

## RISK COMMUNICATIONS AND THE CHEMICAL STOCKPILE EMERGENCY PREPAREDNESS PROGRAM

Barbara Muller Vogt  
Oak Ridge National Laboratory  
PO Box 2008; 4500 N; MS 6190  
Oak Ridge TN 37831-6206  
USA  
Phone: 615-574-5886  
Fax: 615-574-5788  
Email bz8@ornl.gov

### KEYWORDS

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### ABSTRACT

Risk communication has long been undertaken by various entities - individuals, scientists, technicians, agencies, governments, industry, interest groups, and the media - for various intents and purposes. The acceptance of risk communication as a distinct concept is a positive step for those involved in risk management because it helps to call attention to the vital aspect of providing a common language (Leiss and Krewski 1987) with which issues and perspectives, as well as basic assumptions, can be examined and discussed. The rapidly expanding body of literature on risk communication is proof of that acceptance.

One of the greater challenges the Army faces is effectively dealing with the concerns of the public, local officials and the news media on the disposal of aging chemical agents. This paper describes the method developed for the Chemical Stockpile Emergency Preparedness Program (CSEPP). The purpose was to provide a fairly comprehensive document on risk communication research and recommended practices as they related to the CSEPP. Using the communications perspective suggested by Covello and colleagues, the existing practices of communicating risk information about chemical weapons and the associated efforts in emergency planning, storage and eventual disposal are described. Risk communication problems specific to the CSEPP are then examined and described via scenarios.

A framework is developed that distinguishes between the major components of risk communication, flow and intent. Within this framework, the research and recommendations are summarized as to direction of flow - dialogue, or two-way interaction, versus monologue, or one-way communication - and that of intent - exchange versus persuasion. The findings and recommendations are synthesized and related to risk events for the CSEPP as posited in the scenarios.

The findings indicate that the media will continue to heavily influence risk information provided by public or private sources,

and in some instances act as a source themselves. Risk communicators for the CSEPP will face increasing pressure to present risk issues in a fair and unbiased manner as well as answer questions raised by various parties and constituencies. While there is no guarantee, there is every indication that a better understanding of risks of chemical agents by individuals and communities can be developed and preparedness strategies enhanced for the CSEPP through more effective risk communication programs.

### INTRODUCTION

Risk communication has long been undertaken by various entities - individuals, scientists, technicians, agencies, governments, industry, interest groups, and the media - for various intents and purposes. The acceptance of risk communication as a distinct concept is a positive step for those involved in risk management because it helps direct attention to the vital aspect of providing a common language (Leiss and Krewski 1987) with which issues and perspectives about risk, as well as basic assumptions about risk assessment, can be examined and discussed. The rapidly expanding body of literature on risk communication is proof of that acceptance.

This paper describes the process of developing a document on risk communication for the Chemical Stockpile Emergency Preparedness Program (CSEPP). The purpose was to provide a fairly comprehensive document on risk communication research and recommended practices as they related to the CSEPP for emergency managers, CSEPP personnel, and local officials. Using the communications perspective suggested by Covello and colleagues, the existing practices of communicating risk information about chemical weapons and the associated efforts in emergency planning, continued storage, and eventual disposal are described. Scenarios specific to the CSEPP provide a platform for assessing risk communication problems.

### Description of Communication Problem

One challenge both the Army and Federal

Emergency Management Agency (FEMA) face is effectively addressing the concerns of the public, local officials, and media representatives on the risks from continued storage and eventual disposal of aging chemical agent munitions via incineration at each site. Although the arsenal of weapons was never deployed, the deteriorating condition of the munitions (some in existence since the early 1940's) prompted Congress in 1985 to order the Department of Defense to destroy the existing stockpile. As required by National Environmental Policy Act (NEPA) for federal actions, the Army initiated and then issued a programmatic environmental impact statement (PEIS) identifying the risks for on-going storage and for disposal and discussing mitigation measures. As with all NEPA documents, comments were solicited from various publics and agencies on the proposed action.

One mitigation measure for both the continued storage and the proposed action was the upgrading of local emergency preparedness and response programs. Consequently, the Army developed a unique umbrella program called the Chemical Stockpile Emergency Preparedness Program (CSEPP) to facilitate the upgrading process. Although the Army has overall responsibility of emergency preparedness (and emergency planning) programs on military installations, the FEMA administers the civilian emergency preparedness programs in the states and local communities where the installations were located. Coordination between the Army, FEMA, and state and local officials is considered essential to the program.

Along with the oversight for emergency preparedness on military sites, the Army has the responsibility to alert the communities in the event of an accidental release of chemical agent. Since the populations surrounding the installations were largely unaware of the potential risks of chemical agents (along with general public knowledge until the Gulf war and the media coverage of Desert Storm), determining how to communicate to the various publics the risks from storage and the potential risk from a release of chemical agent off-post placed the Army (and FEMA) in an awkward position. Since the Army had never publicly acknowledged the risk from the stored munitions at the eight sites prior to the PEIS, there was every indication that the populations potentially affected would be critical of any proposed action.

The Army's experience communicating risks has not always been forthright. Segments of the public - whether individuals, corporations, states, or media representatives - have voiced distrust of much of the information provided by Army spokespersons. The Dugway, Utah, inadvertent sheep kill from a chemical agent release in 1962 is still recalled as an example of military cover-up. Military personnel never conceded blame and reached a settlement out of court with the sheep farmers. In another incident involving a community next to a chemical munitions storage site, emergency personnel had to wait a week to hear from the commander of the installation that what appeared to be a massive fire on post was in reality the detonation of smokebombs that was done in a careless fashion. During that week, the installation denied having anything to do with the event that closed down an interstate highway and sent people to the hospital.

In other instances, however, Army installation commanders have tried to help the community understand the risks from chemical agents by initiating open-houses, inviting the public on post, and being as open as possible about the threat as well as the safety measures used to avoid accidents.

In all fairness to the Army, much of the information on the U.S. chemical weapon arsenal the Army can present to the public is "classified" and not available to the public for reasons of national security. Moreover, each of the eight sites is unique in the quantities and types of munitions stored and each installation has a separate history with the community. Thus the Army is restricted by internal regulations and a lack of control on what information can be released to the public. Furthermore, the Army can only recommend - not dictate - to communities what to do in the event of a potential release off post.

### Risks from Chemical Munitions

A considerable amount of research has been done regarding people's limitations in assimilating and understanding information about health and environmental risks (Kasperson and Kasperson 1983; Covello 1983, 1989; Green 1984; Fischhoff, 1985; Slovic 1987). Public perceptions are influenced by the memorability of past events or by imagining future events (Lichtenstein et al. 1978; Covello 1989). Triggers that make a hazard memorable may include intensive media coverage, particularly those that include video coverage (Wilkins 1987), or a vivid or dramatic film (Covello 1989). Likewise, risks that are not obvious, remain unsensationalized, are not tangible, or do not affect people immediately tend to be underestimated.

Understanding probabilistic information about risks is often difficult for people. When a risk is unfamiliar or when probabilities are very low but with a high consequence, people will use a variety of heuristic devices to try to understand the threat. The risks from the chemical agents fall into the low probability, high consequence category. The exacerbating factor is the extremely short timespan for taking protective action in the event of a chemical agent release. The projected estimates (depending on the amount of release and the meteorological conditions) indicates that only 6 to 8 minutes would elapse before the toxic plume would reach persons outside the military reservation. Given the normal delays in responding to a warning - understanding, believing, and personalizing (Sorensen and Mileti 1987), the time element involved in a potential release suggests a well designed risk communication program before the event occurs is critical to prompt implementation of protective action.

### Methodology

Our strategy was to first describe the overall organization of the CSEPP, providing a historical

background and discussing some of the initiating concerns for the CSEPP. We did this for two reasons: clarification of the risk issues and unfamiliarity with the general constructs of the program itself. We were unsure how many program participants were familiar with the initial assumptions in assessing the risks from the continued storage as well as the disposal options. One problem is that the CSEPP experiences constant change-over of civilian personnel. Many of the personnel involved originally with CSEPP are no longer with the program or even in the same agency. The problem is endemic throughout the local, state, and federal agencies involved in the CSEPP. This means that much of the program's development is unknown to those currently employed in the CSEPP- along with how the risk estimations and hazard analyses were derived. In addition, a number of volunteers are used in some sites and their training in risk - and risk communication - is generally even less than paid personnel.

To place the risks from continued storage of weapons in perspective, we developed a number of scenarios that posited circumstances emergency managers or local officials might encounter if an accidental release of chemical agent should occur in their community. The scenarios ranged from a minor on-post accident with no off-post release to the remote event of terrorist activity involving all levels of agencies in response activities. Each scenario was described and questions posed that reflected the issues that were likely to be raised. For example, one on-post accident scenario raised the issue of credibility of spokespersons in relating information to the media. No "canned" answers were provided. Instead, we stressed the process of developing a risk communication program and of maintaining dialogue between various factions of the public and agencies. An example problem set dealing with a problem of hazard identification is shown in Figure 1.

Other question sets were developed to exercise people to deal with communications when confronted with the following situations:

- public speculation about technical expertise,
- credibility of source/message,
- media as sources and channels,
- institutional credibility,
- accuracy/bias of message transmission,
- fear of citizen overreaction, and
- warning message dissemination.

Overall, 68 questions were developed to assist risk communicators in preparing to deal with various situations that may arise. However, the intent was not just to get people to think about responses to questions, but to facilitate CSEPP personnel in anticipating situations and the issues likely to arise if an accident occurred.

We then introduced a conceptual framework that described in general how a hazard is assessed and the risk from the hazard determined. We used basic social concepts taken from Kates (1978) *Risk Assessment of Environmental Hazard* to describe how risks are identified and assessed. The various methodologies and differences among assessment methods were also discussed. We then distinguished between risk assessment,

risk analysis, risk management, and risk communication. When possible, we phrased the concepts to reflect CSEPP issues. For example, one of the questions involved the different interpretations among agencies for the same level of risk. We included a section on why experts and agencies might disagree, even when each provides a valid scientific answer. The discussion then focused on the different measurement techniques and the assumptions pertinent to an agency's directive.

A comprehensive search of the risk communication literature had suggested certain themes. Since our intent was to provide an overview on risk communication research and recommended practices as they related to the CSEPP, a thematic compendium on risk was developed. Using the communications perspective suggested by Covello and colleagues, the existing practices of communicating risk information about chemical weapons and the associated efforts in emergency planning, storage and eventual disposal were then disaggregated and described.

We introduced a conceptual framework that distinguished between two major components of risk communication, flow and intent. Within this framework, the research and recommendations were summarized as to direction of flow - dialogue, or two-way interaction, versus monologue, or one-way communication - and that of intent - exchange versus persuasion. Figure 2 illustrates the conceptual framework. The findings and recommendations were then synthesized and related to risk events for the CSEPP as posited in the initial scenarios.

We further defined flow and intent in risk communications by first describing the issues related to the direction of flow of information. Included were research results related to:

- the media's influence and/or coverage of events,
- the media's "gatekeeping" agenda,
- media from the marketing perspective, and
- ethical issues related to media representations of risk.

Because efforts at public education have been controversial, we included research findings on education of publics about risks to induce actions. Another section dealt with enhancing public participation, since some CSEPP managers had complained of apathy about risk issues in their communities.

Under issues of intent we discussed recommendations from the research related to:

- control of information,
- public warning needs,
- issues related to safety,
- credibility and/or erosion of public trust, and
- ethics and responsibilities of communicators to audiences.

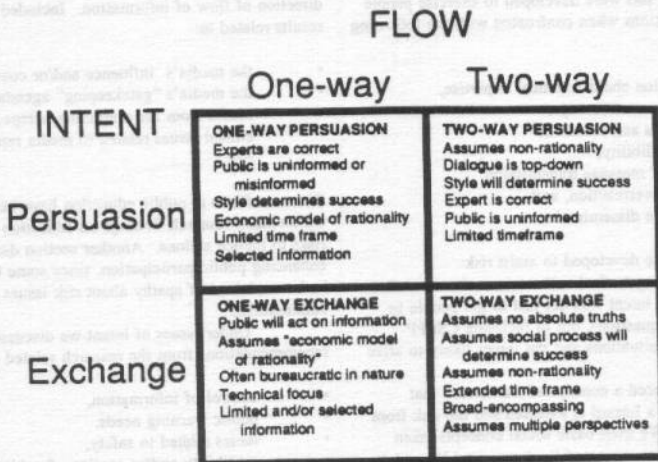
**Question Set 1 (Hazard Identification)**

A storage tank of agent (HD-mustard) is found leaking into the soil by agency personnel conducting a routine inspection. The damage appears related to the initial deterioration of a valve on the canister containing the agent and, thus, unlikely to have leaked for a long period of time. After discovery, the release was reported to the Environmental Protection Agency (EPA).

**QUESTION SET 1**

- What is in the tank/canister?
- Can the chemical explode?
- Is the groundwater affected?
- Can the chemical be safely cleaned-up?
- How long will the cleanup take?
- How can we tell if people living near the site have been exposed to any chemicals?
- Are there any long-term health effects possible from the leak?
- Why are people being evacuated so long after the spill was discovered?
- Why can't I return to my home?
- How can I tell if it's safe to let my animals out after I get home?

**Figure 1: Sample Scenario and Question Set**



**Figure 2: Conceptual Model of Risk Communication Styles**

When discussing channels, we emphasized using multiple channels to notify the public about risks and that notification of risk is a process not easily accomplished through one channel at one time. We further discussed using new technologies for channeling information (such as the now infamous internet connections) as well as using alternative channels to target information. For example, in neighborhoods with large ethnic or minority populations, targeting groups through local print media may be more successful than announcements in general newspapers.

Our major emphasis was on methods to enhance the communication process.

Focusing on preparing for risk communication, we discussed rumor control, evaluation of communication efforts, working with the media prior to an emergency, insuring coordination between agencies, and designing risk communication programs. We also touched on comprehending public behavior - why some programs never work despite the best planning, communicating uncertainty when no one knows the answers, maintaining audience appeal, and, finally, issuing warning messages.

The major points made regarding sources in risk communication related to credibility, enhancing credibility, and using multiple sources of information.

We discussed message content and style - communicator techniques, warning message techniques, and techniques to use when information is highly technical or difficult for general audiences to understand.

Finally, we synthesized the findings and conclusions for the CSEPP by returning to the scenarios first posited with further discussion. When the question sets are examined the crucial differences in how the issues are framed by the public, media and the agencies become evident. In the first situation the risk was defined as an agency problem by all parties whereas in the second and third, the incidents were defined by public or media sources as agency problems. Agency actions did not reflect that assessment. The fourth question was defined by the media not as a criminal event but as a newsmaking situation with the potential risk secondary to the media's interest in the event as a sensational "newspeg." The agencies involved, however, defined the crisis as much more serious with the media perceived as interfering. The fifth question reflected the issues of community right-to-know versus need-to-know as well as control of information that included changing institutional structures. The sixth and seventh questions related to the need for planning for anticipated media needs. The seventh question posited some of the questions that officials should be prepared to answer even in routine preparations. The last question set indicated what may happen should a release occur during storage or incineration, and addressed the need for timely, accurate notification and how those

warnings needed to be disseminated to ensure maximum protection for the public at risk.

A general theme throughout the situations is that risk assessment and management are part of the problem in the risk communication process. The assumption that management is part of the communication process compounds the uncertainty about definition of the level of risk, who should be informed, and when that information should be given to the public. The communication problem for the CSEPP is a complicated process involving risk generators, risk bearers and associated interested parties, media representatives, and concerned citizen groups. A basic understanding of how the risk assessment for the chemical stockpile was conducted is critical to effective risk communication for the CSEPP.

## CONCLUSION

Communicating information on the risks associated with both chemical agent storage and disposal will continue to occupy a significant part of the CSEPP. In addition, the media will continue to heavily influence risk information provided by public or private sources, and in some instances act as a source themselves.

As CSEPP is implemented, risk communicators are likely to face increasing pressure to present risk issues and respond to risk related questions raised by various parties and constituencies. Whether acting alone or with others, managers of public and private agencies, industry representatives and governmental bodies must accept that media communications outlets will significantly influence the agenda of most risk communication efforts. Furthermore, newer forms of communications will continue to alter methods used to translate assessments of risks for risk management. Immediate access to data via personal computers places managers in the position of making immediate decisions about conveying information about risks.

It is likely that some incidents have occurred at the stockpile sites that have led to some erosion in public confidence in those parties and agencies participating in emergency management. To regain and/or enhance credibility and trust will require changes and modifications that can only be instituted through structural or institutional change - a process which appears undeniable, but not impossible in the CSEPP. While there is no guarantee, there is every indication that a better understanding of the potential risks of chemical agents by individuals and

communities can be developed and preparedness strategies enhanced for the CSEPP through effective risk communication programs.

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