

**Minutes of the Open Meeting on April 21, 2009**

**U.S. Environmental Protection Agency  
Science Advisory Board**

**Homeland Security Advisory Committee (HSAC)  
Summary Minutes of The Consultation on The Development of the  
Environmental Response Technical Assistance Document For  
*Bacillus anthracis* Intentional Releases**

Committee: Homeland Security Advisory Committee (HSAC) of the U.S.  
Environmental Protection Agency's (EPA) Science Advisory Board  
(SAB)

Committee Members: See Committee Roster – Attachment 1

Date and Time: Tuesday, April 21, 2009, 8:30 A.M. – 5:30 P.M.

Location: SAB Conference Center, 1025 F Street, N.W., Suite 3705, Washington,  
D.C.

Attendees:

Chair: Dr. Baruch Fischhoff

Committee Members: Dr. Vicki Bier  
\*\*Dr. Mary Durfee  
Dr. David S. Ensor  
Dr. Lynda Knobeloch  
Dr. Paul J. Lioy  
Dr. Lee D. McMullen  
\*Dr. Daniel C. Walsh  
Dr. Rae Zimmerman

Experts Who Augmented HSAC \*Dr. John Bartlett  
Dr. Christina Egan  
Dr. Philip Hanna  
Dr. Denise Pettit  
Dr. James Rogers

\* Participated via teleconference during the April 21, 2009 meeting.

\*\* Unable to attend the April 21, 2009 meeting but submitted their reviews for consideration

EPA SAB Staff: Edward Hanlon, Designated Federal Officer  
Vanessa Vu, Director, EPA Science Advisory  
Board Staff Office

EPA Presenters: Debbie Dietrich, Director, Office of Emergency  
Management (OEM), EPA's Office of Solid  
Waste and Emergency Response (OSWER)  
Captain Colleen Petullo, U.S. Public Health Service  
(USPHS), assigned to OSWER

Other Participants: Dr. Deborah McKean, Acting Director, Threat and  
Consequence Assessment Division, EPA  
National Homeland Security Research  
Center  
Dino Mattorano, EPA OSWER/OEM  
Helen Stallings, U.S. Health and Human Services  
(HHS) and STG International  
John Koerner, U.S. Department of Labor  
Jeff Goodman, U.S. Department of Agriculture  
(USDA).

Public: See Attachment 6, Public Attendance.

Purpose: The purpose of the meeting was to consult with the Agency on its development of the Environmental Response Technical Assistance Document for *Bacillus anthracis* Intentional Releases (BA-TAD). In particular, the Agency requested HSAC to provide advice on whether the Agency's plans to prepare the BA-TAD were properly directed, and if there are any items, issues or practical applications that had not been considered that ought to be included within the BA-TAD. The Agency also expected HSAC to bring a broader scientific perspective to the BA-TAD document. See Meeting Agenda - Attachment 2.

As discussed further in these minutes, this meeting was a consultation, and as such consensus was not being sought. This meeting was intended to provide individual advice from Committee members.

Materials Available: The agenda, roster, and meeting materials were circulated to the Committee in advance of the meeting. These materials were made available to the public via the SAB Web site ([www.epa.gov/sab](http://www.epa.gov/sab)) and hard copies were also provided and made available to the public for review at the meeting.

### Attachments:

- Attachment 1: Committee Roster
- Attachment 2: Agenda - HSAC April 2009 Committee Meeting
- Attachment 3: EPA Charge Questions to the Committee
- Attachment 4: Presentation by Ms. Debbie Dietrich on EPA's Role and Responsibilities in Emergencies
- Attachment 5: Presentation by Capt. Colleen Petullo on Development of the Updated Anthrax TAD
- Attachment 6: Public Attendance
- Attachment 7: Federal Register Notice Announcing HSAC April 2009 Committee Meeting
- Attachment 8: Public Comments

### Meeting Summary

The meeting followed the issues as presented in the meeting agenda (see Attachment 2). The meeting was originally planned to take two days, but since it took only one day to cover all issues presented in the meeting agenda (8:30 a.m. – 5:30 p.m. on April 21, 2009), the meeting adjourned at 5:30 p.m. on April 21, 2009. A summary of the meeting follows.

### **Opening Statement and Welcome**

Mr. Edward Hanlon, the DFO, opened the meeting, noting that the HSAC is chartered as a Federal Advisory Committee under the Federal Advisory Committee Act (FACA). He acknowledged the consultation as being open to the public and stated that no sensitive information would be discussed. He also noted there were no requests from the public for time to present oral statements and no written statements were submitted by the public. Dr. Vanessa Vu, Director of the SAB Staff Office, also welcomed everyone for their attendance. Dr. Vu noted that HSAC's efforts were being conducted as a subcommittee under the auspices of the Science Advisory Board.

The meeting was turned over to the Chair, Dr. Baruch Fischhoff, Professor in the Department of Engineering and Public Policy at Carnegie Mellon University, who noted that the United States leads the world, and EPA leads the nation, in providing expert reviews on technical environmental issues. Dr. Fischhoff asked the Committee members as augmented for this consultation to introduce themselves. After these introductions, Dr. Fischhoff noted that certain Committee members as augmented for this consultation were not present at the meeting (see Roster, Attachment 1).

### **Presentation on EPA's Role and Responsibilities in Emergencies:** Ms. Debbie Dietrich, Director, Office of Emergency Management

Ms. Dietrich presented slides describing EPA's Role and Responsibilities in Emergencies (Attachment 4). Ms. Dietrich noted that EPA's activities are largely centered around decontamination. Various Committee members asked questions of Ms. Dietrich during her presentation.

Regarding slide 8, Ms. Dietrich noted that experiences at the World Trade Center, Katrina and in various anthrax releases have shown the importance of risk communication and good data management. She emphasized that data management is a key responsibility for EPA.

Regarding slide 10, Ms. Dietrich indicated that On Scene Coordinators (OSCs) are not first responders but serve as a safety net for state and local responders. OSCs can take over a situation if necessary, but this is rarely done, if ever. Instead, OSCs work cooperatively with the state or local incident commander as part of unified command. OSCs are supported by extensive contractor back up.

Regarding slide 20, Ms. Dietrich noted that the anthrax attacks listed on the slide led to the development of the BA-TAD.

Regarding slide 22, Ms. Dietrich noted that the key risk communication issues associated with the Hurricane Katrina response were: a) is it safe; b) can the public return to their homes; and c) what does the data say.

Regarding slides 23 and 24, Ms. Dietrich noted that the Crisis Communications Resource Guide will be developed based in part on feedback from workshops that have occurred or will occur. The workshops are being developed through Office of Emergency Management, with assistance from Dennis Milletti (formerly with the University of Colorado), and participation from EPA groups such as Regional OSCs and the National Homeland Security Research Center. An example of coordinated messaging occurred during the Hurricane Katrina response. In December 2008, EPA worked closely with FEMA, the States, the U.S. Army Corps of Engineers, and the Centers for Disease Control (CDC), to coordinate and develop a consistent message to the public on environmental conditions in New Orleans. This will clearly be an issue during an anthrax response.

Regarding slide 25, Ms. Dietrich noted that EPA has a crisis communication plan, and a companion document is under development that will be a risk communication guide.

Dr. Rogers asked whether the Federal Bureau of Investigation (FBI) would be the initial OSC at a cleanup site managed by the Federal Emergency Response Teams, and after the FBI role concluded, EPA would then be the OSC. Ms. Dietrich responded that the U.S. Department of Justice is on the National Response Team, and that FBI may participate in early phases of Emergency Response cleanups that require forensic investigation. She noted FBI would be in charge if there is a criminal aspect to the response, but noted that the FBI is not an OSC per se. She also noted that EPA has strengthened its relationship with the FBI, and that EPA coordinated well with the FBI in the cleanup of the 2004 Ricin exposure incident at the Dirksen Senate Office Building in Washington, DC.

Dr. Zimmerman asked whether the FBI was skilled in response and consequence assessment, and noted that contamination could spread if the FBI was unskilled in those areas. Ms. Dietrich responded that the FBI was skilled in sampling and analysis techniques. Dr. Egan asked whether the FBI was part of the National Response Team (NRT). Ms. Dietrich responded in the affirmative.

Dr. Egan asked who were the OSCs and where were they located, and noted that the BA-TAD did not provide this information. Ms. Dietrich noted that EPA OSCs come from EPA's regional offices. She noted that for New York responses, the OSCs come from EPA's Edison NJ office. A Committee member asked where the OSCs responsible for the District of Columbia were located. Ms. Dietrich responded that OSC Charlie Fitzimmons, who is part of EPA's Region 3 Philadelphia Office, serves as the "out-posted" OSC for the District of Columbia, and is located in OEM's offices in Washington DC. Dr. Knobloch asked if the OSCs are located in

the right places, noting that there is a large distance between EPA's regional offices and locations in the States. Ms. Dietrich responded that most regions have field offices where OSCs are located. For example, there are OSCs in EPA's Los Angeles field office in addition to the San Francisco Regional office, and there are OSCs in EPA's Portland Oregon field office in addition to the Seattle Regional office.

Drs. Zimmerman and Bier asked who coordinates with the public during an emergency response. Ms. Dietrich noted that generally, State and local officials communicate with the public. For example, for the Capitol Hill releases, the Capitol Police had the lead role in communicating with the public. She also noted that the U.S. Department of Homeland Security (DHS) has created an Emergency Support Function to handle communication (ESF-15).

Dr. Egan asked whether, since the OSC is the new focus of the BA-TAD, there will be a separate guidance document available for use by the general public. Capt. Petullo said no, the task force was not tasked to develop such a document, but that this document would be available to the public and to assist the general public. Dr. McKean noted that DHS is currently involved in a number of programs to develop documents that will communicate how local, State and federal governments will interact during an emergency response, and describe the role of each. Ms. Dietrich noted EPA's 'quick response guides' are also available and would assist the general public. Dr. Hanna noted that EPA's National Homeland Security Research Center has produced a variety of products from their research that can inform response actions.

Dr. Bier asked whether the BA-TAD was only applicable to intentional releases. Ms. Dietrich responded no (for example, the 'Drummer incident'). She also noted that the BA-TAD might be applicable to both small and large releases

Dr. Hanna asked how does EPA outpost OSCs, and what types of contamination would be addressed by OSCs. Ms. Dietrich responded that OSCs have a broad background, and can handle a wide variety of response situations. She noted that OSCs would bring in experts as needed. Mr. Mattorano noted that OSCs often tap into experts on EPA's National Response Team (NRT).

Dr. Liroy noted that the BA-TAD was intended to cover a broad view, and did not include data on what were the cleanup levels for contaminants (e.g., arsenic). He also noted that, for anthrax releases, the regulatory agencies would not know that the contaminants were anthrax until two or three days after the release. Ms. Dietrich responded that the first emergency teams on the scene of a release are almost always the State or local authorities (usually the police). The type of contamination may be confirmed by the time the majority of EPA responders are on scene, although not always. EPA is often called upon to assist in identification of the contaminant(s).

Dr. Egan asked whether the EPA HSAC Committee would be involved in review of the next draft of the BA-TAD. Capt. Petullo responded that the purpose of the consultation was to learn what the HSAC would recommend regarding updates to the BA-TAD, and then NRT would revise the BA-TAD, and release a public version that would be publicly available. An HSAC review may be requested for that document.

Dr. Zimmerman noted that the most difficult issue to address in emergency response actions is in the discovery stage. She noted once a release occurs, the planning documents would apply, since OSCs arrive quickly once they are notified. Dr. Bartlett noted the anthrax releases in Florida exemplify that situation. Dr. Zimmerman also noted that marine workers are trained to help one another during emergencies.

Dr. Egan noted that in 2002 it took days to get analytical results from laboratories, but now, analytical results can take only four hours. Dr. Bartlett noted that the average laboratory does not have polymerase chain reaction (PCR). Dr. Pettit noted that diagnosis in Florida did not take long. Dr. Egan noted that it depends on the inoculants and also that, in Florida, a letter was sent to authorities that identified the release. Ms. Dietrich noted that laboratories will analyze the material to identify the contaminants in the release. She also noted the BA-TAD does not discuss procedures to identify whether the initial release is anthrax since this is usually handled by the states and locals. The BA-TAD applies after the release is known to be anthrax.

Dr. Bartlett noted that the BA-TAD should address situations where there is a known release of anthrax, and an unknown release of anthrax. Dr. Pettit asked, if there was a release other than anthrax, would the BA-TAD apply. Dr. McKean responded that a first response procedure has been developed to address unknown white powders, and noted that the BA-TAD applies after the release is known to be anthrax. Mr. Mattorano noted that a separate guidance document, drafted about three years ago by EPA Region 5, discusses overall bioterrorist responses.

Dr. Ensor noted that he was not sure how the BA-TAD would be used (e.g., would it be handed to OSCs when final; would OSCs refer to it as needed)? Ms. Dietrich responded that the use of the document was somewhat open for discussion. EPA's Karen Burgen headed the development of the earlier draft BA-TAD; Karen felt that document was long but helpful. This BA-TAD could be 'pulled off the shelf' as needed, and could also be used as a training document.

Dr. Hanna noted it was helpful to understand clearly that the scope of the BA-TAD applied after the release is known to be anthrax. He commented that EPA is not 'CSI.' Dr. Liroy noted the discussion on scope of the guidance within the BA-TAD should also state what the document is not. He further noted that information on the surveillance cases since 2001 was crucial and should be added to the BA-TAD.

Dr. Bier expressed concern that the HSAC was asked to review an old version of the document, and noted that she could not identify who the audience was for Chapter 2 of the BA-TAD. Dr. Zimmerman suggested that the BA-TAD be organized over time and space. For example, the BA-TAD should clarify what various responders do at a release, and how far out, in time and location from an initial release, the scope of the BA-TAD would cover.

Dr. Fischhoff emphasized the importance of risk communication for the success of the BA-TAD, but noted the science of risk communication is not represented in the current BA-TAD or any of the plans for its future development. He referred OSWER to Dr. Durfee's written comments making a similar point. He also pointed to the draft Strategic Communication Plan of the U.S. Food and Drug Administration (FDA), as a model for federal government agencies could apply that science. Dr. Fischhoff noted that OSWER should view risk communication, not as an afterthought, to be addressed after its experts had completed their work, but as a fundamental input to its work. He noted that social science research offers a disciplined way for to provide the public with a "seat at the table." He noted that OSWER currently lacks the resources and expertise needed to develop its communication to an acceptable scientific standard.

**Presentation on Development of the BA-TAD:** Captain Colleen Petullo, USPHS, assigned to OSWER

Capt. Petullo presented slides describing EPA's and the Task Force's development of the BA-TAD (Attachment 5). Capt. Petullo stated that the BA-TAD was originally written in 2001 in response to the Anthrax terrorist events, it was updated in 2005. Recent activities including research advancements, guidance and policy development warrant a second document update. The purpose of the HSAC consultation is to collect input from subject matter experts that would contribute to this BA-TAD update. Various Committee members asked questions of Capt. Petullo during her presentation.

Regarding Slide 12, Dr. Rogers asked whether laboratory capacity affected the number of samples to be taken during a response. Capt. Petullo said yes.

Regarding slide 14, Capt. Petullo noted that composite sampling is an option. She also noted that a release criterion will not usually have a confidence level associated with the sampling results obtained by composite sampling (e.g., 500 spores/culturable sample +/- 100 spores). A discussion of Data Quality Objectives would be provided in the newer edition of the BA-TAD. Dr. Hanna noted that regarding confidence levels in analytical results, it is difficult to identify acceptable release criteria. Capt. Petullo agreed.

Dr. Bier asked whether statistics were used to identify sample locations. Mr. Mattorano noted that the new edition of the BA-TAD would discuss the gap between statistics and judgment. He noted that the U.S. Department of Energy's (DOE) Pacific Northwest National Laboratory (PNNL) developed a model that links statistics and judgment. Mr. Mattorano noted that if a decision had been made to clean up an entire area, then there was no need to take a lot of characterization samples in that area prior to decontamination. He noted that as one moves from one zone to another (see Attachment 5), the sampling strategy changes.

Dr. Lioy noted that having lived through the Hamilton response and the multiple revisions of statistical design, the fears of postal workers will require rethinking sampling needs. He also commented that it is difficult to identify an acceptable number of sampling for outdoor releases. Dr. Lioy further noted that there is no one hundred percent assurance that all anthrax is removed when a cleanup occurs, and this is an important message to provide to the public.

Dr. Fischhoff noted that the report by Richard Danzig (former Secretary of the U.S. Navy) et al., on "After an Attack: Preparing Citizens for Bioterrorism" provided helpful information on messages to provide to the public after an anthrax attack. Dr. Fischhoff also noted that postal workers identified concerns that should be considered regarding prior anthrax cleanup actions.

Dr. Egan noted that when addressing a spore and aerological release, she was uncomfortable with going to a zone 4 category (see Attachment 5). Mr. Mattorano noted that OSCs need to identify areas where there is no plausible exposure pathway. Dr. Pettit asked who makes this assessment. Mr. Mattorano responded that the available data are reviewed, and this assessment is made jointly by the Unified Command, which may include the EPA, FBI, the Centers for Disease Control (CDC), State and local officials, the U.S. Coast Guard, and other organizations. Ms. Dietrich noted that the Unified Command structure of the national response will take information from other entities and assess that data.

Dr. Pettit noted it was unclear how the FBI received its data. Mr. Mattorano noted that FBI has data collection capability. He noted that for the anthrax cleanup in the Hart building of the U.S. Senate, the Incident Command was able to track down how people walked from Senator

Daschle's offices to other rooms and offices in the building based on data collected from Capitol Police, FBI, CDC, and EPA.

Dr. Zimmerman asked, when initiating sampling efforts, how soon are sample results available after workers get to the site. Mr. Mattorano noted that the answer to this question was site- and purpose-dependent. He noted that once sampling people are in the field, the laboratory(ies) can be informed, and immediate results may be received (i.e., within a few hours provided on-site or local laboratories). This turnaround time for results occurred at the Danbury Connecticut drum shed cleanup in 2007.

Dr. Ensor asked about the difficulty in distinguishing the good vs. bad zones (e.g., green vs. red, zone 1 vs. zone 3). He commented that it would be helpful to have uniformity in classifying zones at a release site.

Regarding slide 15, Dr. Zimmerman asked how to differentiate between the different pieces of evidence, noting that it is important to communicate conflicting sampling results effectively. Capt. Petullo responded that the Joint Communication Center will help present a consistent message to the public.

Regarding slide 16, Capt. Petullo noted that many risk communication issues occur with statistical inferences drawn about the data set, and that conveying statistical information to the public was difficult. She also noted that, as risk assessment research and risk management policies develop, it might be determined that acceptable risk-based exposure levels for anthrax can be based on statistical probabilities (such as the risk-based criterion used in Superfund decisions, e.g.  $10^{-4}$  to  $10^{-6}$ ) or based on a 'zero-culturable-spore decontamination goal'.

Regarding slide 19, Dr. Bier asked whether contaminated bulk material was a topic to be covered in the BA-TAD. Mr. Mattorano replied yes.

Regarding slide 21, Capt. Petullo noted the slide was meant to describe when air samples might be taken.

Regarding slides 23 and 24, Dr. McKean noted that there is often no single cleanup goal that applies in all situations. Rather, the BA-TAD would identify the different factors that would affect decisions regarding how clean is clean.

Regarding slide 25, Capt. Petullo noted that work to date has focused on indoor releases, and that technology is evolving on how to clean up outdoor releases.

Regarding slide 27, Dr. Liroy referred to the manuscript that he provided with his comments, noting that it provides information on the number of spores and number of samples taken associated with a wide area release in Russia in 1979. He noted that indoor contamination cleanup can be slowed by ventilation systems. He also referred to problems associated with decontaminating outdoor areas, such as subways. He noted that guidance on addressing wide area releases is lacking in the BA-TAD, which should explicitly state that it is not providing guidance on wide-area releases, if that is the case.

Regarding wide-area releases, discussed on slide 27, Dr. Zimmerman asked what are laboratory capabilities for addressing wide-area releases. Ms. Dietrich noted that her office (OEM) is working/focusing on laboratory capabilities jointly with DHS, HHS, and USDA, and that Dana Tulis in OEM is leading that effort. Mr. Mattorano noted that one tool being used in the field is composite sampling techniques. Ms. Dietrich and Mr. Mattorano noted that the debate is still occurring on how to best use composite sampling data.

Dr. Rogers asked how much time elapses between arrival at a site and taking samples. Mr. Mattorano noted that it could be hours, but that site location and transportation are key issues. Capt. Petullo noted it is usually within one day. Dr. Pettit noted that the laboratory

should be in the decision-making process for sampling. Mr. Mattorano noted that not all laboratories take the samples. Dr. Pettit noted that samples are often taken without first talking with the laboratories. Dr. McKean noted that the sampling protocols should include having knowledge on sample holding times, preservation procedures, and other sampling requirements.

Dr. Lioy noted that once it has been determined that anthrax has been released, the next step is to develop a sampling design, and asked how much time is required to develop sampling plans. Mr. Mattorano noted that it depends on the size of the incident. Dr. Lioy noted that the BA-TAD should reflect this need. Ms. Dietrich noted that for the Katrina response, the hurricane hit on August 30, the first sample results were received on September 6<sup>th</sup>, and quality assurance/quality control of the samples was completed ten days after that. Dr. Lioy noted EPA should be commended for providing flexibility in dealing with the Katrina response.

Dr. Egan recommended that the BA-TAD should note that laboratories that analyze anthrax are also involved in analyzing other contaminants. Dr. Rogers noted that EPA's contract laboratory program (CLP) is also involved in providing laboratory capability.

Regarding Slide 28, Dr. Bier asked about whether personal effects such as handbags would be decontaminated. Ms. Dietrich noted that they could be. Mr. Mattorano noted that this issue sometimes depends on the company/owner where the release occurred. He noted that discussion with the owner would occur regarding whether to decontaminate something or whether to dispose of it. At the U.S. Senate Hart office building cleanup, certain materials were sent offsite for decontamination, and then returned.

Dr. Knobeloch asked about issues associated with cross-contamination of other buildings by someone who left a building where they were exposed to an anthrax release. Dr. Hanna noted that was an issue that must be addressed before the OSC gets to the cleanup site. Mr. Mattorano noted that OSHA has the lead role in worker protection. At the site, the OSC reviews information regarding worker protection and based on available guidance and will help determine whom to prophylaxis or not.

Dr. Bier noted that disposal of potentially contaminated personal effects was an issue after the Chernobyl releases. Ms. Dietrich noted that the incident commander is usually a State or local official, and that they have to handle this question. She noted that during the Capitol Hill Ricin incident, the OSCs told workers to go home and bag their clothes. Dr. Pettit noted that the 2001 precedent found no cross contamination. Dr. Egan noted that in New York State, cross contamination occurred in tunnels. Regarding slide 28, Dr. Hanna noted that personal protective equipment is a vital issue and that, where contamination has been tracked offsite, contamination needs to be tracked and records kept of where such cross contamination occurred. Mr. Mattorano noted that very specific procedures are available regarding how to enter and leave zones.

Dr. Knobeloch asked about preparing draft fact sheets in advance of an anthrax release. Dr. Pettit noted that fact sheets have been developed in a number of States. Dr. Egan noted that CDC has developed a number of fact sheets. Dr. Lioy noted there was helpful information released in the Tokyo incident. Dr. Knobeloch noted OSWER should consider making these fact sheets part of the BA-TAD. Dr. McKean noted she agreed with these comments and that this was helpful input.

Dr. Bier noted it was difficult to find waste disposal for contaminated animal skins during an earlier anthrax incident, and asked whether there were any statutory requirements/responsibilities for some landfills to accept anthrax wastes. Mr. Mattorano noted

that landfills are not required to accept these materials. Ms. Dietrich noted that for the Capitol Hill cleanup, drums sat for a while before disposal facilities were identified.

Dr. Bier noted another significant issue is the need for law enforcement.

Dr. McMullen noted that while building contamination has been discussed, it was not clear how to address wide-area outdoor contamination. Dr. Hanna noted this topic could be further discussed during the charge question discussion.

### **Discussion on Charge Question #1: Comments on tools and strategies to manage/oversee a response to an intentional indoor release of *Bacillus anthracis* in industrial, commercial and residential buildings**

Charge Question #1 Lead Discussants:

- Dr. David S. Ensor
- Dr. Denise Pettit

Dr. Ensor noted that the BA-TAD should address how contamination disseminates in a room or building. He noted that heating, ventilation and air conditioning (HVAC) systems often can distribute contamination throughout a building in 15 minutes.

Dr. Ensor noted that University of California, Berkeley, as well as EPA, have developed classified tools to identify how contamination disseminates in a room or building. Dr. Ensor noted that there are various models available but that they need data on buildings (e.g., HVAC information) in order to run the model.

Capt. Petullo asked what models are available to ‘get you in the ballpark’ and would provide useful information. Dr. Ensor responded that Les Sparks of EPA (retired) developed the RISK model for this purpose, which could be run on a personal computer. Dr. Ensor noted that perhaps EPA’s Nancy Adams has a copy of that model, and that perhaps EPA could resurrect it, updating as necessary.

Capt. Petullo asked whether the model was usable to assess the transport of respirable-sized particles. Dr. Ensor said the model is an airflow model, not a sedimentation model.

Dr. Zimmerman asked whether this model takes into account where the HVAC systems are in the building, because contamination often spreads through these systems. Dr. Ensor noted that there often are many different ventilation systems in a building, and that they are often segmented. Dr. Ensor recommended that the BA-TAD should include building information needs (including information on HVAC systems) in the list of information to be gathered. He noted this information could usually be gathered from the building engineers.

Dr. Fischhoff asked how large would a building need to be to have such information readily available. For example, would a large department store have HVAC information available for use? Dr. Ensor noted that this information is readily available for such sized buildings. Capt. Petullo noted store managers have this information. Dr. McKean noted that the OSC should consider whether there is a timeframe in which this information does not matter (e.g., depending on the size of the release and the movement of people within the contamination zone, detailed modeling may not significantly contribute to decision making).

Dr. Liroy noted that the most important thing for using a model is having people who know how to run it and what data it needs. For example, a large department store or large building will have ‘dead zones’ where circulation does not occur at rates similar to other parts of the building. Once a building is contaminated, it should be locked down.

Dr. Hanna noted that decontamination occurred acceptably after the 2001 releases.

Dr. Ensor noted that one attack scenario is to feed anthrax into air vents from outside the building which bring anthrax into the building. Dr. McKean noted that once it is known whether anthrax is inside a building, and once OSCs are on the job at the site, then a decision is made regarding whether the release occurred inside or outside of the building. It should also be noted that an aerosol release may not be visible. Capt. Petullo noted that invisible releases are difficult scenarios for OSCs to address.

Dr. Liroy noted that once it is known that a release is inside a building, there is a need to stop the spread of contamination. Dr. Ensor commented that this requires a focus on HVAC systems. Capt. Petullo noted that once the HVAC system is shut down, there would be a need to characterize the problem, and localize the release point and the spread of contamination. Dr. Ensor noted that there may also be a water discharge, perhaps due to condensing water within the HVAC system.

Dr. Egan noted that to characterize the problem, culture-based samples should be used. Dr. McKean noted that while culture-based samples should be used for clearance, it was unclear whether 100 percent of the samples should be culture-based samples. Dr. Egan agreed.

Dr. Pettit disagreed that culture-based samples should always be used, noting that the anthrax scenario may not warrant it. Dr. Egan noted that, for initial detection, PCR may be used. However, Dr. Egan noted that when characterizing the scenario, culture-based samples should only be used, because there may be non-detects for spores that may be present if culture-based samples are not used. As an example, in the Hamilton response, culture-based samples were used for characterizing the release. Dr. Rogers noted there is some forensic value in use of culture-based samples.

Dr. Ensor noted that if someone releases anthrax into HVAC systems, they will move aerosols. However, one should not assume equal distribution of aerosols. The HVAC blueprints should be consulted to assess areas where aerosols may distribute.

Dr. Pettit noted that the BA-TAD should be enhanced to include details on specific regulations, documentation, waste regulations, and inter- and intra-State requirements. The BA-TAD should also include phased response options. It should provide guidance on high throughput processing, and information on contact plate sampling techniques to provide qualitative sampling results. Dr. Hanna noted this procedure would be cost-effective, and Dr. Egan noted contact plate sampling techniques could provide quantitative sampling results.

Dr. Pettit noted that the BA-TAD should provide points of contact for laboratories that could be used. Dr. McKean noted that although knowing points of contact for laboratories was important, it was also important to understand how samples are tracked. Dr. Pettit noted that the laboratories should be contacted to make sure they provide feedback on holding times, sampling methods, and other sampling requirements. Capt. Petullo noted that since several laboratories will be used, it must be clear that consistent procedures would be followed. Dr. Pettit noted that one network of laboratories that analyze anthrax (the LRN) follows the same protocols, and that there is a point of contact available for each laboratory within the LRN. Mr. Mattorano noted that the CDC and HHS oversee the LRN. He also noted that if capacity is exceeded at one laboratory within the LRN, samples could be shipped to another laboratory within the LRN.

Dr. Pettit noted that there was incomplete medical surveillance for personal protective equipment, and consistent monitoring should occur to ensure workers are protected. Capt. Petullo noted that the Anthrax Quick Reference Guide has information regarding health and safety requirements.

Dr. Bier asked whether the BA-TAD would include guidance on medical monitoring for occasional visitors to decontaminated buildings (e.g., in dentist offices). Capt. Petullo responded that the BA-TAD would not include such guidance, but that the CDC does such monitoring. Dr. Pettit asked what are the requirements for worker medical monitoring. Mr. Mattorano noted that while EPA has extensive medical monitoring requirements for EPA staff, EPA does not set medical monitoring requirements for other response personnel, such as contractors. Dr. McKean noted that decisions regarding medical monitoring requirements are not within EPA's role; those requirements are within CDC's role.

Dr. Bier suggested that the BA-TAD include information on how visitors should be tracked in and out of a response area. Dr. Knobeloch noted that a log of people who were in the building should be developed, including their contact information; she suggested that the BA-TAD should define responsibility for developing the log and for identification of names from release time zero. Mr. Mattorano noted that for visitors it would be a challenge to do this on all projects, but that the point is well taken, and perhaps for larger cleanup projects this could be recommended.

## **Discussion on Charge Question #2: Comments on tools and strategies to manage/oversee a response to an intentional wide-area outdoor release of *Bacillus anthracis* in industrial, commercial and residential buildings**

Charge Question #2 Lead Discussants:

- Dr. Philip Hanna
- Dr. Paul J. Lioy

Dr. Hanna noted that, in the Sverdlovsk incident, anthrax spores traveled 150 miles from the release point. As a result, defining the contaminated zone and cordoning it off is a large problem. Dr. Hanna noted that there is very little guidance available on decontamination procedures for anthrax releases. For example, spores will stay alive on trees, grass, and animals in the area. However, there is little guidance was available on how to deal with these media.

Dr. Hanna noted there were three options for decontaminating an area where anthrax was released:

- Bag it (e.g., bag asphalt, timber, etc). Dr. Hanna noted this is a bad idea because spores can easily disperse when disturbed.
- Scorched earth (e.g., mix paraformaldehyde or a mix of gasoline, diesel fuel and other materials to create a napalm-like substance that would create a fire; paraformaldehyde was used at Gruinard Island (North Sea)). Dr. Hanna noted this is difficult and domes cannot be built over large release areas to prevent releases while the ground is being scorched.
- Liquid bleach. Dr. Hanna noted this is not effective in wide-area releases, particularly in rural environments.

Dr. Hanna noted that in cattle country, when anthrax has contaminated a land area, the preferred solution is often to simply leave large sections of land fallow for a number of years (i.e., create a 'dead zone'). John Koerner noted this option has not gone unrecognized, and that these issues (particularly how to address wide-area releases) are difficult for the President's office to address. One option is to seal a building shut if it is contaminated. Dr. McKean noted

that the BA-TAD will not provide single answers to these issues because each site requires site-specific consideration, but agreed that these issues could be discussed in the BA-TAD in order to help educate the OSCs in preparing for the magnitude of the problem and provide them with the tools necessary to make site-specific decisions.

Dr. Hanna suggested that the BA-TAD identify ways to secure the perimeter of the release area for health and security reasons, because we do not want people collecting spores.

Dr. Liroy noted he has had experience with catastrophic scenarios over the past five years (e.g., radiation releases) and that guidance should be developed on how to address these overwhelming scenarios and cover certain issues. The probability of risk ranges from low to high, and the guidance should discuss what is an acceptable risk. Reentry cleanup numbers and cleanup criteria should be specified in the BA-TAD. The BA-TAD should consider having 'dead zones' such as occurred in Chernobyl. For large-scale releases, transportation will be shut down. Aerial releases will get indoor through the ventilation systems.

Dr. Liroy noted the BA-TAD should identify procedures to be followed for various types of release (i.e., small scale, medium scale, and large scale). Initially, the size of the release should be considered, then the procedures associated with that type of release should be followed. OSCs should triage what to do during a release (e.g., evacuate the area first). He noted that when there are more than 500 spores/culturable sample, large-scale approaches should be taken.

Capt. Petullo asked whether there were other published papers that discuss release scenarios. Dr. Liroy referred Capt. Petullo to the reference list provided in his paper. Dr. Hanna noted he has a reference list as well.

Dr. Egan noted that identification of what levels of anthrax constitute an acceptable risk should occur prior to a response. She was surprised to read that zero spores/culturable sample was being considered as an acceptable cleanup goal, since a few previous cleanup actions did not set zero as a target goal. However, Dr. Egan noted that zero is the standard, generally. Dr. McKean noted her EPA Division was working on the cleanup goals issue. She noted that the site-specific criteria for clearance (i.e., what concentration can be left in place) should be decided jointly by CDC, EPA, and local officials. She noted that the BA-TAD would not define cleanup goals; rather, it would provide the process by which those site-specific decisions can be made.

Dr. Pettit noted that the BA-TAD focused on letter releases, and wide-area releases were not covered. The BA-TAD should discuss detection systems for wide-area releases.

Dr. Hanna noted that in the Gruinard Island example, after the chemical decontamination, sheep were put on the island to ensure none contracted anthrax. The BA-TAD should be flexible on what options should be considered for decontaminating a release area and deciding on future uses of such areas. Dr. Egan suggested reviewing the documents that were prepared for the post office releases.

### **Discussion on Charge Question #3: Comments on worker health and safety issues particular to *Bacillus anthracis* that should be addressed within the BA-TAD**

Charge Question #3 Lead Discussant:

- Dr. James Rogers

Dr. Rogers noted that Chapter 5 was generally well written, though it is large and chunky. He noted that it was not clear who should use masks at different phases/stages of response activities. He also suggested that the BA-TAD identify what are the training requirements, and

identify who will track medical monitoring requirements (especially for contractors and others who enter the response areas). Capt. Petullo noted that the unified command structure would address this.

Dr. Rogers noted that a record should be kept of training and medical monitoring. Mr. Koerner noted this is a good point, since after the World Trade Center attacks, the U.S. General Accountability Office (GAO) raised this worker health and safety issue. He noted that the degree such records need to be kept depended on the magnitude of the incidence, and that small incidents could be covered through public health records. Mr. Koerner noted that there were two points of accountability: a) the health and safety officer who certifies which personnel are trained; and b) the OSC who is responsible for identifying certifications. He also noted that medical monitoring varies regionally and locally, and that the level of capability varies with some response personnel being robust and some not robust. Mr. Koerner noted that medical monitoring records were particularly important in keeping track of people taking 60, 90 and 120 day antibiotics. He noted that for larger-scale releases, medical monitoring falls on CDC.

Mr. Koerner noted that health and safety training requirements for hazardous waste field work that are appropriate to the work performed, potential hazards, and the work environment are found in 29 Code of Federal Register (CFR) 1910.120. He noted that the employer has responsibility for providing medical monitoring and that the OSC verifies worker capability, training and medical monitoring.

Dr. Hanna thought Chapter 5 read very well, but that the BA-TAD did not discuss procedures to take if workers were infected with anthrax. Dr. Hanna suggested that an evaluation component be added to the document. Capt. Petullo agreed.

Dr. Egan noted that the BA-TAD should note that information on workers infected with anthrax should be communicated to health care workers who are treating exposed workers, so that the health care workers can more readily identify symptoms.

Dr. Hanna noted that vaccines are available for adults and non-pregnant women. Dr. Egan noted that antibiotics are also available. Mr. Koerner noted that the Association of Prognostic Practitioners (APEP) provides information on vaccines and antibiotics. Dr. Egan noted that CDC also has citations and information on vaccines and antibiotics. Dr. Hanna suggested that EPA consider offering vaccinations to on-site workers addressing an anthrax release. Mr. Mattorano noted that the updated BA-TAD recommends offering vaccinations to on-site workers.

Dr. Egan asked whether the tables in Chapter 5 were still valid. For example, EPA should consider removing tables 5.2 and 5.3. Capt. Petullo noted some of the tables would be removed in updated versions of the BA-TAD. Dr. Ensor suggested putting the tables and charts into an appendix; Capt. Petullo agreed.

Capt. Petullo asked the HSAC what should be 'the message' in the BA-TAD on addressing wide-area releases. Dr. Lioy suggested that the BA-TAD should separately discuss small, medium and wide releases, providing details on how to address each. He also noted that EPA should be the lead for small and medium releases, and that the White House should be the lead for wide-area releases. He noted that the United States should be developing a 'playbook' on how to deal with wide-area releases.

Dr. Bier suggested that the BA-TAD identify scenarios that could occur. For example, discussion should be provided on procedures for locking down a building, and procedures for working with families who have family members in different zones.

Dr. Hanna suggested that the guidance define a ‘crater area’ (i.e., an area of contamination) and requirements for monitoring changes over time (e.g., to determine whether a plume of contamination is heading north, south, east or west).

Dr. Zimmerman noted that the BA-TAD should discuss uncertainties, including the risks associated with false positives and false negatives in sampling results.

Mr. Koerner noted that the BA-TAD could move forward without having all of the answers to the various issues noted by the HSAC.

#### **Discussion on Charge Question #4: Comments on cleanup strategies for minimizing risk to facilitate re-occupancy in industrial, commercial and residential buildings where a “zero-culturable-spore” decontamination goal was not achieved**

Charge Question #4 Lead Discussants:

- Dr. Christina Egan
- Dr. Lynda Knobeloch
- Dr. L.D. McMullen

Dr. Egan asked what was the basis for setting a zero-culturable-spore decontamination goal. Dr. McKean noted that this goal has been generally in use for the past several years, but noted that as scenarios get larger, a zero-culturable-spore decontamination goal may be difficult to achieve. She noted that EPA has developed methods to derive risk-based goals for chemical contaminants, and that one research area that her Division was working on was identifying a threshold cleanup goal-for biological contaminants. She asked the HSAC for feedback on identifying/setting a threshold cleanup goal that was not zero.

Dr. Rogers noted that a key question was whether it was safe to go back into a building. He noted that perhaps a zero-culturable-spore decontamination goal is not necessary to safely return to a building. Dr. McKean suggested that perhaps there could be a range of cleanup goals for use depending on the situation/exposure.

Dr. Rogers asked what were the benefits of going from 50 spores/culturable sample to 5 spores/culturable sample. Dr. McKean suggested that a range of results could be considered (e.g., roughly 50 spores/culturable sample). Dr. Liroy noted that no one is certain what should be the acceptable performance standards/measures for an anthrax release. He also noted that it was somewhat troubling that the research centers only developed surface-based performance standards. Dr. McKean asked whether it would be helpful to have a method to derive surface-based cleanup goals. Dr. Liroy responded in the affirmative.

Dr. Hanna noted that the decontamination goal should not be zero-culturable-spores: since zero could not be proved, the area would be a dead zone.

Dr. Knobeloch commented that if decontamination cannot achieve zero-culturable-spores, then perhaps sealants could be used to prevent exposure to viable spores. Perhaps a secondary cleanup goal (e.g., 5 spores/culturable sample) could be set based on the type of exposure (e.g., workers, day care, residential use).

Dr. Bier suggested that when conducting post-release monitoring, the BA-TAD should identify actions that could be taken to limit future exposure. Dr. Hanna noted that procedures to address anthrax-contaminated areas have been available for years. Mr. Mattorano noted that in the past, workers would clean buildings and vaccinate people, and would not conduct monitoring.

Dr. Liroy noted that risk communication issues were critical, particularly regarding what are the criteria for returning to homes. He noted that people have returned to Hiroshima.

Dr. McMullen had two comments. The first is that a significant amount of contaminated water/wastewater may be produced when decontaminating a building, and procedures/methods to address this water/wastewater should be developed. The second is that a priority should be established for which critical infrastructure should be addressed first in the event of a wide-area release (e.g., power, water, telephone). Dr. McMullen noted his first priority would be drinking water. He also noted that in Des Moines, Iowa, disposal of sanitary waste was a significant issue during a disaster. Capt. Petullo noted these suggestions could be part of the BA-TAD. Dr. McMullen suggested that perhaps a procedure could be identified for making such decisions.

### **Discussion on Charge Question #5: Comments on recommendations for scientifically-sound communications structure to be included in the BA-TAD**

Charge Question #5 Lead Discussants:

- Dr. Vicki Bier
- Dr. Rae Zimmerman
- Dr. Baruch Fischhoff

Dr. Bier noted the BA-TAD was very generic and that more specificity on risk communications would help, particularly because the issue of risk communications for anthrax has become extensively studied since the 2001 anthrax attacks.

Dr. Bier noted one significant misconception for anthrax that the BA-TAD should address: that anthrax is not contagious.

Dr. Hanna noted that the following could be stated about anthrax releases:

- a) It is not similar to a sarin or nuclear release - there is a longer window of time for life-saving medical countermeasures;
- b) It is not a virus ((there are good antibiotics and there is a vaccine); and
- c) It is not like the plague - it is not spread person-to-person, and people do not need to fear being near their family members or neighbors who have been in an area where an anthrax release occurred, and hospital patients do not need to be isolated.

Dr. Fischhoff asked why did this message not get out. Dr. Hanna noted there was a small window for getting the message out. Dr. Liroy noted that people do not understand science.

Dr. Pettit noted that in a situation where the extent of the release is uncertain, the people managing a response action should be careful. Dr. Fischhoff asked why this message did not get across. Dr. Knobeloch noted that Tommy Thompson had misinformed the public and that a CDC medical doctor noted that anthrax would not spread from an envelope. Dr. Fischhoff noted that if this is the case, should we assume that the authorities will fail to communicate again? Dr. Knobeloch noted that erroneous statements made by national leaders result in public distrust and erode confidence in government's ability to respond to an emergency. Capt. Petullo noted that the BA-TAD team needs to stay on a sound technical basis for writing the guidance. Dr. Fischhoff noted that, as noted in Dr. Bier's comments, the BA-TAD describes who will talk to whom, but does not note what to say.

Dr. Egan noted that in the 2006-2007 drummer incident, improved messages were given to the public during the releases. She noted that decisions were made not to decontaminate some buildings. Dr. Bier agreed that the BA-TAD should provide correct technical content, but that

the guidance should use what we know. Dr. Liroy noted that the BA-TAD should identify the key messages to be provided to the public, and what are the critical questions that should be addressed during a release.

Dr. Bier noted that her second main comment was to avoid killing people by providing false reassurances. She noted that the risks associated with an anthrax release are not zero, and that contact information and phone numbers should be publicly distributed for more information.

Dr. McKean noted that the BA-TAD would provide OSCs with clear and helpful messages regarding anthrax releases, and information on messages to avoid communicating. The BA-TAD would add pointers that have been vetted through the EPA public affairs office that would be acceptable to provide to the public. As noted in Debbie Dietrich's presentation, there is an ongoing effort to develop risk communication information for anthrax releases. She agreed with Drs. Hanna and Bier that there are certain messages that can be developed that are acceptable for release.

Dr. Bier then noted what she described as a harder challenge: how to properly manage the large number of inquiries that may arise from the "worried well" concerned about suspicious packages or powders. She noted that a proper balance should be struck in managing this issue.

Dr. Bier referred to EPA's plan to have only one spokesperson for an anthrax release. There is a concern with having every cleanup worker at an anthrax release defer responding to the public to a public affairs official. Capt. Petullo noted that one voice should provide public information, rather than create opportunities for misinformation.

Dr. Zimmerman outlined six concerns when designing messages associated with an anthrax release (see written comments attached below): designing messages in a way that messages can be effectively transmitted, designing messages over time and space, focusing on the actions people are expected to take in light of their exposures, incorporating uncertainties, and including messages about process. Highlighting a few of these areas, she noted that the most trustworthy messengers for risk communication information are often experts from the local community (e.g., a doctor from the city or town where a release occurred).

Dr. Zimmerman suggested that EPA consider staging messages over time. For example, when responding to a sarin release (an example of a release that shows immediate effects), Dr. Zimmerman ran focus groups to develop the messages sent to the public. Further, the BA-TAD should include information on contaminated pets in messages to the public.

Dr. Zimmerman noted that when crafting a message to the public, the first and last statements made are most often remembered by the public. Graphics are also more readily remembered than text. Dr. Bier noted that different people have different responses to different messages—depending, for example, on which sources they trust.

Dr. Hanna noted that these comments appear off-message, since much of these comments are a CDC role (regarding crafting messages).

Dr. Pettit noted that key questions that should be answered in crafting a message include: when can people travel; is the building clean; can people go outside; and should people duct tape their windows.

Dr. Knobloch noted that while EPA and CDC may have answers to some questions, a key issue is to make sure that EPA and CDC are not inconsistent in their messages (or at least explain why they are inconsistent). Because these agencies, and others, are responsible for different phases of a response, their activities should be coordinated to prevent gaps in federal leadership.

Mr. Koerner noted that the message relates to scale of the release.

Dr. Ensor asked whether there should be a hierarchy in messages. Dr. Zimmerman noted that the messages should be clear about what people should do, and why. Dr. Fischhoff noted that a good approach towards shaping messages would be to begin with the type of analysis Dr. Zimmerman noted above. Some good examples might be the FDA food recall notices.

Dr. Fischhoff referred EPA to Dr. Walsh's written comments, which were prepared in response to Charge Question #1. Dr. Walsh's comments noted that documents should be available to the public and specifically suggested that EPA consider making the BA-TAD available online. At the last meeting, EPA mentioned that the Emergency Consequence Assessment Tool (ECAT) was developed and had an all-purpose risk analysis capability. The EPA staff who developed ECAT noted it had two purposes: a) allow EPA to do their own risk assessment; and b) provided a tool that brings together a great deal of relevant information in one place. However, EPA's Office of Research and Development discontinued the ECAT program, which the HSAC had endorsed as a training tool, at a previous consultation.

### **Concluding Discussion**

Dr. Fischhoff noted that because all Charge Questions were covered and all agenda items were addressed, the consultation need not continue into April 22<sup>nd</sup>. A few Committee members expressed surprise, and Dr. Fischhoff stated that Committee discussion could continue if so desired by any Committee members. No Committee members suggested that the consultation continue into April 22<sup>nd</sup>.

Dr. Vu discussed the process for moving forward with this consultation. She noted that for a consultation, a short letter would be prepared, with appended comments, and sent to the EPA Administrator. Dr. Vu noted that if any additional comments are received after the consultation on April 21, the EPA SAB would consider those comments as a follow-up set of comments. The Chair will ask if all comments are to be submitted as is, or would Committee members like to append the comments.

Capt. Petullo clarified that this is a consultation, and as such consensus was not being sought. Dr. Vu agreed, but noted that if there was general consensus, that would be brought out in the letter.

Dr. Fischhoff asked HSAC members to send Ed Hanlon (DFO) any additional technical references related to this consultation. He also asked HSAC members to identify whether there were any key issues that should be mentioned in the letter to the Administrator. The following feedback was received on this request:

Dr. Lioy: For outdoor situations, EPA should determine what types of releases/events should EPA manage itself (e.g., small or medium sized events), and what situations warrant a government-wide response. Also, EPA should develop standards/procedures for surface sampling, and develop uniformity in classifying zones associated with the magnitude of a release at a release site (e.g., red, green).

Dr. Hanna: EPA did a good job in defining the mission of the BA-TAD (i.e., after release has occurred, and after the problem is contained). Also, many recommendations in the BA-TAD are generic. Bullets should be added that are specific to this particular agent.

Dr. Ensor: A scientific strategy should be incorporated into the document that would identify the risks associated with a release in a building, and this strategy should be flexible enough to apply to a variety of release types. The BA-TAD should incorporate flexibility in decision making.

Dr. Pettit: The BA-TAD should address mass exposure.

Dr. Knobloch: Consider providing draft press releases and draft fact sheets that could be used during releases, and modified as needed. Also, EPA should harmonize its recommendations with CDC.

Dr. Egan: EPA should use a risk- or performance-based approach to address a non-zero-culturable-spore decontamination goal. EPA should use culture-based analyses when assessing the extent of anthrax contamination.

Dr. McMullen: The BA-TAD should include more discussion on wide-area exposures. This topic is the most unknown of any topic described in the BA-TAD. Any additional discussion that can be added to the BA-TAD on this topic would assist the OSC, even if a large amount of data or information is not available at this time on this topic. Dr. McMullen would be very interested in reviewing a Chapter 11 on wastewater.

Dr. Zimmerman: Regarding risk communication, it is very important to take into account who the messengers are for risk communication. Include uncertainties in risk communication information. Develop messages that inform people on what they should do in the event of a release.

Dr. Bier: The BA-TAD should use experience from past mistakes to improve on our recommendations for future responses. Also, risk communication guidelines should be anthrax-specific.

Dr. Rogers: This document will be used by OSCs who are not microbiologists, or who may not have microbiologists on their team. The BA-TAD should be vetted well.

**Closing:**

After Capt. Petullo, Dr. Fischhoff and Dr. Vu thanked the Committee members as augmented for this consultation for their efforts, the meeting was adjourned by the DFO.

Respectfully Submitted:

/S/

\_\_\_\_\_  
Mr. Edward Hanlon  
Designated Federal Officer  
Homeland Security Advisory Committee

Certified as True:

/S/

\_\_\_\_\_  
Dr. Baruch Fischhoff, Chair  
Homeland Security Advisory  
Committee

**Attachment 1: Committee Roster**

**U.S. Environmental Protection Agency  
Science Advisory Board  
SAB Homeland Security Advisory Committee (HSAC) Augmented to Provide  
Consultative Advice on a Draft Federal Inter-Agency Anthrax Technical  
Assistance Document**

**CHAIR**

**Dr. Baruch Fischhoff**, Howard Heinz University Professor, Department of Social and Decision Sciences, Department of Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA

**MEMBERS**

**Dr. John Bartlett**, Professor, Division of Infectious Diseases, School of Medicine, Johns Hopkins University Medical Institute, Baltimore, MD

**Dr. William Bellamy**, Vice President, Water Supply and Treatment, CH2M Hill, Englewood, CO

**Dr. Vicki Bier**, Professor, Department of Industrial Engineering, University of Wisconsin, Madison, WI

**Dr. Mary Durfee**, Associate Professor and Assistant Provost for Academic Improvement, Social Sciences Department, Michigan Technological University, Houghton, MI

**Dr. Christina Egan**, Director, Biodefense Laboratory, Wadsworth Center, New York State Department of Health, Albany, NY

**Dr. David S. Ensor**, Senior Fellow and Center Director, Center of Aerosol Technology, RTI International, Research Triangle Park, NC

**Dr. Philip Hanna**, Associate Professor, Microbiology & Immunology, Medical School, University of Michigan, Ann Arbor, MI

**Dr. Lynda Knobeloch**, Research Scientist Manager, Wisconsin Department of Health & Family Services, Wisconsin Department of Health & Family Services, Madison, WI

**Dr. Paul J. Liroy**, Deputy Director and Professor, Environmental and Occupational Health Sciences Institute, Exposure Sciences Division, UMDNJ - Robert Wood Johnson Medical School, Piscataway, NJ

**Dr. Lee D. McMullen**, Water Resources Practice Leader, Snyder & Associates, Inc., Ankeny, IA

**Dr. Royal Nadeau**, President, The Eco-Strategies Group, Allamuchy, NJ

**Dr. Denise Pettit**, Lead Scientist, Analytical Services, Molecular Detection and Characterization, Virginia Division of Consolidated Laboratory Services, Richmond, VA

**Dr. James Rogers**, Branch Chief, Microbiological Analysis and Data Branch, Microbiology Division, Office of Public Health Science, Washington, DC

**W. Kip Viscusi**, University Distinguished Professor, Owen Graduate School of Management, Department of Economics and the Law School, Vanderbilt University, Nashville, TN

**Dr. Daniel C. Walsh**, Adjunct Professor at Lamont Doherty Earth Observatory of Columbia University and Chief, New York City Superfund and Brownfield Cleanup Program, New York State, Long Island City, NY

**Dr. Rae Zimmerman**, Professor of Planning and Public Administration, Director, Institute for Civil Infrastructure Systems, Robert F. Wagner Graduate School of Public Service, New York University, New York, NY

#### **SCIENCE ADVISORY BOARD STAFF**

**Mr. Edward Hanlon**, Designated Federal Officer, U.S. Environmental Protection Agency, Science Advisory Board Staff, Washington, DC

**Attachment 2: Agenda - HSAC April 2009 Committee Meeting**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
SCIENCE ADVISORY BOARD  
Homeland Security Advisory Committee  
Public Meeting  
April 21 and 22, 2009  
SAB Conference Center  
1025 F Street, N.W., Suite 3705, Washington, D.C. 20004**

**AGENDA**

**April 21, 2009**

- 8:30 - 8:35 a.m.      **Opening Remarks**  
Mr. Edward Hanlon, Designated Federal Officer
- 8:35 - 8:40 a.m.      **Welcoming Remarks**  
Dr. Vanessa Vu, Director, Science Advisory Board
- 8:40 - 8:50 a.m.      **Purpose of the Meeting and Review of Agenda**  
Dr. Baruch Fischhoff, Chair
- 8:50 – 9:30 a.m.      **EPA’s Role in Emergency Response and Homeland Security**
- **Purpose of the National Response Team’s Technical Assistance for Anthrax Response Document (Anthrax TAD)**
  - **Outreach and Communication**
- Ms. Debbie Dietrich, Director, Office of Emergency Management, EPA’s Office of Solid Waste and Emergency Response (OSWER)
- 9:30-10:15 am      **Committee Discussion with EPA Representatives**
- 10:15 – 10:30 a.m.      **BREAK**
- 10:30 – 11:15 a.m.      **Development of the Updated Anthrax TAD and Overview of Charge Questions**  
Captain Colleen Petullo, USPHS, assigned to OSWER
- Overview of development of the updated Anthrax TAD
  - Overview of Charge Questions
- 11: 15 – 12:00      **Committee Discussion on EPA Charge**
- 12:00 – 1:15 p.m.      **LUNCH**

**April 21, 2009 (continued)**

1:15 – 1:30 p.m.      **Public Comments**

1:30 – 3:00 p.m.      **Committee Discussion (continued)**  
Dr. Baruch Fischhoff, Chair, and Committee Members

- Charge Question #1: Comments on tools and strategies to manage/oversee a response to an intentional indoor release of *Bacillus anthracis* in industrial, commercial and residential buildings
  - Charge Question #1 Lead Discussants:
    - Dr. David S. Ensor
    - Dr. Denise Pettit
    - Dr. Daniel C. Walsh
- Charge Question #2: Comments on tools and strategies to manage/oversee a response to an intentional wide-area outdoor release of *Bacillus anthracis* in industrial, commercial and residential buildings
  - Charge Question #2 Lead Discussants:
    - Dr. Philip Hanna
    - Dr. Paul J. Lioy
- Charge Question #3: Comments on worker health and safety issues particular to *Bacillus anthracis* that should be addressed within the BA-TAD
  - Charge Question #3 Lead Discussants:
    - Dr. James Rogers
    - Dr. W. Kip Viscusi

3:00 – 3:15 p.m.      **BREAK**

3:15 – 4:45 p.m.      **Committee Discussion (continued)**  
Dr. Baruch Fischhoff, Chair, and Committee Members

- Charge Question #4: Comments on cleanup strategies for minimizing risk to facilitate re-occupancy in industrial, commercial and residential buildings where a “zero-culturable-spore” decontamination goal was not achieved
  - Charge Question #4 Lead Discussants:
    - Dr. Christina Egan
    - Dr. Lynda Knobeloch
    - Dr. L.D. McMullen

**April 21, 2009 (continued)**

- Charge Question #5: Comments on recommendations for scientifically-sound communications structure to be included in the BA-TAD
  - Charge Question #5 Lead Discussants:
    - Dr. Vicki Bier
    - Dr. Rae Zimmerman
    - Dr. Baruch Fischhoff

4:45 – 5:00 p.m.      **Summary of the Discussion**  
Dr. Baruch Fischhoff, Chair, and Committee Members

5:00 p.m.              **Adjourn**

**April 22, 2009**

9:00 – 9:10 a.m.      **Reconvening of Meeting**  
Edward Hanlon, DFO

9:10 – 10:15 a.m.    **Committee Discussion (continued)**  
Dr. Baruch Fischhoff, Chair, and Committee Members

10:15 – 10:30 a.m.    **BREAK**

10:30 – 11:30 a.m.    **Committee Discussion (continued)**

11:30 - 11:45 a.m.    **Feedback from Multi-Agency Group Regarding HSAC Response to Charge Questions**  
Colleen Petullo, EPA Office of Emergency Management

11:45 – 12:00 p.m.    **Summary of the Discussion and Action Items**  
Dr. Baruch Fischhoff, Chair, and Committee Members

12:00 p.m.            **Adjourn**  
Edward Hanlon, DFO

## **Attachment 3: EPA Charge Questions to the Committee**

**March 24, 2009**

### **MEMORANDUM**

**SUBJECT:** Consultation on the Development of the Environmental Response Technical Assistance Document For *Bacillus anthracis* Intentional Releases (BA-TAD)

**FROM:** Deborah Y. Dietrich, Director /signed/  
Office of Emergency Management

**TO:** Vanessa Vu, Director  
Science Advisory Board Staff Office

This is to request that the Science Advisory Board (SAB) Homeland Security Advisory Committee (HSAC) conduct a consultation of the attached White Paper entitled “The Development of the Environmental Response Technical Assistance Document for *Bacillus anthracis* Intentional Releases (BA-TAD)”.

### **Background**

The EPA-chaired National Response Team (NRT) comprises 18 federal agencies that have major responsibilities for environmental protection, transportation, emergency management, worker safety, and public health. The Clean Water Act (CWA) provides the authority for the establishment of the National Response System, which contains the NRT, Regional Response Teams (RRTs), and Federal and State On-Scene Coordinators (OSCs). The NRT may consider and make recommendations to agencies on the training, equipping and protection of response teams and necessary research, development, demonstration and evaluation to improve response capabilities.

In response to the 2001 *Bacillus anthracis* incidents in Washington, the Weapons of Mass Destruction (WMD) Subcommittee of the Science and Technology Committee of the NRT developed an interim-final draft Technical Assistance Document (TAD) in 2003 for responses to an actual or suspected terrorist release of *Bacillus anthracis*. In July 2005, the NRT slightly revised the interim-final draft TAD (2003/2005 TAD) (Attachment 1).

In 2007, the NRT tasked the WMD Subcommittee with updating the 2003/2005 TAD. The updated 2003/2005 TAD will have a new title: Environmental Response Technical Assistance Document for *Bacillus anthracis* Intentional Releases (BA-TAD). The WMD Subcommittee conducted a chapter by chapter review of the 2003/2005 TAD to determine what information was still accurate, what needed updating and if there were any data gaps. A brief summary of the content of the 2003/2005 TAD chapters and the approach the WMD Subcommittee plans for the BA-TAD is outlined in the attached White Paper (Attachment 2).

The NRT requested that EPA's Office of Emergency Response (OEM) seek consultative advice from the SAB HSAC on the WMD Subcommittee's development of the BA-TAD.

The SAB HSAC held a teleconference on October 15, 2008 and was briefed by the EPA and its partners on its progress in developing the draft BA-TAD. A Federal Register Notice dated September 29, 2008 (73 FR 56578-56579) announced this teleconference and provided background information on this advisory activity.

Following the teleconference on October 15, Dr. Baruch Fischhoff, Chair of the SAB HSAC, sent a letter to Stephen L. Johnson, then EPA Administrator, dated November 5, 2008. In his memorandum Dr. Fischhoff thanked the Office of Solid Waste and Emergency Response for seeking SAB input on the TAD. However, Dr. Fischhoff also expressed his concern that the Agency is not focusing on the critical issue of risk communication, citing a lack of systematic, scientific attention to communicating with the public. He asked that the anthrax task force clearly define the centrality of communication to the execution of the technical activities described in the TAD and demand the investment in scientifically sound communication. To respond to Dr. Fischhoff's concern, the workgroup has added a specific charge to the SAB (see No. 5 below) to seek input on scientifically sound communication which would be appropriate for this document.

### **Specific Request**

OSWER and the WMD subcommittee request that HSAC provide advice on whether the attached plans to prepare the BA-TAD are properly directed, and if there are any items, issues or practical applications that have not been considered that ought to be included within the BA-TAD. The WMD subcommittee expects the HSAC will bring a broader scientific perspective to the BA-TAD document. In addition, the revision is at a stage where input from the HSAC will be most beneficial. We thank you in advance for your participation in this important project.

#### Consult Charge Questions

1. Given the intent that the BA-TAD will serve as a technical assistance versus technical methodology or resource document, what tools and strategies should be addressed in preparing the Federal On-Scene Coordinator (FOSC) to successfully manage and oversee the components of a response (i.e., characterization, decontamination, disposal, and clearance) to an intentional **indoor** release of *Bacillus anthracis* in industrial, commercial and residential buildings?
2. Given the intent that the BA-TAD will serve as a technical assistance versus technical methodology or resource document, what tools and strategies should be addressed in preparing the FOSC to successfully manage and oversee the components of a response (i.e., characterization, decontamination, disposal, and clearance) to an intentional **wide-area outdoor** release of *Bacillus anthracis*?

3. Are there worker health and safety issues, particular to *Bacillus anthracis*, the BA-TAD should address?
4. For critical infrastructures or wide-area locations, a “zero-culturable-spore” decontamination goal may not be achievable. What are possible cleanup strategies for minimizing risk to facilitate re-occupancy in industrial, commercial and residential buildings where a “zero-culturable-spore” decontamination goal was not achieved?
5. The FOSC would, in a *Bacillus anthracis* event, be functioning within the Incident Command System which typically includes a centralized communication structure with specific roles and responsibilities. The BA-TAD will address the key issues pertinent to the cleanup of environmental contamination with *Bacillus anthracis*. What recommendations does the SAB-HSAC have for scientifically-sound communications to be included in the BA-TAD? More specifically, for the purposes of the BA-TAD, what recommendations does the SAB-HSAC have for the content of these communications?

If you have any questions about this request, please contact Captain Colleen Petullo, U.S. Public Health Service, permanently assigned to EPA, at [petullo.colleen@epa.gov](mailto:petullo.colleen@epa.gov) or (702) 784-8004.

Attachments

**Attachment 4: Presentation by Ms. Debbie Dietrich on EPA's Role and Responsibilities in Emergencies**

# EPA's Roles and Responsibilities in Emergencies



**Deborah Dietrich**

**Director, Office of Emergency  
Management**

# Overview: EPA's Roles and Responsibilities in Emergencies

- EPA's Emergency Response Program
  - EPA's Capabilities
- Role in the National Response Framework (NRF)
- National Approach to Response (NAR)
  - Examples of NAR Priorities
- Examples of Recent Responses
- Overview/Purpose of the Technical Assistance Document for Bacillus Antracis Intentional Releases

# EPA Emergency Response and Preparedness

*“...to protect human health and to safeguard the natural environment...”*

- Clean Water Act/Oil Pollution Act
- CERCLA
- Stafford Disaster Relief/Emergency Assistance Act
- National Response Framework
- Homeland Security Presidential Directives

## National Response System

# EPA's Emergency Response Program

- Respond quickly and decisively to releases of hazardous substances or discharges of oil
- Support state/local efforts...provide safety net
- Under the National Response System (NRS):
  - Cornerstone of national preparation and response to HAZMAT incidents
  - Supported by National and Regional Response Teams
  - Includes Superfund Removal authorities



# National Response System

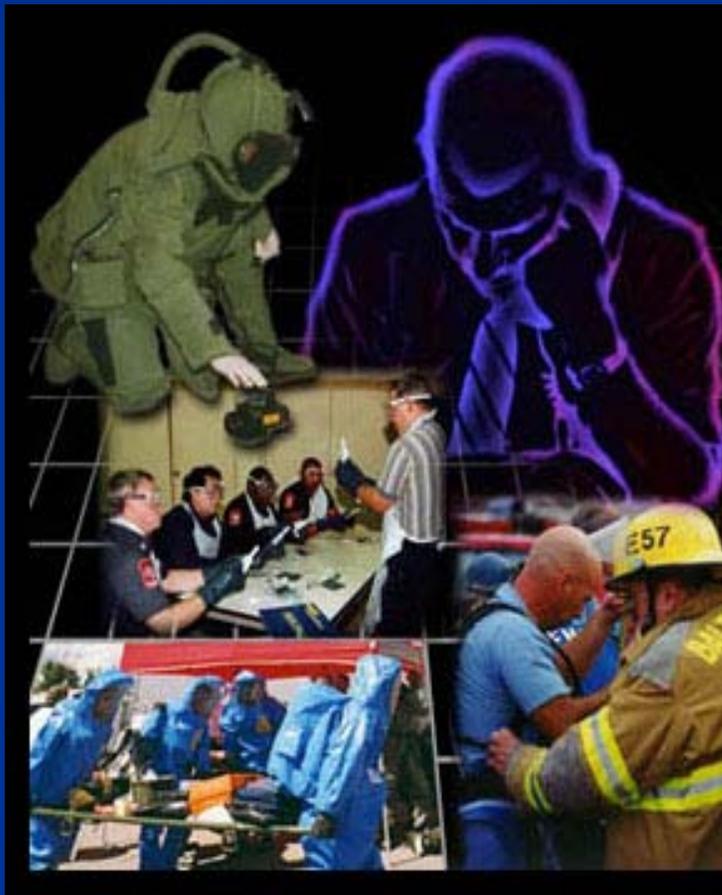
## National Response Team



- Comprised of 16 Federal Agencies
- EPA Chair, USCG Vice Chair
- The NRT is a federal level planning, policy, and coordinating body
- Provides advice and assistance to the FOSCs and RRTs
- Eight of the NRT member agencies are key federal CT agencies- DOJ/FBI, FEMA, EPA, DOD, HHS, DOE, DOT, and USDA

# Wide Range of Emergency Scenarios

(Any or all could constitute a national security emergency)



**Routine oil or hazardous substance  
spill/discharge**



**Catastrophic natural disaster**



**Terrorism incident**



**Major national security event**

# EPA's ER Program Statistics

- 30,000 incident notifications/year
  - Of these 20,000 are hazmat, 10,000 are oil
- Approximately 300 responses /year
- 500 other emergency responses where EPA monitors and provides technical assistance under CERCLA or CWA

# What We Do

- Site Screening
- Sampling and Monitoring
- Laboratory Analysis
- Decontamination
- Site Clean-up
- Disposal
- Risk Communication
- Data management



# How We Respond

- Responsive, decentralized operations based in the ten regional offices
- 250 EPA On-Scene Coordinators (OSCs) with experience and delegated authority to manage incidents
- Comprehensive program infrastructure: intra-agency, interagency and contracted
- Extensive working and planning relationships with local, state and federal responders
- 24/7 scientific and engineering support and state-of-the-art technology
- 30 year history spanning an extraordinary range of high-hazard, large scale responses
- Highly specialized Decon Team recently put in place



# On Scene Coordinators (OSC)

OSC means the federal official predesignated by EPA or the USCG to coordinate and direct responses or coordinate and direct removal actions under the National Contingency Plan (NCP)

# OSC Responsibilities

- Ensure prompt state notification of spills
- Evaluate the need for a removal response
- Evaluate the magnitude of the spill
- Decide when a removal response begins and ends
- Determine when a substantial threat exists
- Ensure site safety

# Response Assets



**◆ National Enforcement Investigations Center**  
Denver, CO

**◆ USCG National Strike Force Coordination Center**  
Elizabeth, NC

**● National Decontamination Team**  
Cincinnati, OH

**▼ National Strike Force Teams**  
1 Atlantic, Fort Dix, NJ  
2 Gulf, Mobile, AL  
3 Pacific, Novato, CA

**★ EPA Headquarters**  
Washington, DC

**■ Regional Offices and Field Offices**

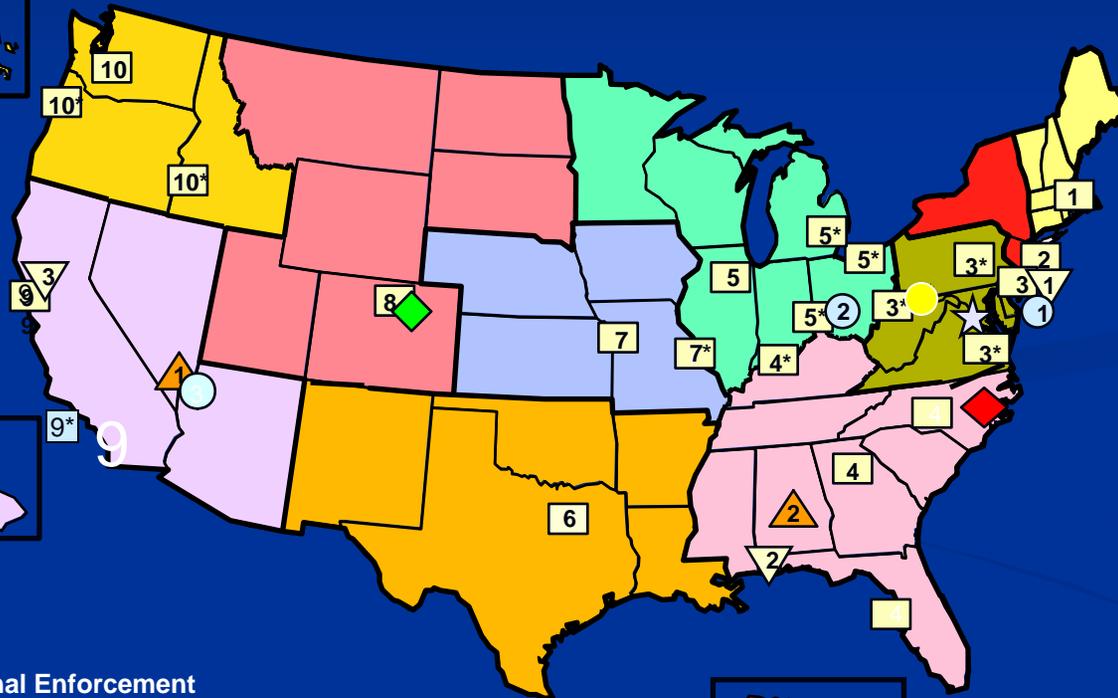
- 1 Boston, MA
- 2 New York, NY
- 2\* Puerto Rico
- 3\* Allentown, PA
- 3 Philadelphia, PA
- 3\* Wheeling, WV
- 3\* Richmond, VA
- 4 Atlanta, GA
- 4\* Tampa, FL
- 4 Raleigh, NC
- 4 Louisville, KY
- 5 Chicago, IL
- 5\* Charlesville, IL
- 5\* Cincinnati, OH
- 5\* Cleveland, OH
- 5\* Grosse Ile, MI
- 6 Dallas, TX
- 7 Kansas City, MO
- 7\* St. Louis, MO
- 8 Denver, CO
- 9 San Francisco, CA
- 9\* Los Angeles, CA
- 10\* Seattle, WA
- 10\* Portland, OR
- 10\* Boise, ID
- Anchorage, AK
- \* denotes field office

**● Environmental Response Teams**

- 1 Edison, NJ
- 2 Cincinnati, OH
- 3 Las Vegas, NV

**▲ Radiation Labs**

- 1 Las Vegas, NV
- 2 Montgomery, AL



# Environmental Response Team (ERT)

- Mission: *Support the nation's response, cleanup and renewal of its contaminated land, water and air.*
- Established in 1978
- 41 experienced responders
- 125+ trained contractors
- Focus: “classic environmental”  
emergencies and more...

Characterization    Sampling/monitoring

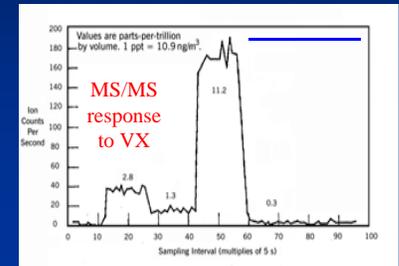
Hazard Evaluation    Risk Assessment

Safety    Decontamination/disposal



# ERT Assets

- TAGAs
- Contaminated Water Dive Unit
- Radiation detection resources
- WMD sampling & monitoring
- Air dispersion modeling
- Response & command vehicles



# National Decontamination Team (NDT)

- Established 2003
  - 15 multi-disciplined response personnel
    - Contract support,
    - Surge capacity additional expertise
  - Focus: WMD agents
- 
- ✓ Sampling
  - ✓ Decontamination
  - ✓ Nature and extent of contamination
  - ✓ Health and Safety
  - ✓ Waste Disposal



*Buildings, infrastructure, indoor environments, agriculture, environmental media*

# NDT Assets



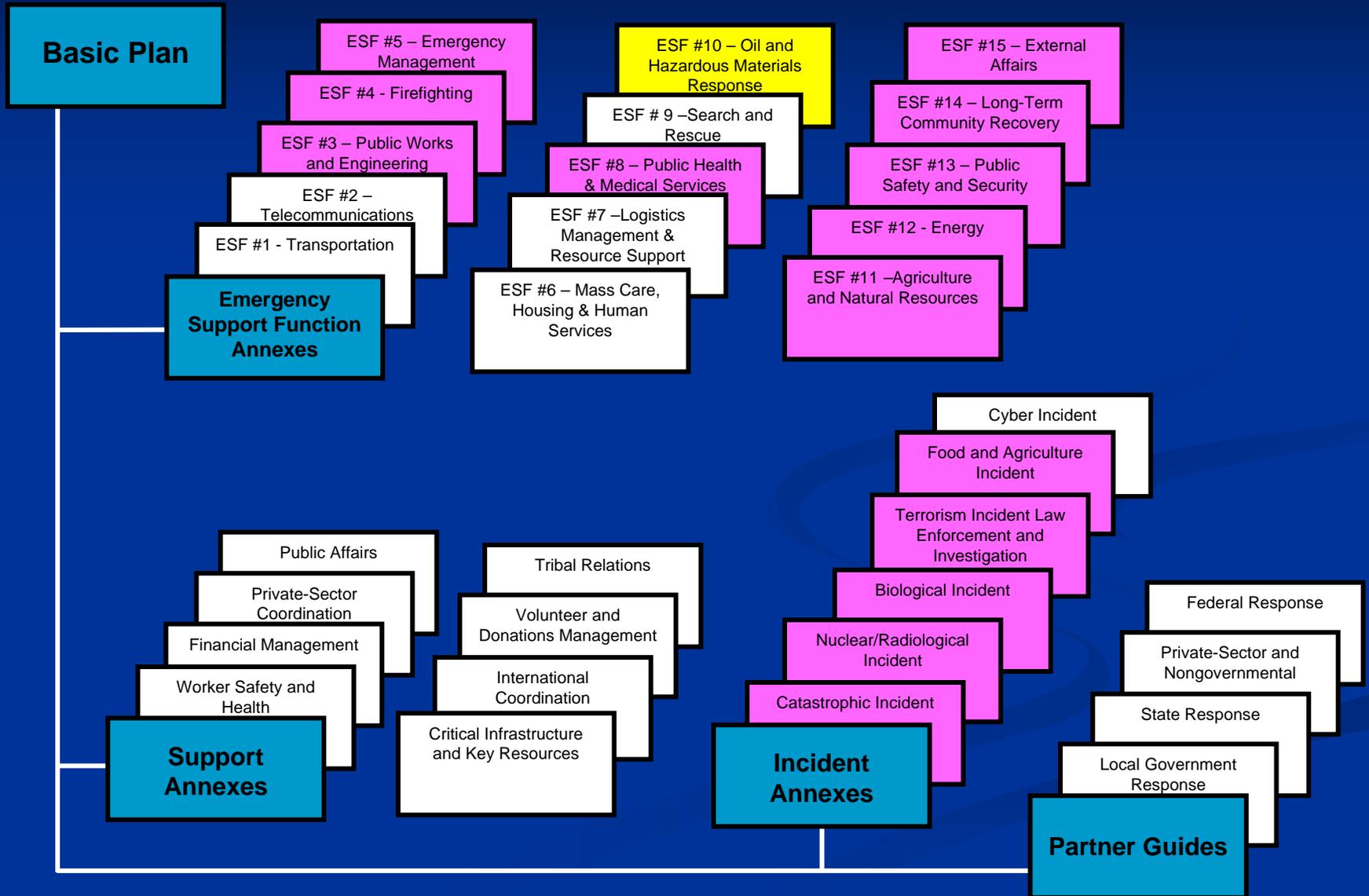
- Technical experts in Health & Safety, Rad, HVAC, nanotechnology, toxicology, medicine, and risk assessment
- Mobile laboratory and communications vehicles
- Air monitoring expertise/equipment
- Scientific information provided via the Decon Portfolio
- ASPECT - Airborne Spectral Photometric Environmental Collection Technology



# National Response Framework

- Mandated by HSPD-5
- All Hazards Plan
- How the Federal Government Responds to Incidents of National Significance
- EPA is the Coordinator and the Primary Agency, along with the U.S. Coast Guard for Emergency Support Function (ESF) #10, Oil and Hazardous Materials
- EPA is a Support Agency for numerous other ESFs

# Organization of the NRF



# ESF#10-Oil and Hazardous Materials Response

EPA is the Coordinator and Primary Agency  
along with the Coast Guard

- Remove drums, barrels, containers
- Household Hazardous Waste Collection
- Permitting and monitoring of debris disposal
- Water quality monitoring and protection
- Air quality sampling and monitoring
- Protection of Natural Resources

# ESF #10: Examples of EPA Hazmat Response

- September 11, 2001
  - **WTC:**
    - Technical support, sampling, disposal
  - **Pentagon**
    - Air monitoring, health & safety
  - **Western Pennsylvania**
    - Evidence collection, assessment
  
- Anthrax Attacks
  - **Capitol Hill**
    - sampling, assessment, cleanup, disposal, clearance
  - **Other locations**
    - oversight, technical support

# ESF #10: Examples of EPA Hazmat Response

- Columbia Space Shuttle

- Debris collection

- Katrina

- Oil spill and hazmat cleanup
- Floodwater and sediment sampling
- Household hazardous waste collection
- Coordination with USACE on debris mgt

- Pre-deployments for NSSEs

- State of the Union
- Political conventions
- Superbowl

# EPA's National Approach to Response

- Agency wide approach put in place after 9/11 and anthrax responses
- Clearly defined roles for Regions and Headquarters
- Incorporate Government-wide National Response Framework and National Incident Management System
  
- Priorities:
  - Administrative Issues
  - Contracts
  - Decon Strategy
  - Equipment
  - Data Management
  - Health and Safety
  - Human Capital Strategy
  - Incident Command System
  - Lab Capacity
  - **Public Outreach/Risk Communication**
  - Radiological Response
  - Response Support Corps
  - Telecommunications
  - Training and Exercise

# Public Outreach/Risk Communication

- Workgroup Co-chairs from Office of Public Affairs, Office of Emergency Management and Public Affairs Directors from Lead Regions for Homeland Security and Superfund
- Crisis Communications Plan (Agency Order)
- Crisis Communications Resource Guide
  - Under development
  - Builds on 5 DHS Scenarios ( Anthrax, RDD, Blister Agent, Hurricane, Earthquake)

# Public Outreach/Risk Communication (cont'd)

- Workshops for technical experts and communicators have been conducted for the Anthrax, RDD and Blister Agent scenarios
- Goal for the Crisis Communications Resource Guide is to have pre-scripted messages ready to adapt to specific circumstances
- EPA is reaching out to CDC, DHS and others to coordinate related messages

# TA Document for *Bacillus anthracis* Intentional Releases

- 2003: Interim-final TA Document following response to the 2001 anthrax incidents in DC
- 2005: Slight revision to the TA Document
- 2007: WMD Committee of the NRT tasked to Update the 2003/2005 document
- Environmental Response Technical Assistance Document for *Bacillus anthracis* will be a technical resource specifically for use by Federal OSCs when managing indoor, outdoor or wide-area releases

**Attachment 5: Presentation by Capt. Colleen Petullo on Development of the Updated Anthrax TAD**

# WMD Subcommittee Consultation with EPA-SAB-HSAC on BA-TAD

(Environmental Response Technical Assistance Document for *Bacillus anthracis*  
Intentional Releases)

**CAPT. Colleen F. Petullo, USPHS**  
(Assigned to USEPA/OSWER/ERT)  
WMD Subcommittee Chair  
April 21, 2009





## BA-TAD Scope

- Designed specifically for the National Response Team (NRT) Federal On Scene Coordinators (FOSCs), whose agencies are part of the NRT, to support their role in these responses
- Content may also be helpful to first responders, facility managers and owners, and local, state, tribal, and territorial government agencies
- Not intended as detailed guidance for forensic investigations, public health (e.g., medical countermeasures), public affairs (e.g., instructions to the public), or recovery operations (e.g., rebuilding or relocation).







## Preparing to Sample: Classification

- Divide area(s) into Classification Zones based on level of contamination or expected contamination:
  - Zone 1: Contaminated
  - Zone 2: Contamination Highly Likely
  - Zone 3: Contamination Not Likely
  - Zone 4: Contamination Very Unlikely



# To Sample or Not to Sample?

- It may be more cost effective to immediately proceed to decontaminate an area or simply dispose of items w/out EXTENSIVE sampling and study based on site intelligence or visual clues.



# Classification Zone 1: Contaminated

- Contamination is confirmed
- Will be decontaminated
- Judgmental sampling is recommended
- Confirm what we know and think







## Classification Zone 4: Contamination Very Unlikely

- No plausible pathway
- Decontamination not necessary
- No sampling necessary



# Preparing to Sample: Sampling Plan (SP) Recommendations

- SPs should specify number, type, method and location (spatial and temporal) of sampling.
- SPs should provide an explanation and justification for the number and type of samples.



# Preparing to Sample: Strategies

- Judgmental sampling
  - Based on observations, screening information and knowledge of event
- Statistical sampling
  - Probability-based
  - Provides confidence in results
- Composite



# Sampling Strategy Selection

- Depends on Decision to be made:
  - Results must demonstrate release criterion has been met within predetermined confidence levels.
  - Sampling area has been evaluated sufficiently to develop a technically defensible decontamination or cleanup approach.
  - Verification of cleanup is possible



# Sampling Strategy: Judgmental

- Professional judgment sample locations
- Source of contamination is known
- Physical/chemical characteristics are known
- Event-specific information is known
- Indirect evidence is available







# Recommended Sampling Strategies

- Composite Sampling
  - Discrete samples are combined & homogenized into a single representative sample for analysis.
  - Averaging the analytical results of a few composites can produce an estimated mean that is as precise as one based on many more individual sample results thereby substantially reducing sampling costs.
  - Downside: Data from these samples cannot be applied to statistical tests.



# Sampling: Collection

- Surface – Primary focus
  - Determines extent of contamination
- Air - Secondary focus
  - Provides additional relevant risk assessment info



# Surface Sample Recommendations

- Porous Surface
  - High efficiency particulate air (HEPA)-vacuum filter socks.
- Non-Porous Surface
  - Swab or wipe samples are preferred
  - HEPA-vacuum sampling is also applicable



# Air Sampling Recommendations

- Further characterize the agent
- PPE for Worker H&S
- Verification of containment of “Hot Zone” during cleanup operations
- Post decontamination confirmatory sampling



# Analysis: Recommended Methods

- Laboratory Response Network (LRN) (future ELRN) methods or;
- Method(s) agreed upon by Response SMEs
  - Culture / PCR – Pros and Cons
  - Others?
  - Limit of detection



# Cleanup Decision-Making Framework

- “Optimization Process;” flexible process that balances a variety of site-specific factors;
  - Stakeholder Concerns & Feasibility Issues
    - Populations of concern,
    - economic interests,
    - decontamination efficacy,
    - extent of contamination, etc.
  - Population dynamics and exposure estimates are combined with agent-specific information
    - pathogenicity,
    - preparation characteristics, etc.



# Cleanup Decision-Making Framework

- .....site-specific factors (Continued)
  - Results of scientific vetting of decontamination options
  - Verification of clearance criteria – evaluation of criteria to define successful decontamination
  - Practicability of orderly reuse/re-occupancy that includes post-re-occupancy monitoring
- Clearance decisions then based on;
  - technical input,
  - interpretation of scientific data,
  - economic realities
  - as well as other factors



# Decontamination: Overview

- Guidance will be provided for:
  - Developing a decontamination plan for an intentional (terrorist) release event
  - Options and technologies rather than prescriptive since the strategy chosen in an incident will be event-specific
  - The reality that our current approach may not be feasible for a large or wide-area release scenario



## Decontamination: Overview

- Pros and cons of various decontamination technologies will be provided
- Considerations for use of a technology
- Off-site decontamination
- Criteria for confirming decontamination effectiveness



## Decontamination: Wide-Area Issues

- BA-TAD may not fully address Wide-Area Issues; Information is sparse or not well vetted
- Expecting to finalize BA-TAD with best information at time of publication – more/better coming soon (2010)
- Anticipating updating when more definitive and broadly accepted information and approaches are available (e.g., IBRD\* program currently addressing)

\* IBRD = Department of Homeland Security and Defense Threat Reduction Agency are co-sponsoring the Interagency Biological Restoration Demonstration (IBRD) program. The IBRD program is a multi-year effort (ends in 2010) aimed at determining the best response and contamination mitigation methods for a wide-area, multiple-release bioterrorism event in an urban area.



## Waste: Expected Types

- Personal Protective Equipment (PPE)
- Material & Equipment (e.g., metals, tools, piping, drywall, carpeting, conduit, furniture and dispersible bulk materials such as trash, rubble, roofing materials, and sludges)
- Wastewaters from decontamination and fumigant scrubbers



# Waste: Waste Management

- Recommendations:
  - Notify waste & recycling providers early-on for agreement on packaging, labeling, storage, shipment, etc.
  - Using waste decision support tools (software)
  - Arrange for on-site treatment
  - If necessary, arrange for off-site treatment and certification of inactivation (e.g., radiation, autoclaving)



# Waste: Pertinent Regulations

- Transportation – local, state, & federal
  - Packaging
  - Labeling
  - Shipping documents
- Disposal: size, packaging, and labeling considerations
  - Incineration – local, state and federal regulations regarding exhaust and ash disposal
    - Traditional incinerator
    - Hazardous or medical waste incinerator
    - Air curtain destructors
  - Landfill – local acceptance regulations



## Waste Disposal Conclusions

- State and local regulatory agencies must be contacted early
- Approved disposal plans should be in place well before attempting any disposal activity



## Releasing Wastewater to Publicly Owned Treatment Works

- Guidance will be provided for:
  - Handling of wastewater
  - Coordinating with local authorities on wastewater acceptance criteria
  - Chlorine concentrations and exposure times for acidified-bleach (white vinegar-household bleach-wastewater) solutions for containerized wastewater
  - Sampling and analysis (laboratory coordination) for determining effectiveness of disinfection within containers
- Recent research findings on inactivation of *B. anthracis* spores with aqueous chlorine will be included.







## Charge Question 3

Are there worker health and safety issues, particular to *B. anthracis*, the BA-TAD should address?



# Charge Question 4

For critical infrastructures or wide-area locations, a “Zero-Culturable-Spore” (ZCS) decontamination goal may not be achievable.

- What are possible cleanup strategies for minimizing risk to facilitate re-occupancy in industrial, commercial and residential buildings where a “ZCS” decontamination goal was not achieved?



## Charge Question 5

The FOSC would, in a *B. anthracis* event, be functioning within an Incident Command System which typically includes a centralized communication structure with specific roles and responsibilities. The BA-TAD will address the key issues pertinent to the cleanup of environmental contamination with *B. anthracis*.

- What recommendations does the HSAC have for scientifically-sound communications to be included in the BA-TAD?
- More specifically, for the purposes of the BA-TAD, what recommendations does the HSAC have for the content of these communications?





# Questions



**Attachment 6: Public Attendance**

**List of Attendees**  
**SAB Homeland Security Advisory Committee (HSAC) Public Meeting on the**  
**Consultation on the Development of the Environmental Response Technical Assistance**  
**Document For *Bacillus anthracis* Intentional Releases**

**April 21, 2009**

<b><u>Name</u></b>	<b><u>Affiliation</u></b>
Colleen Petullo	EPA/Office of Solid Waste and Emergency Response (OSWER)/Office of Emergency Management (OEM)
Daniel Ruedy	SRA Consultants
Amanda Komar	SRA Consultants
Deborah McKean	EPA Office of Research and Development
Helen Stallings	U.S. Department of Health and Human Services (HHS)/STG International
John Decker	HHS/Centers for Disease Control (CDC)/National Institutes for Occupational Safety and Health (NIOSH)
Jeff Goodman	U.S. Department of Agriculture (USDA)
Dino Mattorano	EPA/OSWER/OEM
Nicki Persik	HHS/CDC
Debbie Dietrich	EPA/OSWER/OEM
Maria Hegstad	Inside EPA
John Koerner	U.S. Department of Labor
Janice Bradley	ISEA

**Attachment 7: Federal Register Notice Announcing HSAC April 2009 Committee Meeting**

[Federal Register: March 26, 2009 (Volume 74, Number 57)]  
[Notices]  
[Page 13206]  
From the Federal Register Online via GPO Access [wais.access.gpo.gov]  
[DOCID:fr26mr09-69]

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ENVIRONMENTAL PROTECTION AGENCY  
[FRL-8786-9]

Science Advisory Board Staff Office, Notification of an Upcoming Meeting of the Science Advisory Board Homeland Security Advisory Committee (HSAC)

AGENCY: Environmental Protection Agency (EPA).  
ACTION: Notice.

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**SUMMARY:** The Environmental Protection Agency (EPA or Agency) Science Advisory Board (SAB) Staff Office announces a public face-to-face meeting of the SAB Homeland Security Advisory Committee (HSAC). HSAC has been augmented with additional members to provide consultative comment on a draft Environmental Response Technical Assistance Document for Bacillus anthracis Intentional Releases (BA-TAD).

**DATES:** The meeting will be held on April 21, 2009 from 8:30 a.m. to 5 p.m. (Eastern Daylight Time) and April 22, 2009 from 8:30 a.m. to 12 p.m. (Eastern Daylight Time).

**ADDRESSES:** The Committee meeting will be held at the SAB Conference Center, located at 1025 F Street, NW., Room 3705, Washington, DC 20004.

**FOR FURTHER INFORMATION CONTACT:** Members of the public who wish to obtain additional information regarding this meeting may contact Mr. Edward Hanlon, Designated Federal Officer (DFO), EPA Science Advisory Board (1400F), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460; telephone/voice mail: (202) 343-9946; fax (202) 233-0643; or via e-mail at hanlon.edward@epa.gov. General information about the EPA SAB, as well as any updates concerning the meeting announced in this notice, may be found on the SAB Web site at

<http://www.epa.gov/sab>. Any inquiry regarding EPA's BA-TAD should be directed to Captain Colleen Petullo, U.S. Public Health Service, on detail to EPA's Office of Solid Waste and Emergency Response (OSWER), at [petullo.colleen@epa.gov](mailto:petullo.colleen@epa.gov) or (702) 784-8004.

**SUPPLEMENTARY INFORMATION:** Pursuant to the Federal Advisory Committee Act, Public Law 92-463, notice is hereby given that the Augmented SAB HSAC will hold a public face-to-face meeting to discuss their comments on the draft BA-TAD. The SAB was established by 42 U.S.C. 4365 to provide independent scientific and technical advice to the Administrator on the technical basis for Agency positions and regulations. The SAB is a Federal Advisory Committee chartered under the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C., App. The SAB will comply with the provisions of FACA and all appropriate SAB Staff Office procedural policies. The SAB HSAC provides scientific and technical advice to the EPA Administrator through the chartered SAB on scientific matters pertaining to EPA's mission in protecting against the environmental and health consequences of terrorism.

**Background:** In response to the 2001 Bacillus anthracis incidents in Washington, the Weapons of Mass Destruction (WMD) Subcommittee of the Science and Technology (S&T) Committee of the EPA-chaired National Response Team (NRT) developed an interim-final draft Technical Assistance Document (TAD) in 2003 for responses to an actual or suspected terrorist release of Bacillus anthracis. In July 2005, the NRT slightly revised the interim-final draft TAD. EPA, as chair, works closely with seventeen other Federal agencies on the NRT. The NRT is developing the BA-TAD by revising and updating the 2005 interim-final draft TAD, and requested that OSWER seek consultative advice from the SAB HSAC on their development of the BA-TAD. The Augmented HSAC will conduct the consultation. The primary purpose of this upcoming meeting is for the Augmented HSAC to provide advice on whether the technical plans to prepare the BA-TAD are properly directed, and if there are any items, issues or practical applications that have not been considered that ought to be included.

The SAB HSAC held a teleconference on October 15, 2008 and was briefed by the EPA and its partners on its progress in developing the draft BA-TAD. A Federal Register Notice dated September 29, 2008 (73 FR 56578-56579) announced this teleconference and provided background information on this advisory activity. Information on the process of augmenting the expertise on the SAB HSAC was provided in a Federal Register Notice dated March 28, 2008 (73 FR 16679-16680). Additional information about this consultative activity including a meeting agenda will be posted on the SAB Web site prior to the meeting at <http://www.epa.gov/sab>.

**Availability of Meeting Materials:** The agenda and other meeting materials will be available on the SAB Web site at <http://www.epa.gov/>

sab in advance of the meeting.

**Procedures for Providing Public Input:** Interested members of the public may submit relevant written or oral information for the SAB HSAC to consider during the advisory process. **Oral Statements:** In general, individuals or groups requesting an oral presentation at a public face-to-face meeting will be limited to three minutes per speaker, with no more than a total of one hour for all speakers. Each person making an oral statement should consider providing written comments as well as their oral statement so that the points presented orally can be expanded upon in writing. Interested parties should contact Edward Hanlon, DFO, in writing (preferably via e-mail) at the contact information noted above, by April 7, 2009 to be placed on the list of public speakers for the meeting. **Written Statements:** Written statements should be received in the SAB Staff Office by April 7, 2009 so that the information may be made available to the Committee members for their consideration. Written statements should be supplied to the DFO in the following formats: One hard copy with original signature, and one electronic copy via e-mail (acceptable file format: Adobe Acrobat PDF, WordPerfect, MS Word, MS PowerPoint, or Rich Text files in IBM-PC/Windows 98/2000/XP format). Submitters are requested to provide versions of each document submitted with and without signatures, because the SAB Staff Office does not publish documents with signatures on its Web sites.

**Accessibility:** For information on access or services for individuals with disabilities, please contact Edward Hanlon at the phone number or e-mail address noted above, preferably at least ten days prior to the public face-to-face meeting to give EPA as much time as possible to process your request.

Dated: March 18, 2009.  
Anthony F. Maciorowski,  
Deputy Director, EPA Science Advisory Board Staff Office.

**Attachment 8: Public Comments**

From: jean public <jeanpublic@yahoo.com>  
To: Edward Hanlon/DC/USEPA/US@EPA  
Cc: Colleen Petullo/LV/USEPA/US@EPA, americanvoices@mail.house.gov  
Date: 03/26/2009 04:03 PM  
Subject: public comment on fedearl register

no releases of bacillus should be permitted at any time in any way. all of this should be shut down. jean public 15 elm st florham park nj 07932