO BOIL

BOIL AREA

3

How to Communicate Risk?
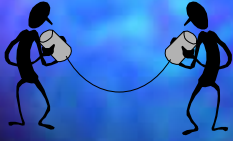
- Internally
  - Needed to fully evaluate impacts of Blackout on our system
  - Needed to agree on risks and message to customers
- Externally
  - Effectively communicate risk to outside agencies
  - Limit "interpretation" of message
- Media/Public
  - Needed to conduct Press Conferences & issue Press Releases

Internal Communications

- Overall – Worked Pretty Well
- Key Elements of Internal Communication during a Crisis:
  - Information Sharing
  - Group Discussions & Decisions
  - Fully Understand Implications
  - Good (Physical) Layout
  - Value of Face-to-Face Conversations
  - Communication at all levels in the organization

External Communications

- Mayor's Office
- Cleveland Public Power
- Cuyahoga County
- Ohio EPA
- Suburban Governments
  - Police & Fire Departments
  - Mayors & Managers
  - Up-to-date & Accurate list?
  - Water Buffaloes
- Critical Customers

Overall – CWD maintained good communications, except for with County

Media & Public Relations

- **Priority** – keep the **public** informed in order to protect public health
- Primary Communication Route = **Media**
  - Provide a clear & concise message
  - Regular Briefings with Media
  - Press Office "interpretation"
  - Media "interpretation" or "editorializing"
- Established Call Center
  - Real Person to talk to for answers
  - Trained personnel?

Major Press Releases

- Conserve Water
  - Misreported only 2 hours of water left
- Boil Water Advisory
  - How to communicate with so many customers without power?
  - Is anyone getting the message?
  - Accuracy?
    - Boil water to wash dishes and brush teeth?
    - Boil for 45 minutes?
- Water Buffaloes

Water Buffaloes

- Determining Locations
- Communicating with Customers
  - Safe Water to Drink
  - Container Issue
- Critical Customers
  - Proved valuable to Hospitals for cooking

4

Customer Survey

- Conducted in November 2003
- 1200 Telephone Interviews
- Covered Entire Service Area
- Topics Covered:
  - Electric Power Outage Experience
  - Satisfaction with CWD
  - Water Outage Experience
  - Boil Advisory
  - Water Buffaloes
  - Support for Backup Power System

Customer Survey Results

Boil Advisory
- 90% were aware of Boil Advisory
  - Customers 65 and older were least likely to have heard about the boil advisory (87.4%)
- TV/news main source of info (83.2%)
- <50% reported having to boil their water
  - Females were more likely than males to say they had boiled water, as were younger respondents
- Confusion regarding who had to boil their water
  - 41.6% - only to customers who lost water service completely
  - 32.1.% - all customers
- Length of Boil Advisory varied from one day to longer than 2 days.

Customer Survey Results

Water Buffaloes
- Half of all customers (53.2%) heard about water buffaloes
  - Caucasian customers were significantly more aware of water buffaloes than African American customers
- Only 2.2% actually used them
- TV/news was most popular news source (87.7%)

Next Steps

- Improvimg Standard PR Language & Communication Plans
  - Templetes & Scripts
  - Consider all layers
  - Who is sending the message?
  - Call Center (Joint? Script? Expertise?)
- Considering a Reverse 911 system
- Develop (Real) Plan for Water Distribution
- Coordinate with County Officials
  - Health Department
  - Emergency Management
- Maintain up-to-date list of Suburban Police & Fire
- Public Education?
- And, 48 MW Backup Power

Questions?

Water Security Risk Communication Symposium
San Francisco, CA
May 21, 2004

John Horensky, Mayor

Washington Township

Warren County, NJ

Types of water systems in Washington Township

- Private well water
- Public water sources

Water usage and community perceptions of water

- Water consumption continues to increase
- Water resources are being depleted
- Water is safe to drink
- Water resources need to be protected

Risk Communication Goals and Objectives

- Goal: Provide Accurate Information and Reduce Risk of Panic

- Objectives:
    - -Identify Credible Information Sources
    - -Provide Timely Updates
    - -Convey Concern
    - -Establish Trust and Confidence

Building Relationships

- Who are your partners/ advocates?
- Who are your stakeholders?
- Who are your adversaries?
- Who are your apathetic people?

When to use Risk Communication?

- Drought
- Discharges to recreational swimming/ fishing sites
- Waterways polluted by construction activities
- Elevated levels of natural substances in water
- Security issues
- Water usage by other entities

The benefits of Risk Communication

- Partnership Development
- Vehicle for Sharing Accurate Information
- Establish Credibility

USEPA Water Security Risk Communication Symposium
San Francisco, CA
May 20-21, 2004

Tom Kahler, Operations Support Mgr

Newport News Waterworks

Newport News, Virginia

Planning Communications Prior to an Event

Meet with Law Enforcement

♦ Meet and brief **Law Enforcement** in all service jurisdictions, regional JTTF, WMD Coordinator, Military

♦ Do SWAT, Bomb Squads know your plants

♦ Provide tours, who to contact in utility

♦ What consequences could exist for Public, Vital Services

♦ Develop relationship; brief uniformed patrol Supervisors—provide HazMat maps

---

Local jurisdictions

♦ The Utility and **Municipal Governments** should discuss risks and consequences prior to event

♦ Review MOU's and unique problems for response and recovery

♦ Conduct Tabletops, exercises; interface with First Responders, Incident Commanders

♦ Convey to the public and large users what to expect in the event of attack

---

Communicate with Interdependent Utilities, Vendors

♦ **Interdependent Utilities** - plans and priorities to support response & recovery of vital services; Hospitals, Water, Fire, Roads

♦ Know key players personally: Electric, Gas, Telecommunications, and Critical Vendors

♦ Again, develop relationships, interface!

♦ In a crisis, knowing the person on the phone is a big advantage

---

Access/Debris Removal Support

♦ **Access** to plants—facilities is essential

♦ **Debris Removal** support will be vital in recovery to plants and other facilities

♦ Getting personnel to assigned locations for recovery is imperative

♦ Have a listing of pre-arranged support services

♦ Include in Tabletops, Exercises

Plan for no Communications. Loss of Power Means:

♦ No landline phones (digital, analog maybe)
♦ No radios
♦ No cell phones
♦ *Develop Alternatives!*

Thanks for your attention and interest.

Thomas G. Kahler
Operations Support Manager
Newport News Waterworks, Virginia
tkahler@nngov.com 757-234-4832

Los Angeles Water and Power Risk Communication

Jim McDaniel
Deputy Assistant General Manager

John Ferraro Building
LADWP Headquarters
Los Angeles, California

L.A. Water System

- **LADWP's Water System:**
  - 7,100 miles of pipeline
  - 106 reservoirs and tanks
  - 338 mile aqueduct system
  - MWD's Colorado River Aqueduct and State Water Project
  - Local groundwater, primarily in the San Fernando Valley

L. A. Water System

- **California's Largest Retail Water Supplier**
  - $400+ million annually
  - Serving 3.8 million
  - 465 sq mile service area

Open aqueducts

Main Treatment Facility

By-Passing Distribution Reservoirs

Encino Reservoir

Hollywood Reservoir

Stone Canyon Reservoir

1

Covering other Reservoirs

Los Angeles Reservoir

Elysian Reservoir

Silverlake Reservoir

Experiences

- ⬦ High chlorine – Do not use
  - business district, restaurants Hollywood
- ⬦ Cryptosporidium – Check with Care Giver
  - immune compromised
- ⬦ Northridge Earthquake – Boil Water
  - Geographical sub area of city
- ⬦ SWTR Agreement – Mandatory Health Notice
  - More disinfectant but safe
- ⬦ Post 9/11 preparations

Communications Structure

- ⬦ What happened
  - Where
  - When
  - Who is affected
  - Why
- ⬦ Utility Response
  - Assessment
  - Actions being taken
  - Expected outcome

Communications Structure

- ⬦ Advise for Consumers
  - Notice of risk and managing risk
  - Feedback/ customer access for concerns
  - Periodic/ scheduled updates via Media
  - Return to service notice
- ⬦ Wrap-up
  - Evaluations - internal
  - Opportunities for improvements - internal
  - Message on event - external

Best Practices

- ⬦ Staffing
  - Communication manager and staff as part of WEC
  - 24/7 Field communication, door hangers, signage
  - Stand-by / contracted Language translators
- ⬦ Tools
  - Mapping tools for hard copy and electronic delivery
  - Standard templates…
    - "Boil Water", "Do Not Use", "Return to Service"
    - Multiple Language

Best Practices

- ⬦ Customer considerations
  - Care givers for Immune-compromised
  - Kidney Dialysis, Fish Owners
  - Schools
  - Hospitals
  - Senior Centers
  - Restaurants
  - Large Commercial Water Users

Best Practices

♦ Venues for access to consumers
  – Electronic, voice and fax ability
  – TV, RADIO, WEB-SITES
  – Updated partnerships contacts
    • Media contacts
  – Special sub-population contacts
    • Neighborhood watch groups, councils
  – Special phone call service for high volume Dial-out

Tools and Resources

♦ Partnerships (Water Community)
  – Regulatory – EPA, State Health
  – Referral Services – State Labs, Mutual Aid
  – ISAC… fact sheets on contaminants
  – RAPID RESPONSE.. neighboring utilities and wholesaler

Best Practices

♦ Partnerships (Other)
  – Local Law Enforcement,
  – First Responders
  – County Sheriff
  – County Health, public health monitoring
  – State OES
  – State Dept. of Justice, criminal investigations

Parting Words

♦ Credibility of message
  – Select right spokesperson from most credible institution
  – "Timely"
  – "Accurate"
  – "Useful"
  – Past performance will influence

Slide 1

Strategic Health Risk Communication by Water Utilities

Rebecca Parkin, PhD, MPH

The George Washington University

Washington, DC

May 21, 2004 EPA Water Security Meeting 1

Slide 2

Overview

- Two AwwaRF projects
  - 2776: Identifying and Communicating about Emerging Contaminants
  - 2851: Advancing Water-Related Health Risk Communication
- Highlights
- Key Points

2

Slide 3

2776: Emerging Contaminants

- Goal = Develop systematic, science-based methods for anticipating and communicating about emerging contaminant risks
- Project partners
  - Des Moines Water Works
  - Princeton University
  - Decision Partners, LLC.
- Primary output = decision-making tools

3

Slide 4

2776: Methods

- Literature reviews
  - Risk communication
  - Psychology
- Case studies
  - Chemical industry
  - Electric power
  - Military health
- Mental models
  - DMWW experts
  - DMWW customers
  - Website analysis

- Classification model
  - Based on scientific results
  - Used DMWW data
  - Predictive of "emerging" issues
- Strategic decision aid
  - Based on literature, cases, models
  - Assess probability of risk communication

4

Slide 5

2776: Case Study Lessons

- Risk communication is not the same as communication; it's integral to risk management
- Strategies must be based on scientifically derived information
- Plant managers are responsible for local programs, but they need clear senior management support
- Activities must fit communities' interests and preferences
- A visible, positive presence must be in place before a crisis occurs

5

Slide 6

Risk Management Paradigm

Adapted from CSA (1997)

6
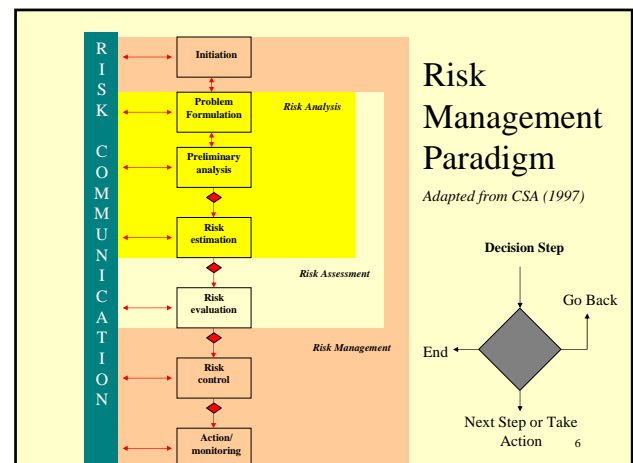
2776: Literature Results

- Risk perceptions are affected by:
  - Gender
  - Ethnicity
  - Education
  - Socioeconomic status
  - Geographic location
  - Sensory perception
- More heterogeneous communities
  - Are more likely to have news coverage that frames issues as problems without solutions
  - Require more complex, creative communication methods to increase impacts

7

2776: Mental Models

- Method
- Develop the expert model
  - DMWW Steering Team
  - One session, one follow up call
- Conduct mental models interviews
  - On the phone
  - In person for website analysis

Key Findings
- Expert model expanded Team's views of the issues
- Customers largely favorable about DMWW
- BUT "emerging" and "emergency" get confused
- In crisis, customers want a trusted, local source of information
- They want to know what they can do, what utility will do
- Trust of utility affected (+/-) by website experience

8

2776: Strategic Risk Communication

- Decision aids developed
  - Media data retrieval and archive system
  - Classification model
  - Diagnostic tool
- Major findings
  - Limited media content analysis is valuable
  - "Frequency" and "population" predicted DMWW's communication decisions
- Factors that increase the probability of "emerging" communications relate to
  - Contaminant
  - Concerns
  - Population
  - Society
  - Utility
- How these affect decisions may vary among utilities

9

2776: Major Recommendations

Drinking water industry
- State risk communication duties publicly in values and professional code of conduct
- Success and credibility require vision - beyond tactics - to create and implement strategies
- Study understanding of "emerging"
- Validate our classification model in other areas
- Test our diagnostic tool in other service areas

Corporate level
- Base strategies on facts, not guesses
- Plant managers are responsible, need support
- Be visibly present in communities
- Proactively initiate dialogues
- Begin building professional risk communication capacity now

10

2851: Three-way Collaborations

- Goal = Advance collaborations for addressing water-related risk communication
- Project partners
  - Five water utilities
  - Natl. Asso. of County City Health Officials (NACCHO)
  - Asso. of Occupational and Environmental Clinics (AOEC)
- Three sets of collaborators
  - Water utilities (U)
  - Health agencies (H)
  - Clinicians (C)
- Primary output = Framework for Action

11

2851: Methods

- Data collection

- Data analysis
- Framework for Action (Data application)

- Literature review
- Utility survey
- Health agency survey
- Clinician interviews
- In progress
- Pending

12

2

2851: Literature Review

- Three-way (U-H-C) not documented
- Two-way interactions reported generally
- Themes
  - Relevance
  - Longevity
  - Trust
  - Need

- Various communication tools found
  - CCRs
  - Fact sheets
  - Media reports, releases
  - Formal agreements
- No peer-reviewed evaluations of most (except CCRs)

13

2851: Utility Survey

- 98 utilities
  - All regions of the USA
  - 92% = public
  - 53% = over 20 employees
- Respondents
  - Most = GMs, managers
  - 87% = male
  - 51% over 20 years in the business
  - 65% lived in service area

- Population served
  - 31% under 10,000
  - 33% over 100,000
- Health agencies in service area
  - 15% = over 10 agencies
  - 2% didn't know

14

2851: Health Agency Survey

- 160 agencies
  - All regions of the USA
  - 67% = county agencies
  - 53% = over 20 employees
  - 67% = environmental health unit handles water issues
- Respondents
  - 74% = male
  - 45% = directors of 2+ units
  - 48% = over 20 yrs work
  - 72% lived in service area

- Population served
  - 5% up to 10,000
  - 44% over 100,000
- 84% = more than one utility in their area
  - 37% over 10 utilities
  - 4% didn't know

15

2851: Clinician Interviews

- Practices
  - All areas of the USA
  - 43% practices with over 5 clinicians
- 30 participants
  - 87% = MDs
  - 63% = male
  - 43% had 20+ yrs work
  - 93% live in service area

- Population served
  - 7% up to 100,000
  - 60% over 500,000
- 67% = more than 1 utility
  - 17% over 10 utilities
  - 23% =didn't know

16

Utilities and Health Agencies

- Nearly 90% U had worked with local or state Health agencies
  - 78% with specific person (most often, the director)
- Half had formal agreements
- Want more collaboration and more frequent communication

- 63% H had worked with a Utility
  - 28% with specific person (most often manager)
- Half had formal agreements
- Want more collaboration and more frequent communication

17

Utilities and Clinicians

- About 33% U had worked with C
- Nearly 67% U had C in emergency plans
  - 17% worked with C
  - 83% rely on H to be link with C

- 90% had no experience working with U
  - 60% had received CCR
- 100% willing to collaborate with U
  - 53% said 4+ per year

18

3

Health Agencies and Clinicians

- 54% H had worked with C
  - Most with MDs
  - Others = nurses, dieticians, specialists, dentists, etc
- 58% worked with C on emergency response plans
- 62% worked with C on water security

- Most had worked with H agencies
  - About 33% once/year
  - 17% monthly
- 33% had worked on emergency response plans
- 100% willing to work with H agencies
  - 23% had been contacted by H

19

Three-way Collaborations

- Reported by 28% of the health agencies
- 16% worked on susceptible subpopulations
  - Children, pregnant women
  - Elderly
  - Immune compromised
  - Chronic gastrointestinal disease patients
  - Cancer patients
  - HIV/AIDS patients
- Range of chemical and microbial topics addressed

20

2851: Themes

- Each entity has multiple entities in the other two sectors to consider – where to start?
  - There is incomplete knowledge about each other
- Utilities and clinicians have much more contact with health agencies than with each other
  - Contacts focus on the top official
  - Relationships are usually reported as positive
- Few three-way contacts have been documented
- Sectors communicate about the same issues, but to different extents

21

2851: Workshop

- March 2004
- Representatives from
  - Five water utilities
  - Public health agencies
  - Medical facilities
  - Academic institutions
  - Elected officials
- Presentations
- Breakout sessions

- Utilities, health agencies, and clinicians
  - Have limited knowledge of each other, others' roles and routines
  - Have multiple entities to work with
- Clinicians prefer contact by clinicians or scientists
- Health agencies best serve as the clinician-utility link
- Few organizations have formal plans or means to communicate with each other

22

2851: Next Steps

- Finalize the workshop results
- Draft Framework for Action
- Table top exercises
- Finalize the Framework
- Disseminate the results
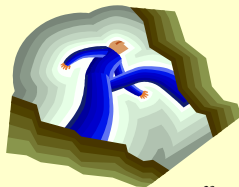
23

Key Points

Status quo:
- Limited knowledge of what risk communication is or how to use it strategically
- Scientific knowledge available is under-utilized
- Experience with collaborations is limited

Lessons learned:
- Knowing, acknowledging and responding to concerns builds trust and visible, positive presence
- Preparation for strategic risk communication is crucial; it requires senior management support, time and partnerships
- Simple tools are developing to aid decision processes
- Risk communication is integral to risk management

24

4

Acknowledgment

The George Washington University gratefully acknowledges that the Awwa Research Foundation is the joint owner of the technical information upon which this presentation is based. The George Washington University thanks the foundation for its financial, technical, and administrative assistance in funding and managing the project through which this information was discovered.

25

26

5

Slide 1

Emergency Communications with your Local Government and Community, 03cts5s

Funded by the Water Environment Research Foundation (WERF) through USEPA Homeland Security-Wastewater Security Agreement #83075101-0 and as a cooperative project with the American Water Works Association Research Foundation (AwwaRF)

Principal Investigating Team
University of Louisville Research Foundation
Thomas D. Rockaway Ph.D., P.E., Center for Infrastructure Research
David M. Simpson, Ph.D., AICP, Center for Hazards Research and Policy Development

Presentation to the
National Water Security Risk Communication Symposium
San Francisco, CA
May 20-21, 2004

Slide 2

Emergency Communications,
Project Objectives

1. Determine **optimal processes and systems for situational analysis**, message creation, and information dissemination.

2. Evaluate the **effectiveness of emergency communication messages**; using established literature and a combination of survey and structured content analysis process methodologies for determining situational appropriate messages. Additionally, emergency messages will be evaluated for their efficacy and impact using representative head-of-household focus group methodology.

3. Create an **emergency communication management system** which includes: 1) a decision-tree template to assist utilities in the decision making process; and 2) a message storage and retrieval system, which would assist in the selection and implementation of a range of appropriate emergency messages

4. Create a **template for an action plan** that will increase public awareness of risks and the emergency communication process in the community.
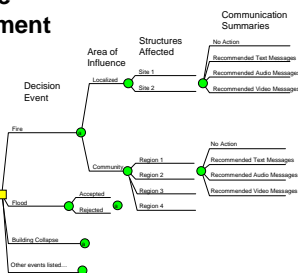
Slide 3

Emergency Communications,
Work Tasks

1. Review communications plans of a small sample of utility companies

2. Determine set of probable crisis events and create scenarios

3. Determine effectiveness of warning and emergency messages to local government and the public.

4. Review of existing systems and content analysis of cross section of sample messages in use

5. Create test messages for the scenarios

6. Test the messages using intense focus groups

7. Develop web enabled system for simplified distribution

Slide 4

Emergency Communications,

Work Flow

Slide 5
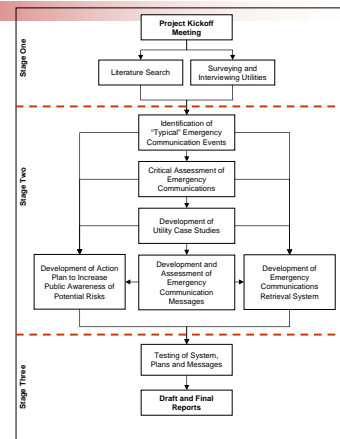
Emergency Communications,

Database Management

Slide 6

Emergency Communications, Project Investigating Team includes:	
Center for Infrastructure Research	The Center for Infrastructure Research is a strong partnership between the Univ of Louisville, utilities, and industry formed to research, educate, and solve urban infrastructure-related issues and problems.
Center for Hazards Research and Policy Development	The Center has a history of performing National Science Foundation research with respect to hazards and related issues. The Center has conducted NSF research on the World Trade Center event, and is currently contracted by the State of Kentucky to complete a statewide risk assessment and create the state's Hazard Mitigation Plan.
Louisville Water Company	The Louisville Water Company provides potable water to over 1,000,000 customers within the greater Louisville area. During their 100+ year history, they have had to inform the public of a variety of "emergency" type events. This experience will be made available to this research effort.
Metropolitan Sewer District	The Metropolitan Sewer District provides stormwater and sewer services to the 1,000,000 –plus residents within the greater Louisville. During their tenure, they have developed emergency plans and communication messages for the public in response to floods, contaminations, breaks and other emergency events. This history of information will be made available to the research effort.
Metro Louisville Emergency Management Agency	Metro Louisville Emergency Management Agency is responsible for the coordination of the preparation for, and response to, emergency events in the Louisville Jefferson County geographic area. The agency is well-regarded for its training and preparation for responses to chemical events, and has been recognized nationally for its ability to respond to biological threat scenarios.
United States Army Corps of Engineers	The United States Army Corps of Engineers routinely releases emergency communications for the public during floods and other disaster events.
Center for Deterrence of Biowarfare and Bioterrorism	This Univ of Louisville Center has expertise in training and planning for bio-threat agents and events, and is one of six CDC-recognized Centers in the country for this speciallized knowledge base.
Civil and Environmental Engineering Department	The Civil and Environmental Engineering Department of the Univ of Louisville provides educational and research opportunities in geotechnical, transportation, hydraulic, environmental and structural engineering. The department is supported by 13 faculty members. When necessary, the equipment and individuals can provide assistance to this WERF project.
Urban Studies Institute	USI is a research-based institute that routinely performs contract research in all sectors of social policy. The Institute has a Computer Aided Telephone Interview (CATI) system and has considerable experience in conducting focus group research.

Emergency Communications, Refining the Research Approach

➤ Project focus is Communications, not an Emergency Response Plan. However, results should add value to ERPs.

➤ Determine an appropriate set of scenarios (*i.e.,* flooding to bio-terrorism)
  • Is the determining factor the "agent" or "speed of onset"?
  • How many to do?

➤ How do you create a guidebook generic enough to help most communities, but not so generic that it is meaningless?

➤ What are the most effective strategies for testing messages? focus groups? tabletop exercises? full drill? other?

Emergency Communications, Your Assistance Welcomed

➤ Examples of good communications plans/systems that audience members are familiar with

➤ Examples of warning messages that audience members think are particularly effective

➤ Examples of communities that have been through an event and revised their message system or approach

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Emergency Communications Project Acknowledgements

WATER SAFETY
Perception Is the Greater Risk

WATER SAFETY
Perception Is the Greater Risk

- **TRUST**

WATER SAFETY
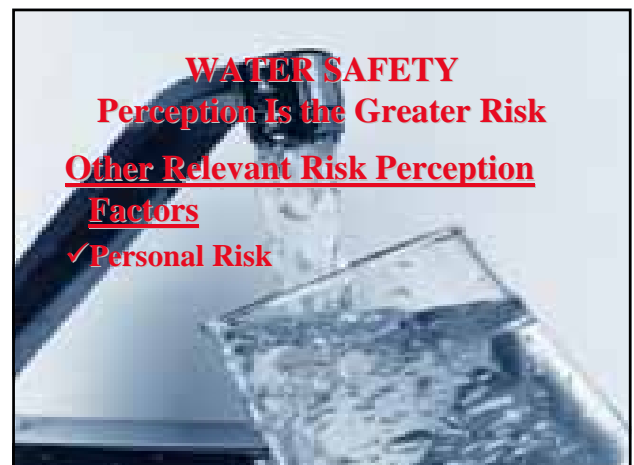**Perception Is the Greater Risk**

- **TRUST**

  IT COMES MORE FROM WHAT YOU _DO_ THAN FROM WHAT YOU SAY. POLICY, NOT PRESS RELEASE.

WATER SAFETY
Perception Is the Greater Risk

- **TRUST**
  HONESTY
  - **OPENNESS. CONSTANT COMMUNICATION.**
  - **DON'T OVER REASSURE**
  - **ACKNOWLEDGE AND RESPECT PUBLIC FEARS.**

WATER SAFETY
Perception Is the Greater Risk

- **TRUST**
  - **COMPETENCE**
  - **SHARED CONTROL**
  - **STAKEHOLDER INPUT**
  - **ON THE LINE WITH EVERYTHING YOU DO AND SAY.**

WATER SAFETY
Perception Is the Greater Risk

Other Relevant Risk Perception Factors
- ✓ **Personal Risk**

1

WATER SAFETY
Perception Is the Greater Risk

Other Relevant Risk Perception Factors
- ✓Personal Risk
- ✓Awareness

WATER SAFETY
Perception Is the Greater Risk

Other Relevant Risk Perception Factors
- ✓Personal Risk
- ✓Awareness
- ✓Lack of Control

WATER SAFETY
Perception Is the Greater Risk

Other Relevant Risk Perception Factors
- ✓Personal Risk
- ✓Awareness
- ✓Lack of Control
- ✓Involuntary

WATER SAFETY
Perception Is the Greater Risk

Other Relevant Risk Perception Factors
- ✓Personal Risk
- ✓Awareness
- ✓Lack of Control
- ✓Involuntary
- ✓Uncertainty

CASE STUDY:

SYNOPSIS OF RISK
COMMUNICATION ISSUES
FROM MULTIPLE CRISIS
TABLE TOP EXERCISES

Stanley States
Water Quality Manager
Pittsburgh Water and
Sewer Authority

1

Exercises -

DOJ/DHS 2-day courses

'Preparation for and Response to Terrorism/WMD Incidents
Directed Toward Drinking Water/Wastewater Utilities'

Three levels –

Executive
Operator/Distribution/Collection Personnel
Small Utilities

150 classes presented nationwide

1½ hr. table top exercise

2

Exercises (cont.) -

CDC/AWWA 2-Day Course

'First Response Strategies and Protocol for
Water Utilities and Public Health Staff'

Denver CO, Atlanta GA

2 hr. table top exercise

3

Exercises (cont.) -

PA-AWWA Security Committee
Pittsburgh, Philadelphia, Harrisburg, PA
6 hr. table top exercise

EPA Region III Security Workshop
Baltimore, MD
3 hr. table top exercise

4

Future Exercises -

EPA 2-Day Table Top Workshop/Exercise
'Security Related Emergency Response for Water
Utilities'
12 cities nationwide
1 day training/1 day table top exercise

City of Pittsburgh/Pittsburgh Pirates Full Scale Exercise
August 2004
Non water scenario
5,000-10,000 participants
1-day exercise

5

Exercises (cont.) -

Scope of exercises –
Group discussion
Staffex
Full scale exercise

All involve -
Use of WMD (Bio or chem agent)
Intentionally introduced into drinking water
(except Pittsburgh FSE)
Resulting in injuries and fatalities

6

1

Exercise Goals

Hands-on training utilizing recently published response guidance

- EPA – 'Response Protocol Toolbox'
- National Incident Management System (NIMS)
  - Incident Command System
  - Emergency Operations Centers

7

Public Information Aspect

Always played – regardless of scope of exercise
(with or without professional PIO's)

Limited Crisis Communications training provided prior to some exercises

References –
Literature
Discussion with PIOs
Films

8

Positive Observations During Exercises

1. All participants appreciate <u>importance</u> of effective crisis communications in these scenarios.
   - utility personnel   regulators
   - elected officials   health officials
   - emergency responders

2. Participants understand need for <u>common message</u> and <u>single</u> <u>spokesperson</u> for public info.

9

Positive Observations (cont.)

3. Participants understand <u>necessity</u> for being honest/forthright with media and public

and

<u>consequences</u> of not being honest

10

Observations of Concern During Exercises

1. Many participants view relationship with media as <u>adversarial</u>.
   - May interfere with ability to deliver effective crisis communications

2. Some players may be overly reluctant to share info with public
   - Disseminating drinking water health info is mandated by "Public Notification Rule".

11

Observations of Concern (cont.)

3. Participants feel pressure in having to share info with public having the <u>shock</u> <u>value</u> of terrorism and WMD agents – without causing unnecessary alarm.

4. Various agencies have difficulty determining 'who is in charge' during various phases of incident and therefore who is ultimately responsible for 'message' delivered to public.

   (Suggests need for more ICS training)

12

2

Observations of Concern (cont.)

5. During the <u>uncertain</u> 'Threat Evaluation' phase of an incident – players feel challenge in maintaining a balance between –

   Risk of <u>overreacting</u> to a false alarm

   and

   Risk of <u>underreacting</u> to real incident

13

Conclusions

Table top exercises can be very helpful for Crisis Communications training

Crisis Communications training and exercise exposure is also useful for personnel other than PIOs

14

Conclusions (cont.)

Due to nature of security emergencies – Crisis Communications in this situation may be even more difficult than for accidents and natural disasters.

   'terrorism' aspect of emergency

   shock value of WMD agents
   e.g.   Anthrax
          Ricin

15

RISK COMMUNICATIONS

California's Risk Communication Efforts
During the 2003 Southern California Fires

Terri Lee Stratton, MPH
Emergency Preparedness Office
California Department of
Health Services (CDHS)

California Demographics

- One-seventh of country's population
- 7th largest world economy
- Multi-national/multi-ethnic
- Long coast line and borders Mexico
- Los Angeles 2nd most populated U.S. city with many dense urban areas
- At risk from terrorism and natural disasters –fires, earthquakes, floods

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California's Goal

- Communication Goals:
  - Be prepared for a potential outbreak of bioterrorism or other disaster in California.
  - Instill public confidence in our ability to respond to emergency situations.
  - Through skill building, learn how to utilize your knowledge and training in emergency situations.
  - California and CDC and other partners working together in collaboration with local agencies (LHDs)

California's Preparation Strategy

- Transparency
- Echo strategy (CDC) – Consistency in Message
- Multi-language focus
- Partnerships and collaboration
- Tools and training
- Coordinated by CDHS Risk Communication Team

Emergency Preparedness and Response

- Develop public relations/media plan to prepare and respond
- Public preparedness education – web, hotline
- Spokesperson trainings
- Media relations
- LHD outreach activities
- Message development
- Risk Communication trainings
- Partner and stakeholder relations
- State agency outreach

Application of Crisis and Emergency Risk Communication Actions in Response to Southern CA Fires

- Early Involvement in Process – Proactive Engagement
- Early issuance of Public Health Messages: Boil Water Orders / Respiratory Safety
- Importance of consistency of message

Press Release 1

Warning

NUMBER: 03-84	**DATE:** October 26, 2003
FOR RELEASE: IMMEDIATE	**CONTACT:** Ken August
http://www.dhs.ca.gov	or Lea Brooks
	(916) 440-7660

STATE HEALTH DIRECTOR WARNS OF
SMOKE FROM SOUTHERN CALIFORNIA FIRES

SACRAMENTO - Parents and individuals with sensitive health conditions who live near areas affected by the Southern California fires should stay alert to changing smoke levels and be prepared to act accordingly, State Health Director Diana M. Bontá, R.N., Dr.P.H., advised today.

Smoky conditions can be hazardous for young children, the elderly, individuals with heart conditions or chronic lung disease such as asthma and bronchitis, and individuals with other respiratory ailments.

Because of the uncertainty of fire conditions, Bontá advises residents near the fires to be prepared. Individuals with asthma, bronchitis, emphysema and other lung or heart diseases should make sure that they are on medication and have at least a five-day supply on hand. Individuals with asthma should consult their physician about an asthma management plan and stick to it during unusually smoky conditions. Listen for radio and television messages about fires in your area.

Bontá also advised residents to be prepared to stay indoors and limit their activity if necessary. Check for a "recirculation" function on your air conditioner. If smoke is present, it will be easier to breathe indoors if air is recirculating instead of drawing smoky air from outdoors. Contact your doctor if you have symptoms such as chest pain, chest tightness, shortness of breath, or severe fatigue. This is important for not only people with chronic lung or heart disease, but also for individuals who have not been previously diagnosed with such illnesses. Smoke can "unmask" or produce symptoms of such diseases.

Early Response

- First Press Release sent out prior to EOC activation
- Established involvement and credibility
- Interface with partners

Press Release 2

Warning

FOR IMMEDIATE RELEASE 03-85	**DATE:** 10-28-03
	CONTACT: (916) 845-8400

WATER

"Boil water" orders may be issued by local water districts when it is determined that drinking water may temporarily be unsafe for consumption. Residents will be notified of a "boil water" order by their local news media. If a "boil water" order is issued, residents should not use their tap water for drinking, washing dishes and utensils, hand washing or cooking. Dishwashers should not be used while there is a "boil water" order in place.

PUBLIC ON FIRES

The following guidelines can be used as to

FOOD SAFETY

For consumers:

The California Department of Health Services (CDHS) has notified all food manufacturers, water bottling plants, retail water facilities and water vending machine operators that utilize the public drinking water supplies to cease operations in affected areas until any boil water orders are rescinded. CDHS will continue to monitor the situation in cooperation with local health jurisdictions. Food retailers should follow the same advice as provided to consumers or use bottled water.

AIR QUALITY

Regarding the smoky conditions, Bontá emphasized that infants and young children, the elderly, pregnant women, individuals with heart conditions or chronic lung disease such as asthma and bronchitis, and individuals with other respiratory ailments are especially vulnerable.

Because of the uncertainty of fire conditions, Bontá advised residents near the fires to be prepared. Individuals with asthma, bronchitis, emphysema and other lung or heart diseases should make sure that they are on their medication and have at least a five-day supply on hand. Individuals with asthma should consult their physician about an asthma management plan and stick to it during the unusually smoky conditions. Listen for radio and television messages about fires in your area.

In general, wearing a mask is not an effective exposure-reduction strategy during a wildfire. For a mask to be effective, it must be able to filter very small particles (approximately 0.3 to 0.1 micrometer) and must fit well to provide an airtight seal around the wearer's mouth and nose. Commonly available paper dust masks, which are designed to filter out larger particles such as sawdust, offer little protection. The same is true for bandanas, wet or dry, and tissues held over the mouth or nose.

Surgical masks that trap small particles are designed to filter air coming out of the wearer's mouth and do not provide a good seal to prevent inhalation of small particles or combustion gases. In fact, masks may actually be detrimental by giving the wearer a false sense of security that encourages increased physical activity and time spent outdoors.

Consistency in Message

- Confirm that advice/guidance to public is consistent.
- Share information with other responders and partners
- Provide follow up guidance to public to facilitate recovery and credibility in response efforts

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Press Release 3

Warning

NUMBER: 03-88	**DATE:** Oct. 31, 2003
FOR RELEASE: IMMEDIATE	**CONTACT:** Ken August
http://www.dhs.ca.gov	or Lea Brooks
	(916) 440-7660

STATE HEALTH DIRECTOR OFFERS ADVICE TO PARENTS ABOUT
CHILDREN'S HEALTH AND EMOTIONAL REACTIONS TO WILDFIRES

SACRAMENTO - State Health Director Diana M. Bontá, R.N., Dr.P.H, today advised Southern California parents to keep a watchful eye over their children's reactions to the wildfires. She also advised parents to monitor children's outdoor activity and take precautions to limit the amount of ash and particulate dust tracked into the home.

"Parents should remember that this can be an alarming time for children," Bontá said. "The images of the wildfires on television can be very frightening for children who often notice the tension and anxiety in adults around them. Parents should be aware of the physical and emotional responses of their children to these horrific scenes."

Lessons Learned

- Place Emphasis on education/awareness as priority – early involvement in process
- Quick Approvals in place for Materials/Documents
- Involve Partners from Beginning
- Hold to core strategies and provide as much information as possible
- Collaborate with Others involved in Response

Communication Issues for Public

- Health: Respiratory, Water Safety, Ash – Toxic
- Emotional/Mental Health: Loss of home, possessions, missing family members/pets, evacuation, needs of special populations (children/elderly/disabled/non-English speakers)

Slide 1

Connecticut Public Drinking Water

Emergency Risk Communication

Scott L. Szalkiewicz
Division Program Unit Supervisor
State of Connecticut Department of Public Health
Drinking Water Division

Drinking Water Division

Slide 2

Events of 9/11 and Aftermath

New Focus
New Money
New Business of Water - Security

Drinking Water Division

Slide 3

Who's Who In Public Drinking Water?

- Federal EPA
- CDC
- CT Department of Public Health
- CT Department of Environmental Protection
- CT Department of Public Utility Control
- Drinking Water Systems Owners/Operators

Drinking Water Division

Slide 4

INCIDENT COMMAND SYSTEM

…is recognized as the foundation for an effective all-risk emergency planning and response capability.

- Command
- Operations
- Logistics
- Planning
- Finance and
- Administration

Modular Organization

Drinking Water Division

Slide 5

The Three **C**'s

♦ **C**ommunicate
  ♦ New Communications Initiatives

♦ **C**oordinate
  ♦ Security Advisory Committee
  ♦ DWD Emergency Response Group

♦ **C**ooperate
  ♦ EPA Funded Regional Workshops

Drinking Water Division

Slide 6

"Public Drinking Water Security Operations, Emergency Response and Communications"

- Four **Regional Workshops** for First Responders and Public Drinking Water System Personnel
- **Networking** *(Developing Lines of Communication/Partnerships)*
- CT's Division of **Homeland Security** *(Structure and Mission)*
- The DPH **Incident Command System**
- Cross **Training** *("Law Enforcement/Water 101")*
- DPH **Communication** Systems *(Wide Area Notification System (WANS), Health Alert Network (HAN))*
- Vulnerability **Assessment** and Emergency **Response** Plan Preparation *(Review of Emergency Response Handbook)*

Drinking Water Division

1

Issues

- Bumps in the Road
  - Lack of Continuity
  - Logistics
  - Electronic Communications
  - Apathy (Burnout)
  - Numerous Conflicting Activities
  - "Cowboys"

Drinking Water Division

THERE IS NO SUBSTITUTE FOR PROFESSIONAL ACCOUNTABILITY IN

"PROVIDING GOOD SAFE DRINKING WATER THAT HAS THE TRUST OF THE CONSUMER"

Drinking Water Division

Over 600 professionals participated in the four regional drinking water security workshops that were recently conducted throughout Connecticut, where they used the handbook, along with the DWD's Emergency Response Planning Guide for Public Drinking Water Systems.

Drinking Water Division

The goal of the workshops was to increase participants' awareness of security, communications, and response issues and initiate and promote networking among the water utilities, law enforcement, the local health department, and emergency management personnel.

Coordination of Enforcement and Water Supply Security Activities is critical for the "New Business of Water".

Drinking Water Division

Health Alert Network (HAN) Overall Goal

- To securely facilitate communication of critical health, epidemiological and bioterrorism related information on a 24/7 basis to local health departments, health organizations and other partners.

Drinking Water Division

Health Alert Network	
Wide Area Notification System (WANS)	MEDSAT System
Broadcast Fax	800Mhz Radio Network
Nextel Phones	UHF/VHF Radio System
Local Health Restricted Web Site	
Blast E-mail	Bulletin Board
Planned Absences	LH Directory update
Town/district Surveillance Data	Directories of Public Health Contact Info.
Data submission	Document posting

Drinking Water Division

2

Reporting a Public Drinking Water Security Breach.

- NOTE: All and Any Emergencies involving: security violations, threats, suspicious circumstances or unusual activity relative to drinking water supplies and/or infrastructure, are to be reported immediately to law enforcement (911 or direct) and the Connecticut Department of Public Health.

Remember!

It is imperative that you report all emergencies immediately

to the Department of Public Health.

Drinking Water Division

Drinking Water Division

CONNECTICUT'S ATTEMPT AT
ALTERNATIVE APPROACHES

- To accept the Management Plan Process, states need to be able to believe in and promote *Professionalism, Responsibility and Accountability* within its water systems.

- This may require an Organization Change as well as personnel and environmental changes. (Change)

- This may require changing the "message" from one of acceptance to one of expectation (Communicate Change)

- This may require inclusion of new groups or disciplines. (Active Listening)

- This may require increased education and communication skills. (Confidence Building)

- This **will** require new ways of doing business, more effectively and efficiently

Drinking Water Division

Thank you!

Drinking Water Division

National Water Security Risk Communication Symposium

San Francisco, California

May 20, 2004

Since September 11, 2001
there has been no higher priority at
The New York City
Department of Environmental Protection
than water supply security.

Our efforts to date have resulted in a broader and clearer
strategy focusing on prevention, protection
and consequence management

This three tiered strategic framework has
resulted in a systematic and comprehensive
water supply protection plan.

The Police Division includes three major sub-divisions.
Each plays a critical role providing the foundation
designed to preserve, protect and defend
the water supply and environment.

PREVENTION

Detective Bureau and Intelligence Division

Responsible for all long term investigations
relating to pollution, crime and terrorism.
Detectives also fulfill the vital role of prevention
through the gathering of intelligence and information sharing.

PROTECTION

Environmental Enforcement Division

Performs environmental and infrastructure protective functions.
Monitors and
provides access control and
intrusion detection.

CONSEQUENCE MANAGEMENT

Special Operations Division

Emergency Services Unit
Canine Unit
Aviation Unit
Strategic Patrol Unit

COMMUNICATING THE RISK
through aggressive training opportunities

Environmental Police Academy

Recruit Training School
(1000 hour/6 month)
NYS Mandated Police Training
Environmental Enforcement Training
Environmental & Infrastructure Protection
In Service Training
Weapons of Mass Destruction
Counter Terrorism Training
Domestic Preparedness
Ground Water Investigations
Fire Arms Re-Qualifications Course
Bomb Recognition Courses
Security Awareness Training
Agency-wide
Outside Agency Training
Contractors and Consultants

Communication is the most important dynamic of any organization.

Because of the important nature and sensitivity of the information
we convey within our organizations,
to communities and media outlets
communication can become the primary problem.
Emergency planning, practical exercises and
building trust within the communities
we serve are everyday activities.
During a disaster, communication is essential
to the timely and accurate flow of information
as well as the coordination of relief efforts.
Not only to keep emergency response systems functional
but also to relieve stress and reduce panic.

Lines of communication need to be in place so that
emergency responders: can talk to one another,
communicate with specialized teams
and coordinate supply lines.
Police, fire and emergency medical technicians need to communicate,
as quickly as possible, accurate information
to scientists, engineers, health and medical professionals
as well as to administrative and support personnel.
These disaster relief professionals must
establish effective relationships
so that they speak a common language,
provide appropriate information and access resources, information
and data bases not commonly queried on a daily basis.

PLANNING: Anticipate system failures
Redundant communications include:
High and low band radios
Analog and digital telephones
Priority access to wireless networks
Intra-net and inter-net access
Multiple cellular telephone technologies
Broad paging capabilities
Electronic mail and broadcast facsimile machines
Loudspeakers, bullhorns and runners

Scene of Incident   Incident Command
                    Decontamination area
        Relief Area   Medical Triage

    Inner perimeter   Staging Areas

                    Outer perimeter

            Emergency Operations Center

                    Command Center

Designated press area   Community Centers

Develop a culture of cooperation
Use existing resources

Disorganization can easily lead to disaster

Communication and planning are the keys to success

Plan for emergencies-twice

Think out of the box, expect the unexpected
Anticipate things will go wrong and
Practice, practice practice

Pre record all public and internal messages possible

Communicating the risk
to communities

Preparing the public for emergencies

"A citizens guide for emergency preparedness"

Emergency Contact Telephone Numbers
Police
Fire
Counter terrorism information sources

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HOME

prepare a supply kit
include water, food, firstaid, clothes, bedding,
flashlights, batteries, radios, kitchen and sanitary supplies.
Plan where to meet family members,
prepare for self reliant survival for four days
include one gallon of water per person

WORK

Prepare a list of emergency contact telephone numbers
for family, friends and neighbors
include building security and police non emergency
telephone numbers.
Create a phone chain to check on the safety of co-workers.
Update these lists every month
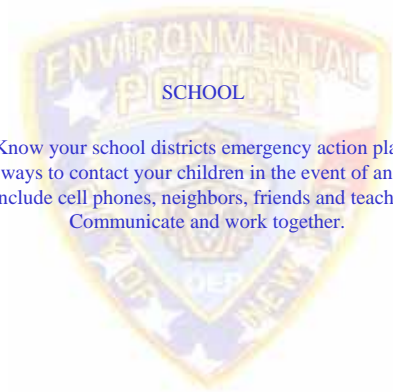
SCHOOL

Know your school districts emergency action plans.
Consider ways to contact your children in the event of an emergency.
Include cell phones, neighbors, friends and teachers.
Communicate and work together.
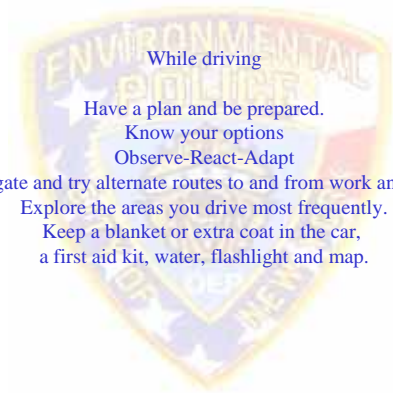
While driving

Have a plan and be prepared.
Know your options
Observe-React-Adapt
Investigate and try alternate routes to and from work and school.
Explore the areas you drive most frequently.
Keep a blanket or extra coat in the car,
a first aid kit, water, flashlight and map.

During the Disaster
Stay calm
Operationalize plans
Stick to the Script
And
Stay calm
Because
You have prepared for this.
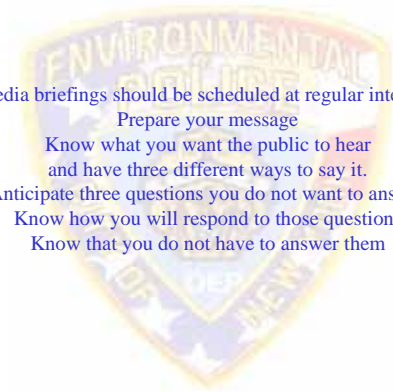
Media briefings should be scheduled at regular intervals
Prepare your message
Know what you want the public to hear
and have three different ways to say it.
Anticipate three questions you do not want to answer
Know how you will respond to those questions
Know that you do not have to answer them

EPA

United States
Environmental Protection
Agency

Office of Research and Development
National Homeland Security Research Center
Cincinnati, OH 45268

Office Business
Penalty for Private Use
$300

EPA 600/C-05/006
November 2005
www.epa.gov/nhsrc