

**CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)**  
**Roundtable on Partnering with Meteorologists for**  
**Radiological Emergency Preparedness and Response**  
**August 26, 2004**  
**W Hotel**  
**Atlanta, GA**

**SUMMARY REPORT**

**INTRODUCTIONS**

Facilitator John Parker, Senior Vice President for Corporate Development (Homeland Security), Science Applications International Corporation, welcomed attendees. He noted this was the first CDC-sponsored meeting of meteorologists, and that the meeting would be unclassified and non-attributed. He encouraged participants to share their individual perspectives and not feel obligated to speak on behalf of their organizations. He asked participants and observers to identify themselves. (See Appendix A for list of attendees).

**WELCOME**

Michael McGeehin, Director of the Division of Environmental Hazards and Health Effects of the National Center for Environmental Health, CDC, welcomed participants by saying he had never before addressed an audience with so many familiar faces whom he had never met. He pointed out that he, like the American public, turns to the news when there is a major storm coming, and that meteorologists are important sources of information not only in reference to the weather but on broad areas of science.

McGeehin said one of the lessons learned from 9/11 is the significance of reaching out to new partners and communicating with the American public. Experts believe that another terrorist attack on America is not a matter of “if” but “when.” The nation needs to be prepared across a wide spectrum of possibilities and must develop a more effective communication network. Meteorologists could be an important avenue to convey messages to the public during a crisis.

In the event of a natural disaster or radiation episode, CDC and other health agencies can supply basic scientific knowledge but would look to meteorologists to help communicate to the public about the real risks. A number of studies indicate that people react with great fear to the word “radiation,” as opposed to an event described as chemical or biological. The public needs to know there are different types of radiation and different ways it can spread. The same sort of knowledgeable communication that meteorologists provide after a hurricane would be of tremendous service to the American public in the event of a radiation emergency or other disaster.

**OVERVIEW OF CDC'S RADIOLOGICAL EMERGENCY PREPAREDNESS PROGRAM**

Charles Miller currently serves as Chief of the Radiation Studies Branch, Division of Environmental Hazards and Health Effects at CDC's National Center for Environmental

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Health. His presentation included an outline of CDC's roles and responsibilities in a nuclear/radiological emergency.

### **Main Points**

- ◆ Categories of potential nuclear and radiological releases include transportation, power plants, weapons, laboratories, medicine, space, and terrorism.
- ◆ Potential terrorist scenarios can be divided into two different groups—radiological and nuclear.
- ◆ Radiological events would include a dispersion device such as a dirty bomb, or the malicious use of radioactive substances (dumping radioactive material into a water supply).
- ◆ Nuclear events would include a targeted attack on a nuclear facility, detonation of a modern nuclear weapon, or detonation of an improvised nuclear device. From a physics and engineering perspective, the bomb that the United States dropped on Hiroshima was an improvised nuclear device.
- ◆ All emergencies are local. Local and state public health organizations would be the first responders in a terrorist attack.
- ◆ The public health response would be significant in any nuclear/radiological event. The public health community must partner with other state and local agencies, as well as nongovernmental organizations and individuals.
- ◆ Anxiety will increase because of the involvement of radiation and concern among citizens about the short- and long-term impact on their health.

In responding to a nuclear/radiological emergency, CDC and the public health community will:

- ◆ provide medical support to the public and emergency personnel
- ◆ deploy the Strategic National Stockpile (drugs and equipment) through the Department of Homeland Security
- ◆ conduct field investigations and monitoring of people for contamination and exposure
- ◆ set criteria for entry and operations in contaminated areas
- ◆ employ disease control and prevention measures

CDC and public health agencies also will have an important role in addressing long-term response issues. These include interpreting EPA and FDA protective action guides related to food, water and recovery operations; conducting surveillance and epidemiological studies; and setting up an exposure registry and monitoring system that documents long-term health effects.

In asking the question, “Why are we meeting in this forum today?” Miller showed scenes from the Tom Clancy film, “The Sum of All Fears,” that dramatically illustrates a nuclear attack on Baltimore. Attendees were asked to imagine a similar event happening in New Orleans, and to project how a deadly fallout plume would impact Georgia.

Miller emphasized that communication is a vital component in an effective public health response. Public health officials will need to communicate with the public, policymakers, and the media.

The public considers meteorologists to be trusted, non-political broadcasters. As such, the CDC wants their input on how it can effectively partner with them, and how, in turn, the CDC can assist meteorologists in partnering with other public health and emergency organizations.

### **METEOROLOGY AND DISASTER PREDICTION, MANAGEMENT, AND RECOVERY**

Bruce Hicks, Director of the Air Resources Laboratory of the National Oceanic and Atmosphere Administration (NOAA) gave a presentation that featured a historical overview of dispersion, discussion of the inaccuracy of some forecasting, and description of the need to combine forecast models with visual data.

#### **Main Points**

- ◆ The history of meteorology and disaster prediction goes back to the 1800s when Louis Pasteur did a study on how emissions from London affected people in southern France.
- ◆ Over the years, gas warfare, nuclear weapons testing, Three Mile Island, Chernobyl, and other events have provided significant meteorological data.
- ◆ Volcanic ash can aid forecasters in verifying models and predictions.
- ◆ Chernobyl came as a wake-up call. The near-field picture as well as the distant fallout pattern was exceedingly complex. The contaminated area was larger than the footprint indicated, and was determined not only by the wind but also by rain.
- ◆ In 1987, the Department of Defense realized the United States needed a better understanding of dispersion. Numerous studies have looked at dispersion patterns. The concept of a simple, ordered plume is not realistic.
- ◆ The National Weather Service has 122 forecast offices across the country and can access capabilities online through the National Center for Environmental Prediction. Models can show where a predictive plume, such as from a forest fire, will go.
- ◆ The best way to move the science forward is to put material on the web. NOAA's web site is a good reference: [www.arl.noaa.gov/ready/er.html](http://www.arl.noaa.gov/ready/er.html). Forecasts for every nuclear reactor around the world are online at all times.
- ◆ Under the World Meteorological Organization, plume forecasters from eight countries provide predictions in the event of a nuclear episode, and run trials to monitor systems and improve forecasting products.
- ◆ Models cannot accurately predict concentrations regarding the place, time, and space of plume dispersions, especially in areas of open terrain where local variability is dominant. Models need to be improved to factor in different wind dispersions or to input more meteorological data.
- ◆ Forecasting is enhanced by visual observations. Obtaining information from someone local and on the ground is exceedingly important.

## **DISCUSSION HIGHLIGHTS**

John Parker facilitated the main discussion among roundtable participants. Also facilitating was Jim Fairbent, Director of the Office of Emergency Management in the National Nuclear Security Administration, Department of Energy. Participants were asked to consider several questions:

1. How would you characterize your knowledge regarding radiation or radiological emergencies?
2. What role do you think you would or could play in a radiological event?
3. Would you be interested in having a professional partner such as the CDC Radiation Studies Branch if you were to take an active role in an event? What would that relationship look like?
4. What information or training would you like prior to an event? What information would you feel comfortable passing to the public during your broadcast?
5. Should this idea be promulgated to the regional or national level?
6. What do you see as the next steps in developing such a partnership?
7. What science or processes for management of a radiological event might the meteorology community bring to the table?

As a backdrop to the discussion, Parker mentioned that the meteorology community is mostly unsung and unseen. The public at large is not aware of NOAA, geodetic surveys, dust clouds, and airborne and environmental forces. Yet, Dopplar radar, wind shears, and storm cells are terms that the American public knows and attributes to meteorologists. CDC's interest is in expanding that knowledge base and using the credibility of meteorologists to build resilience in this era of terrorism.

The CDC is seeking to develop a partnership with meteorologists because they already incorporate public health messages in their broadcasts on such topics as UV radiation, pollen counts, and the appropriate clothing to wear for weather changes.

There was consensus among participants that they have limited knowledge about radiation and that just the mention of a radiation event would send their newsroom and media colleagues into a panic.

### **Representative Comments From Participants**

“In the event of a radiological event, we would want to know how extensive the radiation is, how potentially dangerous, and how long it would pose a threat.”

“We’re expected to be science experts, so we would like to get as much information from the CDC as quickly as possible.”

“The National Weather Service recently started instant messaging in advance of severe weather. That might be a way to log in to a session to communicate with CDC, and vice versa.”

“If a radiological event happens, we’re going to be given a role, whether we want it or not. If there’s an explosion in downtown Atlanta, the first thing they’re going to do is show a map and get the weather guy on the air to tell where the plume’s going.”

“In the recent Conyers (GA) fire, people wanted to know why the plume was moving in a certain way and if it would change directions...The Environmental Protection Agency did have a plane and installed one sensor, but to my knowledge that information did not get back to the National Weather Service or to Georgia Emergency Management Agency. So if we’re talking about communication, we need to do better not just in communicating to the public but among all of us.”

“We can take steps to make sure the EPA linkage is in place. For the next event that occurs, we have to be better connected.”

“We need a point of contact—someone we can call without being shuffled around.”

“This gets to be the issue when you have multiple models and forecasts, and an incident command center trying to make a decision on which forecast to go with.”

“Sometimes the models indicate one thing but locally it’s different. So there’s a question about what the models can do and how fast they react.”

“In terms of getting plume data and where the threat area is, we’d need some kind of system.”

“The disaster community has learned that if you get television stations putting out a different message, the public, tuning in to different stations, tends to take no action. The great concern is that the message is consistent.”

“A high percentage of the American public isn’t watching TV during a local disaster but has access to local radio. We need to think about the types of media that meteorologists feed into.”

“We feel comfortable in describing a thunderstorm or tornado warning because the system (through the National Weather Service) has been in place a long time, and we know what to expect. Part of the communication issue here is to not only get the information but to get it in a way that we know is correct.”

“The tornado or hurricane warning system could be used as a model for what CDC might put out. It’s nicely formatted, tells what the threat is, and who’s going to be affected.”

“Why reinvent another communications network when there’s already a good one in place? CDC needs to pipe in information through the National Weather Service. The question is who’s going to be responsible?”

“Through All Hazards Radio for national emergencies, there’s a flow already in place for information that feeds into the National Weather Service.”

“Locally, we have the civil emergency message whereby TV stations are notified when something happens, such as a child abduction.”

“In order to educate the public prior to a nuclear event, we’d have to grasp the concepts and know some background.”

“Information needs to be boiled down to the bare essentials—What do people need to know and what should they do? They don’t care about the science.”

“Some events aren’t visible by satellite...People need to know there are sensors on buildings and that even though radiation isn't visible, it's real.”

“NOAA needs more money to get its technology into local communities.”

“You need a graphic model to get people to move.”

“In the effort to get CDC, local, and national emergency management officials together, it would be best to start at the grassroots level where relationships already exist.”

“We’re looking for guidance. We know we need to do something on the issue of public communication and national security.”

“The Emergency Broadcast System could be integrated into this effort.”

“The American Meteorological Society and the National Weather Association have annual meetings that could be good forums for this kind of discussion.”

“We should proactively contact organizations like the Atlanta Press Club and do some brainstorming.”

### **Summary of Main Points from Discussion**

John Parker summarized the main ideas that had emerged from the roundtable discussion.

- ◆ Effective communication is essential before, during, and after a radiological or hazardous event. There is a dire need to educate meteorologists as well as the public about radiation.
- ◆ The National Weather Service has an effective template to communicate about potentially hazardous weather. CDC should consider tapping into this network to deliver emergency communications.
- ◆ Regarding emergency messages, CDC should seek to:
  - deliver communication in a standardized, consistent way
  - provide simple, graphic communication for immediate on-air adaptation
  - provide research information regarding safety tips, etc.

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- ◆ To explore this issue at future meetings, other persons who should be at the table in addition to meteorologists might include GEMA representatives, local emergency managers, radio and TV station managers, and broadcast station health reporters and physicians.

### **CLOSING/ADJOURNMENT**

Charles Miller thanked attendees for taking the time to share their ideas. He said some of the information confirmed what had emerged from focus groups, and many new ideas had come forth. He encouraged participants to contact him by e-mail with any additional comments, and he said the CDC would follow up to move this effort forward.

**APPENDIX A**  
**Attendees**

**Roundtable Participants**

Steve Adamson  
WXIA TV

Mike McGeehin  
CDC

Bernadette Burden  
CDC

Charles Miller  
CDC

Ken Cook  
WAGA TV

Gene Norman  
WGCL TV

Stephanie Creel  
CDC

John Parker  
Science Applications International  
Corporation

Scott Deitchman  
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Lisa Ray  
Georgia Emergency Management  
Agency

Jim Fairobent  
Department of Energy

Lans Rothfusz  
National Weather Service

Greg Forbes  
The Weather Channel

Jana Telfer  
CDC

Barry Gooden  
National Weather Service

Bob Whitcomb  
CDC

Bruce Hicks  
National Oceanic and Atmospheric  
Administration

Steve Windham  
The Weather Channel

Carol McCurley  
CDC

**CDC Observers**

Armin Ansari  
Scott Damon  
Elizabeth Donnelly  
Natasha Friday  
Amy Guinn  
Maire Holcombe  
Jeremiah Johnson

Ashley Manzoor  
Tamara Maze  
Gary Noonan  
Katrina Pollard  
Dora Rainey  
Florie Tucker