

ASSESSING AND MEETING THE RADIATION INFORMATION REQUIREMENTS OF THE PUBLIC:

DEVELOPING AN INITIAL FRAMEWORK TO MEET THE NEEDS OF STATE, LOCAL AND TRIBAL HEALTH AGENCIES

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EXECUTIVE SUMMARY

This project was initiated to determine the type and extent of information that the public requests from public health agencies, how prepared agencies are to answer the public's questions, and factors that would help the agencies optimize their performance when providing radiation information. In addition, the project team used the data collected to suggest how a radiation information needs framework could be developed. The project proceeded in two phases. In the first phase, five teleconference focus group meetings were held to elicit a dialogue among the public health participants involved in each call. In the second phase, participants reconvened in a web-base workshop to refine the findings from the focus groups and examine the need for and scope of a radiation information framework.

During the five teleconference meetings, over 70 local, state and tribal public health officials discussed their information needs and the needs of the communities they serve. Six themes emerged from the focus group meetings. Each describes a central topic, and a continuum of issues that meeting participants examined regarding that topic. Efforts to assist state, local and tribal public health officials can be organized around these themes. In phase two of this project, these themes were used in developing the information framework:

- Information needs are situational, and range from routine to emergency;
- Information needs vary based on location and region;
- The characteristics of information needed varies from basic to specific;
- The manner in which the information is provided must meet the needs for which it will be used (e.g., electronic vs. hard copy);
- Providing information alone is not sufficient; training is needed so that state, tribal and local public health officials can deliver the information most effectively; and

- Information sharing and collaboration are critical to meet the demands of the public for knowledge about radiation.

Workshop participants used the information and findings of the conference call meetings as a basis for a dialogue on the nature, type and delivery of radiation information required by public health officials at state, local and tribal agencies as they serve the public. Workshop participants built upon and refined the suggestions and ideas introduced in the focus groups meetings. Generally, the workshop endorsed the need for robust, dynamic, science-based information presented at a level that citizens can understand and apply. Based on the workshop and meeting findings, the project team suggests a three-phase process to create a radiation information needs clearinghouse to meet the needs of state, local and tribal health officials serving their communities.

INTRODUCTION AND BACKGROUND

Nature and Goal of This Project

State, local and tribal public health officials are the first point of contact for many citizens seeking information about the potential naturally occurring and human-made health hazards in our environment. This is particularly true when the public seeks information about the uses and hazards of radiation. When questions about radiation hazards arise, the public turns to local, state, and tribal health agencies for answers. Public health officials recognize that educating the public and answering the questions of those who contact them are an essential part of their jobs. Since the terrorist attacks in September 2001 and the release of anthrax through the U.S. mail shortly thereafter, the litany of calls and contacts to public health agencies has increased.

Given the complexity and scope of radiation science, technology and regulations, it is certain that public health officials have substantial need for up-to-date, accurate, science-based information so they can serve as effective information conduits for their communities. It is also apparent that this information should be available to them in a variety of forms (e.g. electronic documents, printed material, and video) and languages other than English. At this time however, the full parameters of agency information needs are not known.

To better understand the information framework that state, local and public health officials need, the Environmental Protection Agency, Office Radiation and Indoor Air (EPA ORIA) entered into an assistance agreement with the Johns Hopkins Bloomberg School of Public Health (JHSPH) and the Public Health Foundation (PHF) so that JHSPH and PHF could examine, in a systematic fashion, the radiation information needs of local, state, and tribal health agencies and offer a template for a radiation information needs framework. The purpose of this project is to determine the type and extent of information that the public requests from public health agencies, how prepared agencies are to answer the public's questions, and factors that would help the agencies optimize their performance

when providing radiation information. The ultimate goal of this project is to determine effective ways to meet the radiation information needs of the public.

The project was carried out in two phases. In the first phase, JHSPH and PHF gathered and analyzed information, undertook research and engaged in other necessary activities to assess the information needs of public health officials in their capacity as information conduits to the public. In phase two of the project, JHSPH and PHF organized an interactive, internet-based (or web-based) workshop to refine and extend the research obtained in the first phase. During the workshop, state, local and tribal public health officials participated in further discussions about a framework to meet the radiation information needs of citizens.

Scope of this Report

This report contains a detailed discussion of the activities carried out, and the results obtained, in phases one and two of this project. It summarizes the teleconference focus group meetings and the internet-based workshop deliberations. Over 70 state and local health participants took part in the focus group meetings. A detailed list of the focus group meeting protocols and questions are set out in Appendices A and B. During these meetings, public health officials discussed whether their agencies were prepared to respond to public inquiries about radiation, and if not, what could be done to assist them in meeting the public demand. The teleconference focus group meetings were designed to explore information needs and compile data that would assist in:

- Identifying the nature and type of information needed by local, state, and tribal public health officials regarding radiation and chemicals so they can answer the public's inquiries; and
- Elaborating strategies for meeting current and future radiation and chemical information needs of public health officials and the public.

The information gathered in the project's first phase was used to develop a background paper containing data analysis and describing the results of the teleconference meetings. (This report is based in part on that background paper.) In the second phase of the project, the background paper was sent to all teleconference participants and additional new participants. It was also posted as part of the web-based workshop to ensure that all participants had the opportunity to review, react to, and critique the paper. An Internet or web-based workshop was held to further refine and build upon the teleconference meetings. The workshop succeeded in refining and expanding upon the understanding of the radiation information needs of the public by engaging state, local and tribal public health officials.

PHASE I: METHODOLOGY OF TELECONFERENCE FOCUS GROUPS

Research Design

The teleconference focus group meeting format has been used effectively in the past to probe in-depth public health officials' insights and experiences and was selected by the project team because it can be executed efficiently, especially in situations where geographic diversity is desirable and fulfill the twin goals of complex information gathering and high participation. This qualitative method enabled the project team to closely question health officials to elicit their insights and experiences. It also encouraged participants to interact creatively and to question each other, which stimulated more ideas and insights. The meetings were organized into five focus group teleconferences, each involving 8-10 participants. One meeting consisted solely of local public health officials and one meeting consisted only of state public health officials. The three regional meetings each had participants from local, state, and tribal public health agencies.

The focus group methodology applied here is not intended to produce results that can be generalized to the population of public health officials. However, it was successful in obtaining the in-depth information necessary to meet the objectives of the first phase of the project. It also served to assist in designing the Internet-based workshop that was conducted in the second phase of this project.

Selection of Participants

The Public Health Foundation (PHF) contacted several public health organizations to obtain names of potential participants. Invitation letters were sent to the Association of State and Territorial Health Officials (ASTHO), the Association of State and Territorial Local Health Liaison Officials (ASTLHLO), the National Association of County and City Health Officials (NACCHO), the Public Health Leadership Society (PHLS), and the National Public Health Leadership Development Network (NPHLDN) requesting names of public health officials who are familiar with, have an interest in, or receive inquiries from their community

members about radiation issues. In addition, PHF held a telephone conference with the National Association of Local Boards of Health (NALBOH) and email correspondence with the Indian Health Services (IHS) to obtain names of tribal public health officials.

Based on these sources, PHF developed a comprehensive database containing 130 names with contact information for potential participants. These contacts were assigned to one of 6 focus groups: Local, State, Tribal¹, Region 1, Region 2, or Region 3. The project team designed these meetings so that the mix of participants would stimulate discussion about national, state and local radiation information needs. For example, the project team felt that the regional conference calls could be effective tools for encouraging discussion about issues such as (1) transportation of radioactive waste to existing and proposed national repositories such as Yucca Mountain; (2) naturally occurring radiation in areas such as the Reading Prong (Northeastern United States); and (3) other issues that are of concern to specific regions of the United States. The regional groupings were also useful for organizing meetings within the same time zone. The local, state and tribal meetings were intended to focus more specifically on the concerns of these groups of public health workers. Based on its experience working in public health, the project team believed that the issues facing local health officials could be different from the issues faced by tribal or state officials.

The participants were divided among these groups as follows:

State:	22 contacts
Tribal:	18 contacts
Local:	23 contacts
Region 1 (Eastern US):	19 contacts (10 state, 7 local, 2 tribal)
Region 2 (Midwestern US):	16 contacts (8 state, 6 local, 2 tribal)
Region 3 (Western US):	15 contacts (5 state, 4 local, 6 tribal)
Alternates:	17 contacts

¹ Although tribal public health officials participated in the meetings, JHSPH and PHF were unable to proceed with a teleconference meeting that only included tribal public health officials.

Prior to sending invitations, all names, addresses and titles were verified. All invitees were asked to RSVP by telephone or by email. In preparation for the meetings, invitees were sent a series of questions and discussion topics.

The number of public health officials ultimately participating in these meetings is set out below:

Local	N=13
State	N=9
Tribal	Unable to schedule
Region 1	N=12
Region 2	N=6
Region 3	N=7

Participants were free to invite other members of their agency to contribute to these meetings, so the actual numbers of participants on the calls were higher.

Teleconference Focus Group Meetings

All teleconference focus groups were conducted during June and July 2002. Each teleconference lasted about 90 minutes. A PHF staff person moderated the teleconferences to make sure that the discussion remained on track and that no one person or issue dominated the meeting. Before each meeting began, the project was discussed and the teleconference protocol was reviewed. The protocol is set out in Appendix B. Participants were given a brief introduction to the project and its sponsors, focus group objectives, discussion protocol, and how information would be used and disseminated. Participants were told that each call would be tape-recorded but were also assured that these tapes would be used for data gathering only and that any comments repeated or quoted would be used without attribution. If participants thought of additional information after the meeting, they were instructed to contact the project sponsors to provide additional insights and comments.

Each of the five meetings was productive and participants consistently expressed positive opinions on the focus group meeting process and the value of information discussed. Participants also consistently expressed the need for continuing the dialogue about information needs.

Two meetings with tribal health officials were scheduled. Unfortunately, both were postponed because of low attendance. The project team was not successful in rescheduling this meeting so that tribal health officials could participate. Nevertheless, it is clear that the Native American public health community is very interested in, and concerned about, radiation information needs. At least one tribal health official was able to participate in each of the regional meetings so the Native American perspective was represented in the project findings and recommendations.

Focus Group Meeting Discussion and Limitations of the Meetings

At each meeting the project team asked participants the following questions:

- Let's work our way through a scenario together. It's Monday morning and someone from your community wants information about radiation. Tell us how you handle the request.
- When you get these inquiries, how prepared do you feel you are to answer the questions?
- What would help you do your job better?
- Tell us about any missed opportunities to provide information that you've experienced.
- How have inquiries changed since September 11, 2001?
- What do you think is on the horizon regarding radiation pollution/contamination?

A full discussion of the meeting findings is contained in the next section.

The focus group meetings explored the radiation information needs of local, state and tribal public health agencies that answer inquiries from citizens. The participant selection protocol was designed to recruit interested and knowledgeable individuals, but was not intended to obtain a representative sample of local, state or tribal health department personnel. The majority of participants said that they found value in the opportunity to talk with their colleagues about these issues. Their interest and the need for further exploration

created a strong basis for the internet-based workshop that was held to complete the second phase of this project.

FINDINGS FROM THE FOCUS GROUP MEETINGS

Participants reported receiving calls about a broad variety of radiation topics, ranging from health risks of tanning beds to the transportation of radiation waste through their community. These inquiries came from a number of sources, including citizens, the media, industries that use radioactive materials, and first responders. Many also noted that they received calls from government officials, including elected officials, federal agencies, foreign governments, and local health agencies. Some participants noted that they received calls from attorneys who were investigating medical claims. Other participants stated that homeowners and real estate agents often called to obtain information about radon.

Based on our participation (as moderator, observer and facilitator) at the meetings and analysis of the meeting transcripts and tapes, we have organized the meeting information into 10 areas of inquiry. Each is discussed in detail below.

1. Perception of caller satisfaction

Meeting participants stated that in general caller satisfaction was above average overall, but there were times when callers were dissatisfied. Factors that participants thought contributed to higher caller satisfaction included (1) the perceived honesty of the person responding to the call; (2) the call responder's level of empathy; (3) ability to explain ideas in clear and understandable terms. In addition, if callers felt that the call responder was expending effort to be responsive to the request, satisfaction was more likely.

Caller dissatisfaction was more likely if scientific evidence was not available to provide a definitive answer about health risks, or could not address the caller's specific needs. Dissatisfaction was also related to a lack of radiation expertise

within a health department and when callers perceived that media reports and scientific research conflicted with each other. As one public health official stated:

[Callers] for electromagnetic fields (EMF) are generally baffled because generally there's enough publicity out there about how it's causing all sorts of brain cancers and...science says if it is a problem it's such a low problem and there's nothing to worry about. So those [callers] are generally not satisfied.

The region 2 meeting examined this issue by discussing inconsistencies in state potassium iodine (KI) policies, and noting that this inconsistency was creating confusion and discord between their agencies and the public:

There is some struggling with state policy, some questions about the new federal law (Bioterrorism Act) and guidelines for KI, scientific questions. NRC 2001 rule gave the states KI responsibility. The new act says that states need more information. Some states say yes, some no, and some change their mind relating to KI information. We are not getting the quality of information that we think we need to develop effective policy and answer questions. This is our key struggle. There is less federal-state cooperation.

One of the tribal representatives noted that when providing information, tribes had to be mindful of the often-lower education levels in their communities. They noted it was tribal protocol to follow up with dissatisfied callers until the caller is "educated, to the point that they...feel satisfied."

2. Areas of inquiry

Public health agencies received calls on many topics related to radiation. Table 1 lists some of the most common topics identified in the meetings (not listed in priority order).

Table 1: Common call topics	
<ul style="list-style-type: none"> • EMF (electromagnetic fields) • Microwaves • Radon gas in homes and radon in drinking water • Smoke detectors • Tanning devices • Irradiated food • License requirements • Regulations • Building materials (usually containing uranium) • Uranium mines and mill tailings 	<ul style="list-style-type: none"> • Nuclear power plants and potential attacks on them • Nuclear waste • Nuclear waste sites • Transportation of radioactive waste • Potassium iodide (KI) • Dirty bombs • Weapons production facilities • Weapon installations • Military base operations • Medical uses of radiation • Wind/jet steam vectors for radiation

Table 1 shows that to address citizen questions, the range of expertise needed in radiation science and communication is substantial and beyond the mandate, resources, and capability of any one local, tribal, state or federal agency. Although these areas of inquiry are not easily organized or sorted into broad areas, they provide a starting point for future discussions about the nature and type of radiation information needs framework that could be put into place.

3. How Inquires Were Addressed

Participants reported that their experience and knowledge gave them credibility with callers and noted that health agencies addressed inquiries in a number of ways. If possible, health agencies answered questions directly. The ability to provide a direct response depended upon whether in-house experts were available to field calls. Referrals to sister agencies within the state, local or tribal bureaucracy was another frequent method of handling questions. In certain circumstances, callers were also referred to professional organizations. In some health departments, call referrals on radiation topics are the preferred way of handling inquiries the departments did not have the capacity or statutory mandate to answer caller questions. As one participant said, “we’re good at referring.”

Health agencies that were responsible for answering caller questions often assigned regular staff or assigned specialized staff within their division to answer questions (e.g., hotline staff, specialists, health physicists, and epidemiologists). In some cases, health agencies created positions in a separate division to field citizen questions. For example, some public health agencies had media, public relations or legislative divisions that were responsible for answering media or legislators' calls (media/public relations officer, legislative officer). Other participants noted that emergency questions were transferred to an emergency management division.

In addition, public health officials noted that it was important to provide information in the appropriate context. Health agencies must take into account many factors when answering questions (e.g. nature of the radiation topic, depth of information needed to answer, the audience, and state of the science). Participants cited funding and the Internet as two factors that had significant impact on a health department's ability to provide information to the public. Other factors influenced the process of providing information, according to meeting participants, such as how the information was communicated. As one agency official pointed out, "the way information is delivered is as important as the information itself;"

The ease of access to health department personnel and resources encouraged more citizen interaction, and hence made it easier to obtain information (e.g. toll-free telephone numbers, hotlines, web sites). Maintaining these resources is very important, and the meeting participants emphasized that once the public knows who to call for information, health agencies must strive to fulfill community expectations. Several participants noted that public ignorance about radiation was a challenge that required extra effort to overcome.

The questions that we're getting both from the media and general public are not rocket science related. They are not really extremely challenging technically. The problem, as

someone pointed out earlier, is that the media and the general public have no understanding of radiation. So what you have to do is step back and spend a lot of extra time giving basic “radiation 101” before you can really put some of their more technical questions in context.

Not all meeting participants agreed with this view:

I look at that in a little different way. I think you have to take the answers down to non-technical descriptions. I think subject matter experts are very good at technical type of detail but when it comes down to dealing with the public, what I’ve found out in my dealings with them is that one has to break it down into terminology that is non-technical in order to get the message across. I find that to be much better than trying to explain technical radiation terminology.

Regardless of one’s philosophy on how to educate the public, many focus group participants noted that their health agencies did not have a set protocol or knowledge management system to ensure that they were providing consistent responses or that new health department employees were trained properly. In addition, some health agencies feared the disclosure of information to the media or attorneys and advised exercising caution when discussing highly technical information. These discussions point to the need for a consistent, science-based, frequently updated knowledge base for answering questions, and for training in communicating technical information to lay audiences. These needs were highlighted by participants’ comments that local, state, and tribal health agencies can have difficulty working together when providing information (e.g. communication problems, competing interests) and that in the event of radiological emergencies and accidents, health agencies often had to provide information to the public and first responders rapidly and accurately.

Some health agencies actively provide information to the public in order to eliminate some calls. As one participant said:

We take a preventive approach and try to get messages out in advance. We focus on how we can prevent things...because then we won't be afraid of the unknown.

Unfortunately, in some instances callers cannot obtain answers to the questions they ask. As a participant explained, "if it's not a frequently asked question, then the telephone receptionist will just try to transfer it to somebody that they think might be appropriate. The caller sometimes just gets passed around the department; it's pretty much a question of luck."

4. Information sources and networks

Of the participants that supplied information or referrals, most used web resources, especially at federal agencies or other organizations (EPA, NRC, United States Army, Center for Health Promotion and Preventive Medicine (CHPPM)), hotlines, fact sheets, information packets, and brochures. Most felt that internet- or web-based information made the referral process easier but noted that not every household has access to the web. They also pointed out that during emergencies, the web might not be accessible. Nevertheless, there was substantial agreement that Internet resources increased the capacity to respond to callers. As one participant explained:

We're an inter-tribal organization, so we're a conduit of information to the tribes. Our authority goes out to the exterior boundaries of the reservation and then the staff at that point takes over on whatever issues are of interest to the tribes. So with the Internet, we can get access to any information specific to any concern be it government, federal or state, or any agencies or foundations or public health schools. We can get access to information that we think is

pretty close to the questions being posed and get it out to tribal members. Then, we have a series of dialogues with them until they are satisfied that they have the appropriate information.

Meeting participants clearly recognized that networking and ready access to radiation information from different sources help them fulfill their mission to respond to public concerns about radiation by providing information to help citizens make decisions. Many reported either having an outreach program or were in the process of hiring an outreach coordinator. Health agencies worked with first responders, grass roots groups, universities, hospitals, and local, state, tribal, and federal levels of government.

During the state focus group meeting, participants talked at length about regional waste transportation groups and suggested that they could serve as an important example of coordination.

It's more an interaction with the states in the region that can help provide that type of information. It's a group effort basically. Each region has its own transportation plan and each group addresses various transportation campaigns and actually it's the states who sit down and work through these issues in focus meetings. [They] develop[ed] plans, and were not responding to calls, etc. In addition to developing plans they're a federalized source of information. All those groups are funded with federal funds...

During the region 3 meeting, tribal participants noted the need for coordination between federal, state and reservation first responders, and coordination with other federal agencies working with the Indian Health Service. Tribal participants noted that HHS and EPA were now working with the Indian Health Service on a number of issues.

5. Collaborations and Partnerships

a. *Relationships with the media*

Participants in almost all of the focus group meetings examined media relations and methods of communicating with the media. Participants recognized that interactions with the media had the potential to polarize issues. Focus group meeting participants relayed both successful media interactions and instances of considerable frustration. The excerpts that follow show the range of this discussion.

We worked very closely with the media to deal with West Nile Virus. We developed a relationship with the media. We knew the virus was coming and informed them and developed information for them in advance. Once the relationships are there, it really does help. You know who to trust and don't have to be too reactive. This also helped with anthrax.

We recognize that we should be spending more time, when the issue is very pertinent, getting information from our agency to the press, doing more press releases than we are so that we can be providing proactively to the media rather than waiting for them to come to us after the issue becomes really big. So that's something that we kind of recognize that we need to be more proactive on. I think that some of the missed opportunities are that we've known that the issue was there and we could have done it but we didn't take the time to contact the media and say "here's what our stand is." We waited until everybody else made their stand and then somebody came to us.

We have to reverse panic that they cause.

They are a challenge to deal with.

They focus on extreme cases.

Participants noted that state, local and tribal agencies need training and expertise to improve their skills and help provide science based information that can answer the questions posed by members of the print and television media.

b. Organizations that are important partners

Table 2 lists organizations and federal agencies that participants identified were important partners in providing radiation information.

Table 2: Important Partners	
<ul style="list-style-type: none"> • Nuclear Regulatory Commission (NRC) • Department of Energy (DOE) • Department of Defense (DOD) • Environmental Protection Agency (EPA) • Centers for Disease Control and Prevention (CDC) • National Institute for Occupational Safety and Health (NIOSH) 	<ul style="list-style-type: none"> • National Institutes of Health (NIH) • Occupational Safety and Health Administration (OSHA) • United States Army, Center for Health Promotion and Preventative Medicine (USA, CHPPM) • Regional transportation groups • Military: Army, Navy, Air Force • Department of Homeland Security (DHS)

Participants told the project team that these partners were valued for their expertise and communication skills. While no organization housed all of the radiation expertise needed by state, local and tribal public health participants, each in its own right played a critical role as building blocks of a holistic radiation information knowledge base.

6. Training needs

Participants noted that first responders, health care professionals, and health department staff required training in order to develop effective ways to answer the public's questions. Such training should also assist public health officials in

proactively informing citizens about radiation issues. For example, discussions at the meetings showed that community members must know how to be self-supporting for at least twenty-four hours after a radiological incident. The meeting deliberations indicated that first responders and health care professionals require specific, rather than generalized information about radioactive and nuclear materials and their risks and health effects because they are first to encounter them and confront casualties (if any) involved in radiological incidents. Any group that operates radiological detection instruments and other equipment needs thorough training on how to use and calibrate the equipment.

Native American public health workers who participated in the focus group meetings reinforced the need for staff training in radiation protection, detection, assessment and treatment. They offered an example of collaborating with “EPA representatives to develop an indoor air and asthma training program and training materials targeted specifically to Native American communities” and suggested that it could be a good model for radiation information.

Health department personnel need training on specific topics in order to increase expertise. The meetings emphasized risk assessment, knowledge management (transferring knowledge to new employees), and “...training on how to respond to the media” as key areas in which to invest. Although some participants were aware that media training existed and seemed to have basic knowledge of such training, most participants believed that they could improve their media relation skills.

The meeting participants expressed frustration because, in certain circumstances, standards were out dated, confusing or poorly written. Consider the following exchange:

Participant to colleagues at meeting: Are you confident in your ability to assess risks?

Response: Yes, when there's good consensus science.... But when standards vary or there isn't a consensus yet, it's a problem. There may be issues where you know the standard should be changed, but it has not yet been done.

Taking in to account all training issues, participants suggested that training and information distribution be centrally organized and available nationally, from a federal governmental source or national organization.

7. Sources of information and resources needs

For the majority of radiation information needs, state, tribal and local public health officials strongly advocated "one stop shopping." They sought a continuously updated, science-based, comprehensive place to which they could turn for information that would aid in answering questions posed by citizens. One tribal participant suggested that the Indian Health Service could serve as a gateway to this single source for radiation information for Native American public health workers. Participants also advocated for a national plan that could be used to address the information needs associated with radiological events and issues. The meeting participants were careful to note that the majority of radiation issues are not related to terrorism, and that most information needs could not be met simply by designing a top flight emergency communications system.

Above all, the meetings stressed that to be maximally useful, information and resources must be readily accessible. One participant described difficulties accessing cell telephone information:

Just an example on the cell phone issue...you know, it's regulated by the Federal Communications Commission (FCC) and they're virtually impossible to get a hold of. We've had several people call in and we give them the telephone numbers and then, we'll occasionally get someone there who will answer a question related

to that but there isn't an easy, uniform response and a nice website you can go to get that information as far as we know.

Accessibility also means that information must be translated into common terms and into languages other than English, so that citizens who have not yet mastered English can remain informed.

Other health department needs included:

- Assistance with coordinating and obtaining information about radiation materials that are available from other sources like the American Cancer Society, American Medical Association (AMA), and other credible organizations;
- Added resources, including funding for staff and staff training. (Although there was a sizable amount of bioterrorism money released this year, little money was given to state, tribal, or local health agencies for radiological or chemical issues.)
- A system that includes ample redundancy so that information is available in the event of a terrorist attack or emergency involving radiation hazards;

Participants pointed out that certain public health agencies lack a general radiation program. At these agencies, it may be possible to provide limited information about specific issues, such as radon, thus requiring their community to look elsewhere for other radiation information. Participants also asked for a description of the best practices for addressing radiation issues in health care and hospital settings, and suggested that the CDC make such information available, or develop it.

Participants noted that success in meeting public expectations can hinge on the delivery of complicated information in an understandable and even-handed way. One participant explained why:

One of the things that I see frequently is that we get one-sided opinions, and it would be good if we had some methodology of providing both sides to an issue if there are two sides. For example, right now KI [potassium iodide] is a heated issue where we get a lot of people going “this is what we’re going to do,” and we don’t get the other side, so it becomes more difficult to defend a position if you will. We’re standing basically against the tide right now, not providing KI for the general public, where our states to the east are doing that. [Our neighboring state] is providing KI to the general public. So it becomes an issue of “he-said she-said,” and it would be good if there was some sort of resource that could point to the upsides and the downsides so that members of the public can look at it and go “okay, so this is the stand that [our state] is taking, versus the stand that [our neighboring state] is taking.”

According to another participant, opportunities to provide information could be missed because:

I don’t have the ability to refer within state resources. Our state is not an OSHA state, with a state OSHA division. Some of the questions dealing with magnetic fields, tanning beds, laser safety, high-voltage power lines, microwave frequencies, cell phones; anything that’s not ionizing, we don’t have the ability to point people in the right direction other than to federal guidance on the issue at the OSHA site (www.osha.gov) with many frequently asked questions and so forth. But I wish we had the ability to put somebody in a place to answer questions like that on a national scale with reference to national standards and so forth, other than going to a web site.

The state focus group meeting enthusiastically agreed that consulting with radiation advisory boards (which are created and maintained by state, tribal or

local governments) could help public health agencies make decisions by adding knowledge and expertise:

You not only have the subject-matter experts from the medical areas, from the industry, but you have insurance, a labor representative, an agriculture representative, and three members of the public. So you're...getting [it] all...

Offices of emergency services were also targeted as important resources:

Ultimately, there is, in every state, an office of emergency services that deals with all emergency services issues and it could be our most needed resource,...inter-agency cooperation.

The participant who made this comment explained that the state health department and the office of emergency services both made recommendations about KI distribution. "The governor currently is considering both recommendations before making a decision...I think that inter-agency cooperation or resources would be the way to go in perhaps tying together radiation where health and environment and emergency services are involved."

Another participant in the state focus group meeting stressed that in the event of a radiological incident, the public health community has both short- and long-term responsibilities:

The question I have turning over and over inside is: ...we're going to have... [to] immediately respond...we're going to have to deal with [it] locally, but what type of resources are we looking at; what kind of communication networks do we have established or do we need to establish to be able to get that response, and what type of mitigation efforts can we expect from agencies such as special operations response team, or one of the local d-mats? What's in place now, and what's coming down the pipe that will hopefully be

ready for us soon? I come from a state where we had some material disappear from one of the local hospitals. Local police involved? Yes. FBI? Probably. Public health? Not at all. And what concerns me is that yes, we'll have the immediate management of the event, whatever that may be, but the long-term effects are going to be directed toward public health. I just don't feel like we have the capacity to deal with that right now. I don't think anyone in the nation does, unless they're pretty well connected with the agencies that do this 24/7.

8. The role of standards and regulations

Standards and regulations were discussed in detail during the state focus group meeting and all of the regional focus group meetings. These groups generally agreed with a statement made by one of the participants:

We need consistent standards and cooperation with Federal agencies. We need centralized sources of information put out into the community so we can all use the same data source and coordinate with nearby states [and counties, tribes, etc.] via this single information resource. Some of us share borders, and equipment calibrated in one state should be consistent with equipment in another jurisdiction.

The participants pointed out that federal standards were not often transparent and viewed as contradictory. They noted that there was not a single clearinghouse or source to obtain information about federal regulations, and expressed a strong desire for a clearinghouse of regulatory information. In the words of one public health worker:

...I wish we had the ability to put somebody in a place to answer questions like that on a national scale with reference to national standards and so forth, other than going to a website.

One participant reminded the meeting that radiation presents unique information challenges because citizens can be exposed to radiation from a number of sources, and for a number of reasons. It is naturally occurring; used for beneficial and diagnostic purposes; and also an environmental contaminant of human activities. He stated:

“[R]adiation is...ubiquitous; you don't get away from it, but all of a sudden when somebody says... there's a physical effect...all of a sudden they want zero radiation in anything. A typical example is that most states have laws that say that no radioactivity can be put in a landfill and of course that's impossible because everything's radioactive. It shows the lack of understanding. “

To overcome the communication challenges posed by the balkanization of radiation regulation and the variety of radiation exposures that citizens experience, one health department was “trying to [develop] an integrated regulatory system, because we have, besides radiation all the lead, the food and drug, [and] all the professional licensing groups... there's...84 different computer programs so they're trying to get an integrated system so that everything works together... so that it really is useful to the public.”

A tribal health department offered this suggestion as a means to educating communities about regulations:

An environmental health conference would be very helpful. The public could come in to discuss their health concerns. We had something like that here once, where we invited the Harvard School of Public Health to come and speak to the community. The EPA might answer questions based on the regulations, but the Harvard School took the time to explain things more fully. This did a lot to improve public trust and communication.

9. Issues on the horizon

Given the time frame during which these meetings were held, it is not surprising that many participants focused on emergency response and terrorism. They expressed the opinion that better radiation detection instruments and training for emergencies and terrorist attacks were needed. They also saw a growing need for new information that will inform the public about emergency protocols in the event there is widespread public exposure to radiation or chemicals.

Participants stressed that in order for tribal health agencies to be effectively engaged in emergency planning and response, it would be necessary to establish direct links to federal agencies and for these agencies to contribute resources and funding to federal Indian reservations.

The focus groups also pointed out that there is a “brain drain” because the number of health physicists is declining. Licensing of medical equipment could slow dramatically if retiring health physicists are not replaced. Recruiting students into this field should start immediately in order to prevent a severe shortage of personnel.

Nuclear power plant decommissioning and radioactive waste disposal were issues that several participants felt will give rise to questions among citizens. As one said:

Something ... that I think is going to be a real need for the future because we're seeing it now: many sites that are users of that information are decommissioning, and there's really no de-minimis level of contamination that the NRC has. You basically can make some decisions, but it's a real problem with the lack of radioactive waste disposal sites having material that's so low in radioactivity but not having a de-minimis level where it can just go to a landfill. So that's one of the issues that we've been tackling a lot because we really feel that there are certain things that just don't need to go

to a low level radioactive waste site. There are a lot of materials that are so low in activity and there's many naturally occurring materials that go to the landfills all the time that exceed these, it's just that it's not legal. So we've had to go through rule-making processes for some of them but on a national level there is no de minimis level for certain radioactive materials at very low concentrations.

National and international transportation of radioactive materials (transportation to geologic repositories, removal of waste from nuclear power plants, and nuclear materials exchanges between countries) were identified as emerging issues. A participant offered this comment about transportation:

I do want to comment on Yucca Mountain, if that ever becomes operational; we've got some trains going through our state that is in my sphere of responsibility and I'm concerned about the protocols for disaster assistance in that area. We're also concerned about air contamination, and then also the possibility that some of the other countries that are generating atomic energy, of having some kind of a catastrophic event. And taking a look at jet streams, and prevailing winds to see where that stuff is going.

Some participants believed that "in the future, radon in water will likely be a big issue, more so than KI and dirty bombs... I think. We need to have unified Federal and State standards because radon is often left out of the standards decision."

10. Changes since September 11, 2001

Some, but not all, participants experienced an increase in the number of calls to their health agencies after the terrorist attacks of September 11, 2001. In some cases, a spike in calls was followed by a decrease so that at the time of the

meetings the number of information requests had returned to pre-September 11 numbers. Participants explained that the terrorist attacks complicated information needs because there have been changes in the acceptability of releasing certain information to the public. Some federal agencies, such as the NRC and EPA, removed information from the public domain by, among other things, eliminating it from their web sites.

After September 11, health agencies made concerted efforts to update their emergency plans related to radiological emergencies in general and terrorism response in particular. One participant noted that post-September 11, planning for mass casualties has taken priority over other issues. Consequently, inquiries from the public about such as how to prepare for “dirty bomb” attacks have not been given high priority.

Since the September 11 attacks, public health agencies are working more closely with other branches of government, including local governments, first responders and law enforcement. The consensus of meeting participants indicated that collaboration will continue to increase as the focus on terrorism response is sharpened.

ANALYSIS OF PHASE I INFORMATION

The project team's analysis of the focus group meeting data is captured in the analysis of six key themes. These themes are useful in designing efforts to meet the radiation information challenges that confront state, local and tribal public health officials. In phase two of this project, these themes were used to develop the workshop format and workshop areas of inquiry, and also contributed to the suggested design of the radiation information needs framework.

1. Information needs are situational, and range from routine to emergency

The focus group meeting participants pointed out that state, local and tribal public health officials often receive inquiries regarding relatively routine matters, such as how to detect radon levels in homes, whether tanning beds produce harmful radiation, how to protect against skin cancer, and whether radiation from cell phones causes cancer. However, many public health officials are clearly concerned about their ability to address appropriately citizens' needs in the event of an emergency, such as a terrorist attack involving radiation. It is likely that no one system of providing information will serve both these situations equally well. It seems useful, therefore, to explore the type of framework that is needed to supply to these public health officials the resources to address a range of inquiries.

2. Information needs vary based on location and region

The focus groups confirmed that different geographical areas have different information needs. For example, in areas where nuclear power plants are located, it is not surprising to find that the public wants information about the hazards, if any, associated with releases from these facilities. The public also wants to know how these facilities will be protected against possible terrorist attacks. In urban areas, or areas where the public is aware of high radon levels, information demands will be different. Many tribal public health officials answer questions for communities in which the uranium mining industry has employed its

members. To answer questions from the public, the breadth of information that should be available to state, tribal and local public health officials must match the needs of the location and the region. This indicates that it could be useful to locate particularized information for communities that have unique questions, in addition to basic information about the potential hazards associated with radiation exposure.

3. The characteristics of information required varies from basic to specific

In addition to the geographical variation of radiation information needs, the focus groups indicated that callers need information across the spectrum. Basic information – “radiation 101” – could suffice for those callers concerned about the general health effects of exposure to radiation. More detailed information is frequently needed. For example, callers could seek to learn about the link between exposure to ultraviolet radiation (via the sun or from tanning beds) and the risk of skin cancer. Other callers could be concerned about devices that utilize radiation for diagnostic or therapeutic purposes. Additionally, the focus group meetings revealed that callers seek information about non-ionizing radiation risks, such as the potential health effects of exposure to electromagnetic radiation while using cellular telephones. Clearly, the breadth and depth of information needs are substantial. Any radiation information framework should account for providing information to answer the broad scope of the inquiries that state, local and tribal public health officials face.

4. The way in which the information is provided must meet the needs for which it will be used

The broad substantive scope of state, local and tribal information needs is complicated by the realization that the way in which the information is provided must vary depending on its potential use. For example, information that is relevant to emergency situations could require distribution and dissemination in paper form because it is conceivable that such emergencies will be accompanied by power loss or disruption of the Internet. Thus, to be maximally effective a first responder public health official charged with assisting the public could need a

paper-based library of materials. In contrast, citizens seeking information about radon in homes can be directed to a website, or sent user-friendly materials, or both. Individuals concerned about sun exposure and skin cancer risk might be directed to their local doctor or a professional society, such as the AMA. A framework for information sharing should be responsive to these situations so that format, as well as content, is considered. When it comes to the way in which information is delivered, one size clearly does not fit all.

5. Providing information alone is not sufficient; training is needed so that state, tribal and local public health officials can deliver the information most effectively

The focus group meeting participants noted repeatedly that their ability to convey radiation information to interested members of the public was dependent upon their ability to communicate effectively and understand the underlying issues regarding radiation science and protection. They pointed out that training was instrumental in reaching these communication goals. First, training in communication skills was vital to citizen outreach. In cases where the media was involved it was absolutely essential. Second, training in radiation science and radiation protection schemes was important. In order to confidently answer public inquiries, local, state, and tribal public health officials had to understand both the scientific evidence and the rules, regulations and guidance documents that underpin radiation safety programs. A radiation information framework should take into consideration how the local, state and tribal public health officials – the “information messengers” that communicate with citizens – are trained and discuss how training can bolster information dissemination.

6. Information sharing and collaboration is critical to meet the demands of the public for knowledge about radiation

The majority of focus group participants acknowledged that no one individual department or organization could house all of the expertise needed to fully respond to public inquiries. They pointed out that referrals to colleagues within their organizations, or to other governmental agencies, greatly expanded their ability to meet public information demands. These referrals were largely ad-hoc

and informal. The meetings showed that information sharing and collaboration were effective tools and any radiation information framework must include both formal and informal information sharing among local, state, federal and tribal public health officials. Private organizations that have widespread public recognition and trust, such as the AMA, are also candidates for information sharing and collaboration.

PHASE II: METHODOLOGY OF WEB-BASED WORKSHOP

Rationale for, and Design of, the Web-Based Workshop

As the project team began preparing to launch the second phase of this project, many public health officials were facing the dual challenges of budget deficits and (because of increased concerns about terrorism and the beginning of the war in Iraq) orders prohibiting their travel out-of-state. To continue the project's progress and to meet the objectives of holding a workshop, the project team (in consultation with EPA ORIA) selected an internet or web-based workshop to complete phase two. The workshop was held from January 28 to March 17, 2004 in order to give participants ample time to consult with their colleagues, go on-line, and discuss, and respond to, comments posted for discussion.

The internet-based workshop was housed on a commercial intranet product, Thruport HotOffice. This product used standard Internet protocols and technologies and enabled all participants to be connected as if they were part of the same organization. It allowed the participants to securely discuss the radiation information issues posed on the web site and of interest to them. Participants were able to log on from any computer with an internet connection. The Thruport Hot office product contained controls that enabled members of the project team, as workshop moderators, to monitor progress and control the flow of information.

One objective of the workshop was to refine and expand upon the findings of the focus group meetings, which were incorporated into a background paper that was distributed to all workshop participants. Participants were instructed to critique, via electronic bulletin boards, the merits of the ideas presented in the paper, and discuss a radiation information framework that takes into account ways to organize, manage and disseminate radiation information to the public via local, state and tribal health agencies. The workshop web site was open for seven weeks so participants could log on at their convenience or as their schedules allowed. They were encouraged to participate often and reminded

that new postings would be available frequently. Participants were told that their reaction to other participants' comments would be valuable additions to the workshop dialogue. A copy of the workshop invitation letter is contained in Appendix G.

Participants were also encouraged to gather comments on the background paper, and potential structures of a radiation framework from their colleagues in their agencies and/or communities. In that way, the workshop dialogue was intended to include both direct comments of those on line and proxy comments of those with whom they consulted. The workshop instructions are set out in Appendix E.

Selection of Participants

All focus group meeting participants were invited to be active in the workshop. In addition, other public health professionals were nominated to participate, either by the focus group meeting participants, or other colleagues in the public health field. The project sponsors also sought additional new candidates from organizations whose mission included radiation protection, education or science.

Local, state and tribal health agency personnel replied by e-mail and were sent instructions, a user identification name and password. In all, 28 organizations registered to participate. Many participants solicited comments and collected insights from colleagues and the community so that their postings served to represent their opinions as well as the thoughts of other public health workers. The project team did not require that participants provide a detailed account of who was contributing to their comments. Because some of the comments represent the synthesis of several people, the precise number of public health officials who contributed to the web-base workshop is not known. However, the project team estimates that as many as 40 people joined in the workshop directly or by proxy. At least 100 state, local and tribal public health workers participated in meetings and the workshop combined.

Internet-based Workshop Bulletin Boards

As the means to facilitate comment and exchange of information, bulletin boards were designed and posted. Based on the focus group meetings, 8 topic areas were created and a bulletin board for general comments was added in case participants had comments that did not fall within the topics of the other bulletin boards. Table 3 lists each of the bulletin boards and the questions that were used to spark the discussion and information exchange

Table 3: Internet Based Workshop Bulletin Board Questions	
<p>Credible Sources of Information and Resources Bulletin Board</p> <p>Who do you think are the most credible sources of radiation information?</p>	<p>Non-Electronic Sources of Information Bulletin Board</p> <p>Electronic sources of information may not be accessible during an emergency (especially if generators fail). What do you currently do to make sure you have information available to you and your constituency?</p>
<p>Dissemination & Transfer of Information/Knowledge Bulletin Board</p> <p>Single point of access Many of the participants in the teleconference focus groups indicated that it would be desirable to have a single point of access for radiation information. Do you agree that a radiation information framework should be developed so that it is accessible from a single point of access? Why or why not? If there were to be a single point of access, what should it look like?</p>	<p>Radiation Detection Technology Bulletin Board</p> <p>Calibration Issues: Some people mentioned that adjacent jurisdictions had Geiger counters that were calibrated differently. What steps should be taken to solve this problem?</p>
<p>Roles and Responsibilities of Different Organizations Bulletin Board</p> <p>What roles should public and private agencies have in regard to a radiation framework for state, local and tribal health officials?</p>	<p>Emergencies/Preparedness Bulletin Board</p> <p>Multi-agent terrorist attacks: Radiological/Biological/Chemical Does your agency and/or jurisdiction have a planned response in the event of a terrorist attack that includes chemical and biological agents in addition to radioactive materials? Please describe your plan.</p>
<p>Workforce training Bulletin Board</p> <p>What is the most important training issue for your agency and/or community?</p>	<p>Background Paper Bulletin Board</p> <p>If you have general comments about the paper that do not fit into any of the project bulletin boards, please feel free to post them here.</p>

Limitations of the Web-based Workshop

Consistent with the focus group meetings, the methodology for selecting and recruiting web-based workshop participants was designed to locate public health workers who could effectively discuss the radiation information needs of local, state and tribal public health agencies as they seek to answer inquiries from citizens. The workshop was not designed to obtain a representative sample of local, state and tribal health department personnel.

FINDINGS FROM AND ANALYSIS OF THE PHASE II WORKSHOP INFORMATION

The workshop findings and their analysis are summarized in an evaluation of 5 of the bulletin board discussions.² The workshop results confirm the conclusions of the focus group meetings, and give support to the six themes set out above. In addition, the workshop provides helpful information for the development of an information radiation framework.

1. Credible Sources of Information and Resources

Workshop participants pointed out that credible sources of radiation information vary depending upon the nature of the information requested. A number of qualified radiation experts are available on a variety of issues, and each one is uniquely knowledgeable in a specific radiation subject. Physicians, for example, would be most credible in situations where information involved medical uses of radiation. For regulatory interpretation, a government official could be the most credible source.

Consistency in response over a range of experts is one key factor in determining credibility of the information itself. Many citizens do not trust the government to provide information, but the validation of information from “independent sources” can be a powerful factor in building trust.

2. Dissemination and Transfer of Information and Knowledge

Workshop participants discussed in detail whether information about radiation should be available from a single point of access, or whether multiple sources of access were preferable. Many participants thought that a single access point – “one stop shopping” – was a desirable objective. They argued that obtaining expert advice on a myriad of issues creates the need for a radiation information clearinghouse. One participant suggested that the “clearinghouse could provide (the elements identified in the [focus group meetings]): 1. situational information;

² The project team did not include an analysis of the bulletin board postings regarding Radiation Detection Technology because the discussion was not informative.

2. organized into regional modules; 3. developed for various needs (e.g., consumer, business); and 4. include a training component.” Another participant said, “I support the idea of a clearinghouse, so that various perspectives can be presented by their various supporters.”

Others were against a single point of access because (1) it is not practical; (2) it would lead to more, rather than less, confusion; (3) there can be no single point of access because there is not agreement on the best medium for access; and (4) radiation issues are too diverse to be consolidated.

Other workshop participants discussed the dissemination of knowledge by pointing out that it is not feasible to have a single point of access if it means that there is expected to be one source of expertise across all radiation topics. However, they noted that a clearinghouse in which information sources were collected, referenced and linked could be very valuable. Several participants suggested that this clearinghouse be located at a credible national organization or agency, which would be responsible for its upkeep and maintenance. Resources could be provided by the federal government so that the clearinghouse was optimally run and its information up-to-date.

Workshop participants also pointed out that radiation information dissemination could be web-based, but that other methods were effective and could be necessary, depending upon the type of information and the situation in which it was delivered. These workshop discussions supported the idea arising out of the focus group meetings that routine information and information in an emergency were likely to require different methods of distribution.

3. Roles and Responsibilities of Different Organizations

The Workshop participants examined the current and possible future roles and responsibilities of several federal agencies and a number of private organizations. Federal agencies have specific statutory responsibilities such as EPA’s authority over clean up of waste contaminated with radioactive material under the Superfund law and USNRC’s role as a regulator of nuclear power

reactors and nuclear materials. Other federal agencies, such as the Centers for Disease Control and Prevention (CDC), the National Institute of Environmental Health Sciences (NIEHS) and the Food and Drug Administration (FDA), are also involved in radiation activities as regulators and researchers. The Department of Homeland Security and the Department of Energy have important radiation responsibilities as well. Several participants suggested that all federal radiation activities should be centralized at one federal agency or department, or that one agency assume oversight for certain portions of radiation activities. For example, the workshop participants stated that the Department of Homeland Security should oversee all radiation-related terrorism activities.

The workshop discussions also pointed out that private organizations such as the American College of Radiology, the American Association of Physics in Medicine, and the Conference of Radiation Control Program Directors could have vital roles as information sources. These organizations could be especially valuable in explaining credentialing and accreditation to citizens.

4. Workforce Training

Almost all workshop participants agreed that workforce training is the “most pressing issue in the entire realm of radiological response.” As one participant pointed out, the “most important training issue for states is finding financial resources, adequate time, affordable training courses and personnel staffing in a shrinking economy.” Participants targeted emergency training and management in radiation protection as a priority along with training to address transportation accidents. Although more attention is being paid to bioterrorism, additional interest is not being shown in nuclear/radiological terrorism preparedness.

5. Non-electronic Sources of Information

The focus group meetings noted that there could be occasions in which access to the Internet is disrupted and therefore a non-electronic source of information could be desirable.

Workshop participants offered a range of responses. In the words of one emergency responder:

I am a radiological health worker and first responder for public dose assessment or field radiation monitoring in case of a radiological emergency. We store or carry protective clothing, dosimetry and radiation survey equipment. I would be contacted by office phone, cell phone, face to face, or other means such as secure satellite to follow procedures and attend or conduct briefings All major hospitals have back up generators where I may be contacted.

A tribal health official provided an opposite view, noting that “[o]ur tribe does not have radiological protective or survey equipment available. Nor do we have access to the State presently.”

Workshop participants had several suggestions concerning the use of non-electronic (paper) copies of radiological information. These included:

- maintaining hard copies for reference;
- posting hard copies at public libraries, at city hall, or in other public buildings; and
- publishing “quick guides” or embedding radiological information in calendars that citizens can post in their homes.

RECOMMENDATIONS FOR THE DEVELOPMENT OF A RADIATION INFORMATION FRAMEWORK

While discussion revealed a continuum of opinions, it is clear that there is substantial support for a more readily accessible, robust, science-based and balanced information source that state, local and tribal health officials can utilize to meet communities' needs. Based on the information obtained in this project the project team suggests that a radiation information framework should be developed by a consortium of federal agencies and private organizations with continuing input from state, local and tribal health agencies. The project team recommends that the framework be developed in a three-phase process, as explained below.

Framework Phase I: Scoping and Planning

As the meeting and workshop participants noted, there is strong support for an information “clearinghouse” for radiation information. Participants did not endorse the idea of giving any one agency or private organization the entire responsibility for providing radiation information, but they did strongly support the need for enhanced coordination, especially among federal agencies, to produce a product or gateway that could serve the information needs of state, tribal and local public health workers.

To begin the process of fulfilling the need for an information clearinghouse, the project team recommends that the following steps be taken:

First, a federal agency or department should take the lead in convening a forum for the federal agencies and private organizations identified by the participants, such as those listed in Table 2. At this forum, each agency and department should be responsible for:

- describing its radiation expertise and the communication products, if any, that the agency or department has developed to communicate about radiation; and
- determining the form or format in which its radiation information is available (e.g., written, electronic).

In addition, the agencies and departments attending the forum should also examine whether their radiation information, taken as a whole, covers the list of common call topics listed in Table 1. Ideally, one or more of the participants at the forum will have expertise in, and information about, each of these common topics. If gaps are identified, then the convening agency or department should work to determine where information about this topic could be available. It is possible that private organizations could hold such knowledge.

At the conclusion of the forum, each agency or department should be asked for a commitment to work in a coordinated fashion to share information and communication materials about radiation. In addition, agency and departmental technology and communication experts should convene separately to determine how the information will be brought together. For example, a low cost and low effort solution could be to merely design a page or pages of web links to all of the federal agency or departmental sites that contain radiation information. In a parallel effort, agency written documents that cover radiation could be combined in a notebook or binder as a reference. Obviously, more sophisticated options exist, especially in designing and creating web-based systems.

The forum should also include a discussion of the range of information needed for different situations, starting with routine, general information (i.e., How can I test my home for radon?) to specific information that could be needed in emergencies (Should we prescribe KI pills to people exposed to radiation from an incidental nuclear device? At what levels of radiation is it safe to return buildings to use?)

Framework Phase II: Implementation

In this phase, federal agencies and departments should reconvene to determine how the radiation information clearinghouse should be administered and managed. The forum should address the following issues:

- Should the clearinghouse be housed at a single agency or department, or jointly managed?
- What resources are needed to manage and maintain the clearinghouse, and which agencies or departments can contribute them?
- How can the credibility of the information in the clearinghouse be established? Are outside validators needed? Would it be advisable to house some or all of the clearinghouse at a third party such as the AMA? Is peer review of the science base of the information necessary or appropriate?
- How will data gaps be covered? For example, if no federal agency holds appropriate information about the risks of radiation from diagnostic equipment such as a CAT scan, should a private organization's materials be used?
- Should the clearinghouse be sophisticated or simple? In other words, is a simple model that merely repackages already created materials or makes them available along with other repackaged materials sufficient? Or is more needed, such as an "information moderator" who carefully reviews and scores the materials contained at, and contributed by, different departments and agencies for inclusion?

- Should the clearinghouse include materials on media or communications training? Participants in the workshop and meetings noted that calls from the media can be problematic, and several requested media training.
- Should the clearinghouse include a hot line or call in-line? If so, should this service be available for all radiation information, or only for certain topic areas?
- How will the clearinghouse materials be updated so that information remains current? Should that be the responsibility of the contributor of the information, or the clearinghouse manager(s), or both?
- How can the clearinghouse activities be coordinated with other radiation information activities at the state, local and tribal levels?

At the end of this phase of the process, the federal agencies should have a good idea about the look, feel and operation of the clearinghouse. Part of this process should include a plan for how to distribute the work needed to create the clearinghouse among the federal agencies and departments, and (if necessary) private parties.

Framework Phase III: Launch and Evaluation

The decisions made in phases one and two should result in a firm plan for creating a clearinghouse. During this phase, the clearinghouse should be established by the federal agency(ies) and/or department(s) that has or have been selected as managers. Establishing a web-based clearing house, while also ensuring that radiation information is disseminated in non-electronic formats, will assist in coordinating state, tribal, local and federal public health agencies.

After the clearinghouse is completed, it should be officially launched and its availability announced to state, local and tribal public health agencies. The

clearinghouse managers should pay particular attention to communicating its availability.

An evaluation process should be put into place immediately to determine how the state, tribal and local public health agencies that use the clearinghouse judge its effectiveness, user friendliness, credibility and accuracy. In addition, the evaluation should also look at data gaps and trends usage to obtain ideas about how to refine and improve the radiation information it contains. This evaluation is particularly important, especially in its first year of operation. In the event that the clearinghouse has shortcomings, a quick fix will greatly increase the chances of its success.

From its inception, this Project has sought the advice and opinions of radiation professionals in the field of public health. This report is a first step in a process toward creating an information framework that will likely include a web-based clearinghouse. If this effort is to be successful – meeting the needs of professionals and the public – federal agencies need to continue to work with local, state, and tribal agencies and other stakeholders in developing the clearinghouse, maintaining it, and charting its future.

APPENDICES

- A. Focus Group Meeting Questions and Topics
- B. Focus Group Meeting Protocol
- C. Regional Divisions for the Focus Group Meetings
- D. Instructions for Using Thruport HotOffice as a Web-Based Workshop
- E. Letters to Participants

Appendix A: Focus Group Meeting Questions and Topics

1. **Let's work our way through a scenario together. It's Monday morning and someone from your community wants information about radiation. Tell us how you handle the request.**
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[PROMPTS]

- What do they most often ask about?
- Who asks for the information? —regular folks, reporters, businesses/industry, teachers, medical professionals, hospitals, activists
[Can you give us percentages for each?]
- Do they ask about...consumer products, industrial, naturally occurring, medical, work- related, or military sources of radiation? (Facilitators will have a separate list for prompting)
- What types of information do most people ask you for?
[How detailed is the information they are looking for?
[Is this information easily accessible to the public? If so where can it be found?]
- What's the best way to deliver the information?
- Are they usually satisfied with the information you provide in response to their questions?
[What feedback do you get from them?]
[What's the mood of your conversation with them? Trusting? Hostile? Fearful? Suspicious?]
- What do you think are the underlying motivations for some of the questions that you receive?
[e.g., fear of disease or death, companies that are trying to get around regulations, etc.]

2. **When you get these inquiries, how prepared do you feel you are to answer the questions?**
-

[PROMPTS]

- Do you have the information/ability to answer these questions? Why or why not?
- Tell us about the information you provide. [Is this information publicly available from another source? If so, do you make people aware of it? (e.g. a web site)]
- What would you like to have?

3. **What would help you do your job better?**
-

[PROMPTS]

- What information do you need?
- What would be useful to you?
- Who do you think could help you?

4. **Tell us about any missed opportunities to provide information that you've experienced?**
-

[PROMPTS]

- What needs to change so you can seize opportunities in the future?
- How do you think that will come about?

5. **How have inquiries changed since last September?**
-

[PROMPTS]

- Since September, have you received more inquiries from the public? From the press? Have the number of inquiries you receive increased since last fall?

- Nuclear events or terrorism
- Potassium Iodide (KI)
- Dirty bombs

6. What do you think is on the horizon regarding radiation?

[PROMPTS]

- What's the most important thing to prepare for?
- How prepared do you think you will be for that?
- Who do you think will be the major players?

Appendix B: Focus Group Meeting Protocol

RADIATION AND CHEMICAL INFORMATION PROJECT

Thank you for participating today

Introductions:

PHF

The Public Health Foundation (PHF), a national, non-profit organization, is dedicated to supporting, convening, and advancing efforts of local, state, and federal public health agencies and systems to promote and protect the health of people. Through applied research, training, and technical assistance, PHF focuses its efforts on helping strengthen and build capacity and infrastructure of public health agencies and systems.

PHF works with:

CDC, EPA, HRSA

Association of State Territorial Health Officials,

National Association of County and City Health Officials

National Association of Local Boards of Health

This Project:

PHF, EPA, Bloomberg School of Public Health at Johns Hopkins, Trust for America's Health, and Health-Track (chemical questions) are working together.

Trust for America's Health is a national non-profit organization-- to protect the health and safety of all communities, especially those most at risk of environmental and other public health threats. Our goal is to strengthen the nation's public health system through science-based research, community partnerships, education, and advocacy.

Health-Track, supported by The Pew Charitable Trusts, is to help American families and communities identify and track the links between environmental hazards and illnesses and to provide researchers and public health officials with the necessary tools to prevent disease.

The goals for the calls include:

- Providing guidance on ways to assist local, state, and tribal health agencies regarding radiation and chemical information issues. Insights and experiences rather than a survey.
- The hope that the information framework will emerge from this call
- Telling us your experiences/stories--even if you agree or disagree with what has been said.

Method:

- Six calls three regional calls, with mix of local, state, and tribal representatives.
- One local call with representatives nation wide.
- One state call with representatives from around the country.
- One call that includes tribal representatives from around the county.

Confidentiality:

Aggregate Reporting only.

Selection: Web, word of mouth, ASTHO, NACCHO, NALBO

Future Conference/ Web-based Workshop:

Who: 40 invited participants from tribal, state, and local health agencies

What: 2-day workshop or multi-week web-based workshop designed to further explore and elaborate on information gathered from phone calls.

Who: who's asking questions; who already has an innovative approach

What: topics are most commonly asked

Where: do issues vary by geographic location

When: are cycles of calls or issues; are there "peak" times for issues

How: suggestions to EPA and others; strategic planning, future initiatives

Today:

Focus Group Call

- 90 minutes
- Start with introductions: Name, organization, your role.
- I have a list of about 6 general questions. But as in any focus group I expect that you will inspire each other to build on the discussion.
- Ask each other questions.
- I will be mindful of the time so we will cover each topic as best we can.

- We will start by discussing your experiences in providing radiation information and move to your information needs. About the last 15 minutes, we will talk about particular chemical information needs you have.

- We are tape-recording this call.

- Does anyone have any questions before we start?

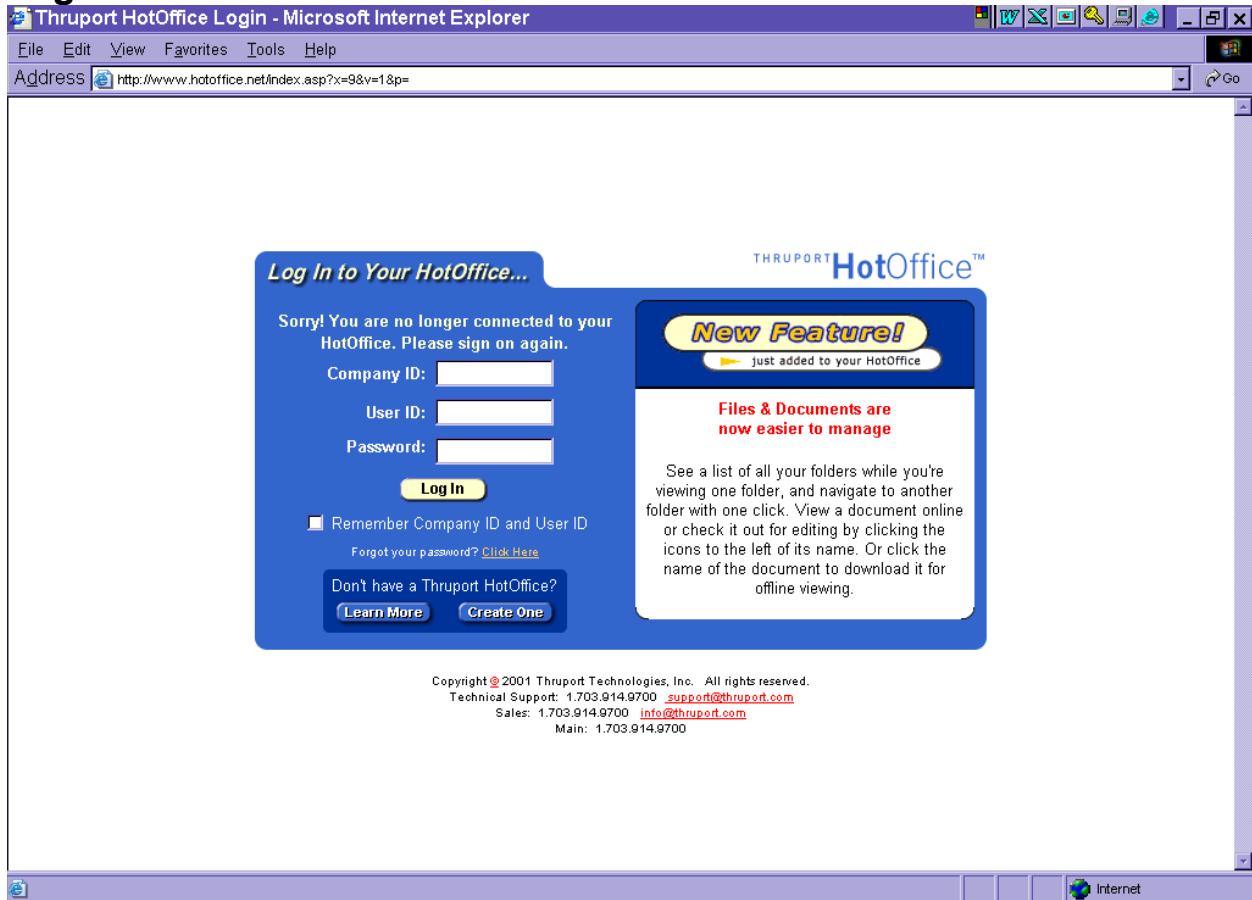
- Email or call with additional insights/comments.

Appendix C: Regional Divisions for the Focus Group Meetings

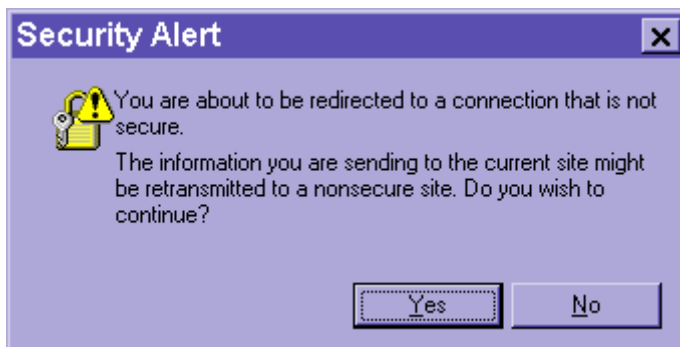
Focus Group Conference Call Regional Divisions		
Region 1	Region 2	Region 3
Connecticut Delaware Florida Georgia Indiana Kentucky Maine Maryland Massachusetts Michigan New Jersey New Hampshire North Carolina Ohio Pennsylvania Rhode Island South Carolina Vermont Virginia West Virginia	Alabama Arkansas Illinois Iowa Minnesota North Dakota Nebraska Kansas Louisiana Mississippi Missouri Oklahoma South Dakota Tennessee Texas Wisconsin	Alaska Arizona California Colorado Montana Hawaii Idaho Nevada New Mexico Oregon Utah Washington Wyoming

Appendix D: Instructions for Using ThruPort HotOffice as a Web-Based Workshop

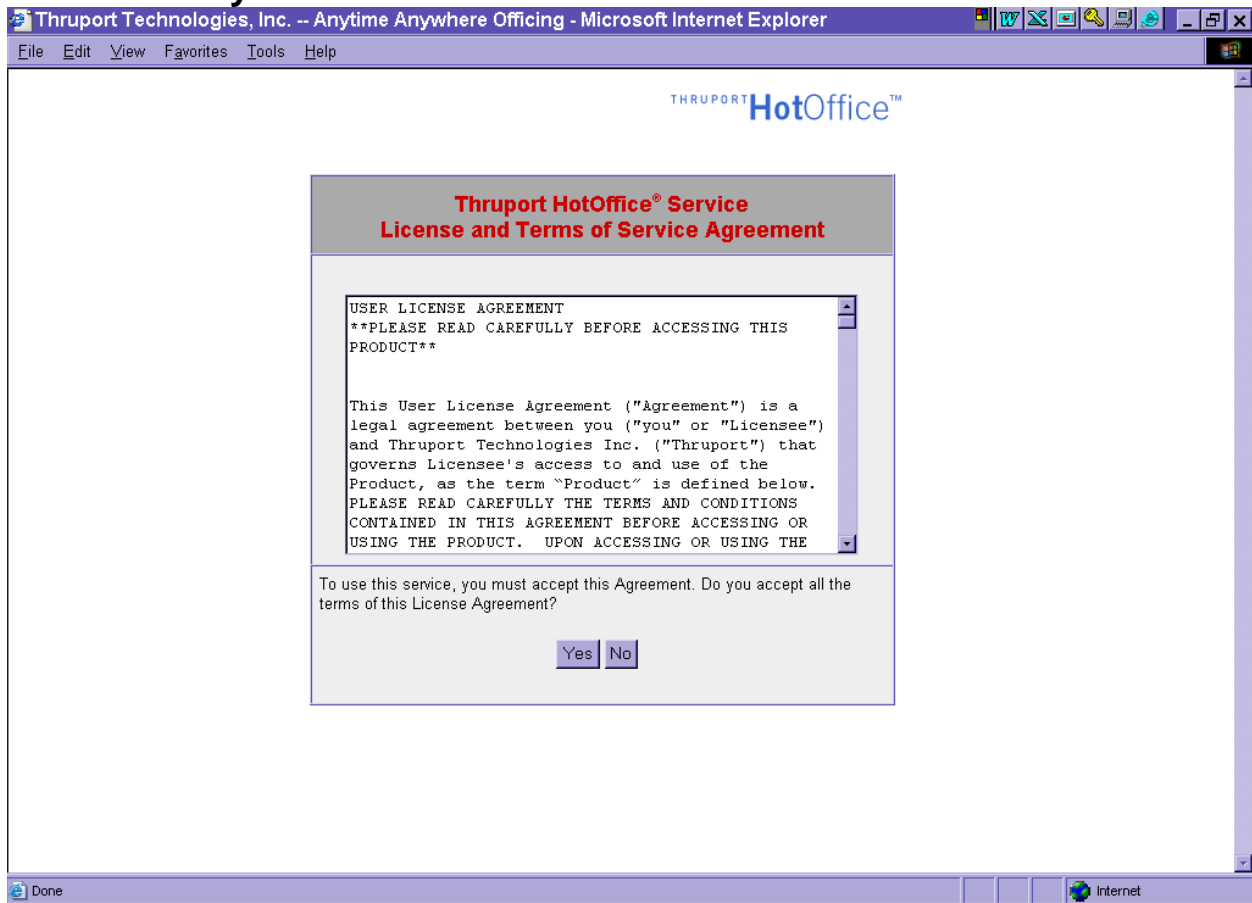
Log In Screen:



Click on the yes button.



Click on the yes button.

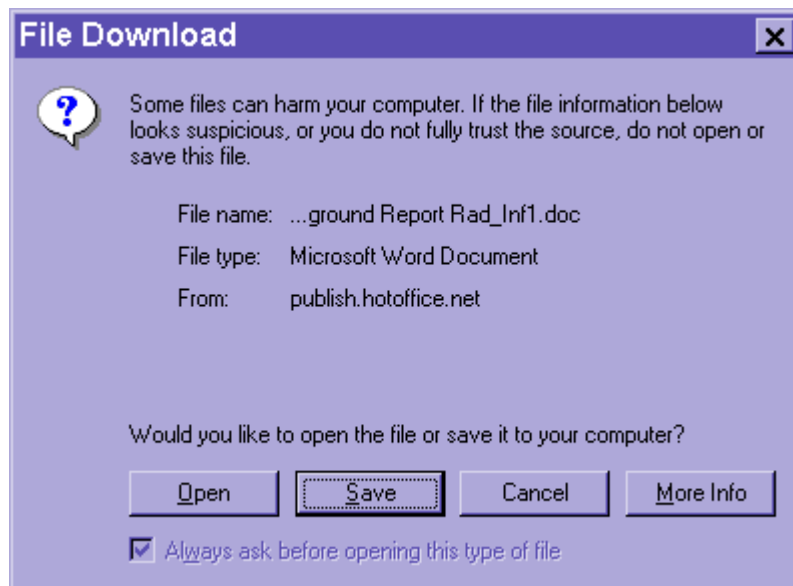


The most important sections are 'Files & Documents' where the Background Paper can be found, and 'Bulletin Boards,' where our discussions will take place. Please do not use the email function as we want to give everyone a chance to comment on all topics.

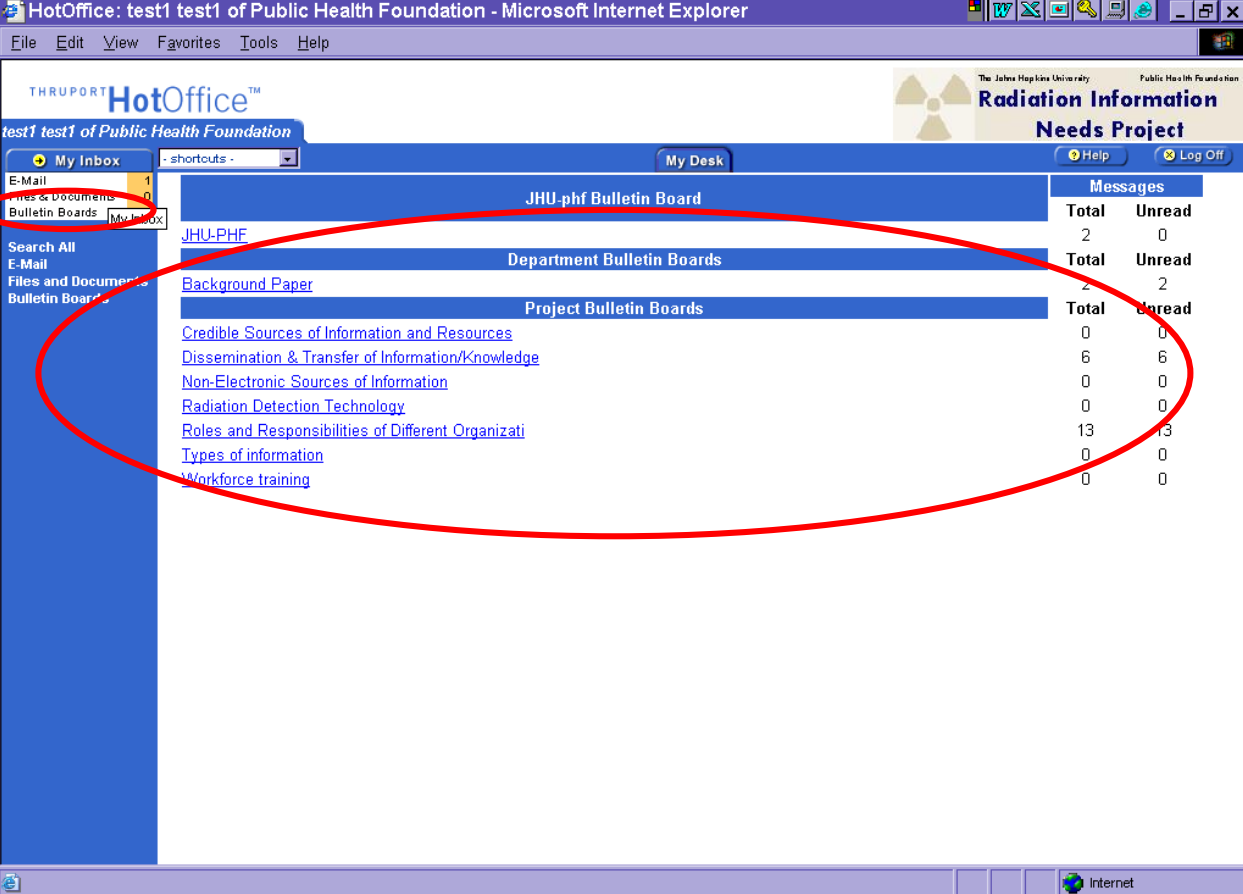
The screenshot displays the HotOffice web application interface. The browser title is "HotOffice: test1 test1 of Public Health Foundation - Microsoft Internet Explorer". The page header includes "THRUPOINT HotOffice™" and "Radiation Information Needs Project". The navigation menu on the left lists "My Inbox", "E-Mail", "Files & Documents", and "Bulletin Boards". The "Files & Documents" section is active, showing a list of folders and documents. The document list table is highlighted with a red circle. The document details view for "Background Paper" is also visible, showing the date "01/23/2004" and the revision history.

Date	Document Details	Revision	Last Revised By	Size
01/23/2004 10:32 AM	Background Paper This document summarizes five focus group conference calls with local, state, and tribal health officials. Published to Background Paper (Department)	Original	Jennifer Stanley	106 K

Choose to save or download the Background Paper. Please note that this is the same paper emailed to you in December.



When you click on a bulletin board, you can then comment on a current bulletin or start a new bulletin. Please note that there is a separate bulletin board for the Background Paper. If you think a topic warrants a new bulletin board, email radinfo@phf.org and we will create it.



The screenshot shows the HotOffice web application interface. The browser title is "HotOffice: test1 test1 of Public Health Foundation - Microsoft Internet Explorer". The page header includes "THRUPOINT HotOffice™" and "Radiation Information Needs Project". The navigation menu on the left includes "My Inbox", "E-Mail", "Files & Documents", and "Bulletin Boards". The main content area displays a list of bulletin boards under the heading "JHU-phf Bulletin Board". A red oval highlights the "Bulletin Boards" menu item and the list of bulletin boards.

Messages	
Total	Unread
2	0
2	2
0	0
6	6
0	0
0	0
13	13
0	0
0	0

This is an example of a bulletin board.

The screenshot shows a web browser window titled "HotOffice: test1 test1 of Public Health Foundation - Microsoft Internet Explorer". The page header includes "THRUPOINT HotOffice™" and "Radiation Information Needs Project" with logos for "The Johns Hopkins University" and "Public Health Foundation".

The main content area is titled "Roles and Responsibilities of Different Organizati Bulletin Board". Below the title is a navigation bar with buttons for "New Bulletin" (circled in red) and "Mark All As Read".

The main content area displays a list of questions and responses:

- Roles of the following federal agencies?**
What should be the roles of the following federal agencies in building a radiation information framework for state, local and tribal health officials?
[respond] Posted 01/24/2004 2:28 PM by Jennifer Stanley
- The Environmental Protection Agency (EPA)**
What should be their role?
[respond] Posted 01/24/2004 2:29 PM by Jennifer Stanley
- The Centers for Disease Control and Prevention (CDC)**
What should be their role?
[respond] Posted 01/24/2004 2:31 PM by Jennifer Stanley
- The Nuclear Regulatory Commission (NRC)**
What should be their role?
[respond] Posted 01/24/2004 2:31 PM by Jennifer Stanley
- The Department of Energy (DOE)**
What should be their role?
[respond] Posted 01/24/2004 2:32 PM by Jennifer Stanley
- The Department of Homeland Security (DHS)**
What should be their role?
[respond] Posted 01/24/2004 2:32 PM by Jennifer Stanley
- The Indian Health Service (IHS)**
What should be their role?
[respond] Posted 01/24/2004 2:33 PM by Jennifer Stanley
- The National Institute for Environmental Health Sciences (NIEHS)**
What should be their role?

The left sidebar shows navigation options: "My Inbox" (1 E-Mail, 0 Files & Documents, 21 Bulletin Boards), "Search All", "E-Mail", "Files and Documents", and "Bulletin Boards". The bottom status bar shows "Done" and "Internet".

When you click on **'respond'** or create a **new bulletin**, this screen pops up. Type in the subject of your comment or new bulletin, and the message, and then click post.

Bulletin Boards - Microsoft Internet Explorer

Bulletin Board

Subject:

Text of message

Done Internet

Appendix E: Letters to Participants

Focus Group Meeting Invitation Letter

Dear _____:

In a cooperative effort, the Public Health Foundation (PHF), Bloomberg School of Public Health at Johns Hopkins University, Environmental Protection Agency (EPA), Trust for America's Health, and Health-Track, are seeking input from local, state and tribal public health agencies about radiation and chemical information needs.

On their behalf, I would like to invite you, or your designee, to participate in a conference call focus group with other public health officials in your region. Some of the topics that you will be asked about include: the type and extent of information that people request from your organization, how prepared you feel to answer their questions, and what would help you do your job better (see enclosure for more details). Information gathered from these calls will be used to develop a workshop on radiation and chemical information needs to be held later this year. Outcomes from the conference calls and workshop will be disseminated to all participants, national organizations, and federal agencies, including the EPA.

You (or your designee) are invited to participate in the next conference call scheduled for **DAY, DATE, 2002, at TIME am Eastern Time**. It will last approximately one-and-a-half hours with PHF facilitating. Staff from PHF will contact you soon to determine your interest and availability. If you prefer, you may contact Jennifer Stanley jstanley@phf.org to confirm your participation or if you have questions. Approximately one-week before the conference call, PHF will send you the call-in procedures. If you think of other potential participants who could help identify key information needs, please feel free to refer them to PHF.

We look forward to talking with you and hearing your insights into radiation and chemical information needs.

Sincerely,

Ron Bialek
President

Enclosure

Web-based Workshop Invitation

Welcome! You are a member of the Johns Hopkins University and Public Health Foundation web-based workshop on radiation information needs. The workshop is on the Thruport HotOffice Web-Based Intranet Service and gives us a secure virtual space on the Internet to communicate and collaborate.

The workshop will form the basis for developing a framework for meeting the radiation information needs of local, state, and tribal health agencies. We will also consider the steps needed to implement the framework. At this time, we are focusing solely on radiation information but may seek additional input in order to develop a chemical information framework sometime in the future.

All workshop participants are asked to read the attached background paper and use it as a reference for the workshop. Participants will critique, via electronic bulletin boards, the merits of the ideas presented in the paper, and address questions that seek to understand the best ways to organize, manage and disseminate radiation information. The workshop will take place over four weeks so you can log on at your convenience. You are encouraged to participate often and we anticipate that your reaction and review of the comments of others will be valuable additions to the workshop dialogue. Also, this should allow you time to gather comments on the potential structures of a radiation framework from colleagues in your agency and/or community if you desire. The information framework developed through the workshop will be disseminated to all participants, the Bloomberg School of Public Health, national organizations and federal agencies, including the EPA.

You will be able to access the background paper and discussion bulletin boards, from **January 28 through March 17, 2004**, at anytime from any location. You can log in to your Thruport HotOffice from any PC with an Internet connection. Just use the Company ID, User ID and Password assigned below.

To begin participation in the workshop, please follow these steps:

1. Go to the HotOffice Log In page: <http://www.hotoffice.net/index.asp?p=1>
2. Type this information:
Company ID: JHU-PHF
User ID:
Password:

To get started, you may want to review the 'New User Guide' under the 'My Links' section of 'My Desk.' You may also want to read the 'Getting Started' section in Help.

If you have questions about using HotOffice, please call for technical assistance at 1.703.642.6243 or send an email to support@thruport.com. You may also contact me at 1.202.898.5600 or radinfo@phf.org.

We look forward to participating with you as we develop a radiation information framework that will help serve the public's radiation information needs skillfully and efficiently.

Best regards,
Jennifer Stanley