Challenges Faced During the Environmental Protection Agency's Response to Anthrax and Recommendations for Enhancing Response Capabilities

A Lessons Learned Report

U.S. Environmental Protection Agency

September 2002

Table of Contents

Page

Executive Summary

Background

This report describes lessons learned and priority recommendations for improvement regarding emergency response to anthrax-related incidents, based on the associated activities conducted by the Environmental Protection Agency (EPA) from October 2001 through February 2002. It reflects the retrospective observations and recommendations of EPA personnel involved in this effort, including front line responders, technical and support personnel, and both headquarters and regional management. In no way should this report be represented as critical of the outstanding performance of many individuals, or the demonstrated effectiveness and capacity of EPA as an organization. The report is intended as constructive feedback to the Agency, from the Agency, on its multifaceted anthrax response, to maximize learning from this unfamiliar challenge in the event of a future, similar attack.

During September and October 2001, at least four letters containing a powdered form of anthrax were mailed through the United States Postal Service (USPS), resulting in the presence of anthrax spores at various Congressional office buildings on Capitol Hill in Washington, DC; USPS facilities; and other government and private facilities in several locations nationwide. Beginning in October 2001, EPA responded to the environmental threats created by confirmed and suspected cases of anthrax contamination.

EPA personnel demonstrated the ability to develop site management and cleanup plans for an entirely new response scenario involving a biological contaminant. EPA's capabilities and efforts were central to the ultimate success of this unprecedented cleanup.

The Agency's resources were mobilized and coordinated using national and regional support. EPA's responses included the three-month anthrax response on Capitol Hill, as well as responses at other federal facilities. Approximately 128 EPA personnel and 54 On-Scene Coordinators (OSCs) came from all 10 EPA regional offices to respond to the anthrax cleanup.

In addition to the application of professional emergency response knowledge and skill to unfamiliar challenges, EPA personnel devoted extraordinarily long hours to difficult and stressful work. From October 2001 through February 2002, EPA responders worked with other agencies and organizations to ensure the protection of public health and the environment, as well as the continued operations of the U.S. Government.

This report captures lessons learned and cross-cutting recommendations in the following area categories: Authorities; Operations; Communications and Coordination; Health and Safety; and Resources.

Study initiation

EPA Administrator Christine Todd Whitman charged Assistant Administrator Marianne Lamont Horinko, Office of Solid Waste and Emergency Response (OSWER), to chair an effort to draw out lessons learned from the wide-ranging activities in which EPA was engaged following the terrorist attacks of September 11, 2001. Due in part to the relevance of an initial report, *Lessons Learned in the Aftermath of September 11, 2001*, developed by EPA's Office of Emergency and Remedial Response (OERR), this lessons learned report, *Challenges Faced During the Environmental Protection Agency's Response to Anthrax and Recommendations for Enhancing Response Capabilities*, was commissioned on March 6, 2002.

Goals for the study

In any response of this magnitude, lessons learned will assist EPA in responding to future incidents. EPA views this report as an opportunity to learn from the experiences of its personnel. The goals of this report are as follows:

1. Document the major actions taken by EPA;
2. Identify the key accomplishments as related to significant advancement of the science and technology of detecting and remediating anthrax, as well as define areas where enhanced capabilities are most desirable; and
3. Develop lessons learned and present recommendations for meeting the challenges ahead in the areas of emergency preparedness and counter-terrorism response.

Methodology

A focused study based on extensive interviews of 67 individuals was conducted between March 6, 2002, and April 30, 2002. Interviewees were representative of headquarters and regional management, OSCs, other responders, and personnel at all levels who were involved with all aspects of EPA's anthrax-related activities between October 2001 and February 2002.

Interviews

Interviewees were asked to describe and assess their organization's anthrax response activities and capabilities, and to answer questions with respect to EPA's authorities; operations; internal and external communications; health and safety; and resources during the response.

Lessons learned

The information and assessments provided through interviews were examined to document actions, establish patterns and themes across different perspectives, identify lessons learned, develop specific recommendations, and

finally formulate overarching "cross-cutting" recommendations. Lessons learned are grouped in the following five area categories: Authorities; Operations; Communications and Coordination; Health and Safety; and Resources.

Cross-cutting recommendations

After evaluating the lessons learned, the most significant and broad-reaching issues were identified as overarching challenges that span the previously identified area categories, and used to develop cross-cutting recommendations that encompass the lessons described in Chapter 2. Key steps in implementing the cross-cutting recommendations are further specified in Chapter 3.

Authorities

Although the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) provide authority to respond to biological incidents, the NCP does not include a response plan for such incidents, and the Federal Response Plan (FRP) was not activated to coordinate the agencies involved in the response to anthrax on Capitol Hill. A number of jurisdictional issues were raised during EPA's responses to the anthrax incidents regarding constitutional; statutory and regulatory; contractual; and non-CERCLA authorities.

Lessons learned in this area include:

Questions about lines of authority could potentially complicate or delay a response to an incident on property under the control of the legislative or judicial branches of the federal government. In the absence of FRP activation, there is no clear structure defining the interaction of the various federal agencies that may be involved in a large-scale response.

The non-traditional response structure under which EPA was operating at Capitol Hill did not make the best use of EPA's experience and established procedures, resulting in defining roles and responsibilities "on the fly."

Cross-cutting recommendation:

Revisit and revise, as needed, EPA's existing internal emergency response coordination authority, plans, and structures.

Operations

The anthrax incidents occurred while EPA's response at the World Trade Center and the Pentagon were ongoing. There were thousands of anthrax incidents, scares, and hoaxes nationwide. EPA regions responded to many

incidents, most of which were false alarms. The operating environment was, in the opinion of responders, "unlike any previous operating environment" that EPA had faced. Although response personnel effectively solved the problems they faced, EPA was not fully prepared to scale up its efforts to the magnitude required for the anthrax cleanup, and did not have sufficient technical information or procedural guidelines at hand.

Lessons learned in this area include:

Use of a clearly defined and fully implemented command structure would have enabled more efficient management of a complex, national-scale response involving multiple agencies.

Obtaining adequate expertise in the operational technicalities associated with responding to anthrax contamination or other biological agents would enhance planning efficiencies and the timeliness of response.

Finding and testing the most efficient response methods, and their costs, for dealing with anthrax contamination would enable expeditious selection of disinfection approaches.

Cross-cutting recommendations:

Enhance capability to scale up emergency response efficiently, and develop specialized response skills for unfamiliar threats.

Develop, with the Office of Homeland Security, a response coordination structure to be followed in a multi-federal agency response for which the FRP is not activated.

Communications and coordination

Coordination between organizations and creating a structure for sharing information is critical, as is ensuring interagency familiarity with each others' roles, responsibilities and capabilities.

Many of the communication processes worked well, such as the use of cellular phones between OSCs and other key responders; daily conference calls; written daily updates of site activities; community outreach; and frequent press conferences and updates to Congress. However, a more systematic approach to on-site communications was needed. Although a central planning and support section was in operation for interagency coordination, greater familiarity with its existence and functions would improve coordination among responders.

Lessons learned in this area include:

A more centralized process for tracking site personnel, activities, and progress toward completion at the Capitol Hill response would enhance coordination among EPA staff, and thereby improve the efficiency of the response.

Implementing a traditional Incident Command System/Unified Command (ICS/UC) structure would include a Joint Information Center for future responses of this magnitude.

Using EPA's established systems for inter-office coordination, such as the National Incident Coordination Team and the Regional Incident Coordination Team (RICT), would help plan for emergency response situations.

Deployment of EPA's Emergency Communications and Outreach Team (ECOT) can provide additional support to the regional community involvement staff.

- *Cross-cutting recommendation:*

Elevate the priority of emergency communications structures and capacity, and implement existing communications programs developed for emergency responses.

Health and safety

At the time of the response, EPA had no standard mode or protocols for addressing the special health and safety concerns associated with the release of a biological agent such as anthrax. As a result, EPA relied on expertise and information from other organizations, and the approaches to health and safety changed and evolved during this response. While a Health and Safety Plan was available and accessible to all responders on site, some responders observed that more information should have been available in the plan to specifically address reconnaissance safety.

The availability of useful, accurate scientific information for a response to anthrax in a civilian environment was limited and anthrax-related information from other health agencies was not initially as useful as EPA had anticipated. In the initial days of the response, the lack of scientific data about anthrax limited EPA's decision-making abilities regarding operational issues such as personal protective equipment (PPE).

On-site medical support is another health and safety issue reviewed in this report. EPA should examine medical policies, regulations, and laws that to ensure that EPA will have adequate and continuous medical support at the beginning of a future large-scale response.

Lessons learned in this area include:

There is a need for faster and greater access to better interagency (both civilian and military) information on potential biological weapons of mass destruction (WMD), and for providing a clear understanding of exposure risks and correct prophylactic treatments available to protect responders from exposure.

EPA's traditional approach to health and safety must be revisited when responding to biological agents such as anthrax. Clear guidance on PPE levels for biohazard responses must be established.

Special care must be taken to address sudden changes in field procedures while operations are underway, including re-training, to avoid the potential for human error affecting safety and health.

Cross-cutting recommendation:

Enhance safeguards to ensure that responder health and safety is given precedence among competing priorities, especially in a multi-agency led response.

Resources

The anthrax response was unprecedented in terms of the amount of resources needed by EPA to accomplish its mission safely and effectively. EPA was well prepared and trained for an emergency response, but not well trained or prepared to handle the unfamiliar and unique aspects of a biohazard, or specifically, anthrax response. As observed by the front-line responders, resource availability proved to be multidimensional, affecting the conduct of operations, communications, and health and safety issues. In addition, the mechanisms typically used by EPA to obtain resources had to be exercised and interpreted in ways not previously used by EPA in an emergency response.

Lessons learned in this area include:

There is a need for having a mechanism, procedure, or source of funding in place to provide financial support for the magnitude of an emergency response when the FRP had not been activated.

A more traditional command structure, such as the ICS, can manage resources more effectively.

EPA's standard response contracts did not provide for the staffing needs for biological emergencies. There were times when there were not enough qualified contractors available to conduct specialized work.

EPA does not have an inventory of equipment needed to sample microbial agents or to perform disinfection. It also does not have a database of possible sources of equipment as it does for chemical responses.

Adequate supplies of PPE must be provided for the OSCs.

Cross-cutting recommendations:

Acquire equipment, lab capacity, funding and trained personnel sufficient to support EPA's role in responding to biological agents and other WMD.

Improve response capability and develop in-house expertise in biological agents and other WMD.

Conclusion

EPA considers the anthrax cleanup a success. Using the Agency's well-tested problem solving approach to emergencies, EPA met and resolved the following challenges:

- Cleaned up the anthrax on Capitol Hill efficiently and safely, while having to adapt and operate within a command structure that used new approaches to organizing an emergency response.
- EPA worked within the established command structure facilitating the management of its response activities and personnel, while also communicating and coordinating effectively with the other agencies and organizations.
- EPA responders had only limited technical information and experience for cleaning up biological contaminants. Despite these challenges, EPA was able to implement a plan of action based on sound science.
- EPA, along with others, worked to access the technical and medical expertise necessary to identify appropriate health and safety procedures, and implement safeguards for the biological response.

Acronym List

AA	Assistant Administrator
AMI	American Media, Inc.
BCR	Biological, Chemical, or Radiological
CDC	Centers for Disease Control and Prevention
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CID	Criminal Investigation Division
CIOC	Community Involvement and Outreach Center
DA	Deputy Administrator
DoD	U.S. Department of Defense
ECOT	Emergency Communications and Outreach Team
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ERT	Environmental Response Team
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FRP	Federal Response Plan
GSA	General Services Administration
HASP	Health and Safety Plan
HHS	U.S. Department of Health and Human Services
IC	Incident Commander/Incident Command
ICS	Incident Command System
JIC	Joint Information Center
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NICT	National Incident Coordination Team
NIIMS	National Interagency Incident Management System
NIOSH	National Institute of Occupational Safety and Health
NRS	National Response System
NRT	National Response Team
OERR	Office of Emergency and Remedial Response

Acronym List (continued)

OGC	Office of General Counsel
OPA	Office of Public Affairs
OPC	Oil Program Center
OPPTS	Office of Pollution Prevention and Toxic Substances
OSC	On-Scene Coordinator
OSWER	Office of Solid Waste and Emergency Response
PDD	Presidential Decision Directive
PPE	Personal Protective Equipment
RA	Regional Administrator
RICT	Regional Incident Coordination Team
RPM	Remedial Project Manager
UC	Unified Command
USAMRIID	United States Army Medical Research Institute of Infectious Diseases
USCG	United States Coast Guard
USPHS	United States Public Health Service
USPS	United States Postal Service
WMD	Weapons of Mass Destruction

Chapter 1

Introduction

Overview

The Challenge, The Response, A Program of Action

For more than 30 years, the Environmental Protection Agency's (EPA) emergency response actions have reduced risks to public health and the environment. EPA stands ready 24 hours a day to respond quickly whenever hazardous substances are released.

Every day across the country, a dedicated staff of On-Scene Coordinators (OSCs) conduct and direct emergency responses. During the anthrax cleanup on Capitol Hill, dozens of OSCs came together to apply their expertise to an unknown situation involving a biological contaminant. As a result, human health was protected. This historical response demonstrated the ability of OSCs to adapt to uncertain situations and apply their knowledge of science in meeting the challenges of anthrax.

Within days of the response to Capitol Hill, OSCs worked in partnership with other agencies and organizations to manage site activities. They also worked on designing a plan for sampling and cleaning up the anthrax. The unprecedented level of coordination, communication and teamwork was the key to the success of the response. Additionally, OSCs provided daily briefings to Congress while ensuring that the surrounding community was kept informed of the cleanup activities, and for the next three months, OSCs worked to ensure a safe and expeditious cleanup.

In orchestrating a response of this magnitude, EPA effectively used its problem-solving skills and applied sound science to the cleanup. This report records a program in action and reflects EPA's commitment to conducting effective responses and meeting our mission of protecting human health and the environment.

Need for this report

Although EPA's response to anthrax is considered an overall success, it is important to draw lessons learned from the Agency's technical and oversight activities following the detection of anthrax contamination at several locations across the United States. Although efforts to strengthen counter-terrorism and disaster preparedness have been ongoing for several years within the parameters of available resources, all responding programs and regions were challenged by the extensive demands of responding to the first large-scale incident of anthrax contamination in the United States. Responders faced an intense and mounting workload and new technical demands, in addition to the

emotional and physical stress related to the extreme hazards and the realization that several civilian fatalities were associated with the anthrax exposure. The challenge was compounded by ongoing criminal hoaxes and false alarms involving anthrax contamination.

This report follows an initial lessons learned report, completed on February 1, 2002, *Lessons Learned in the Aftermath of September 11, 2001*. The Cross-Cutting Issues identified in Chapter 3 of this report may share similarities with those identified in the initial report. The first anthrax incidents took place in the weeks following the attacks on the World Trade Center and the Pentagon, where EPA was still involved in response activities. There was no time lapse between the two phenomenally large responses in which lessons could be drawn from one response and effectively applied to the next. Similarities in findings should, therefore, not be seen as representative of an inability to implement recommendations, but rather reinforce their relevance as overarching issues to be addressed by EPA in preparation for future large-scale response activities.

Urgency for this report

The nation remains in a heightened state of alert, with an immediate need to apply these lessons learned. EPA is committed to responding to emergency situations with increased quality, speed, and comprehensive action. The more quickly lessons can be gathered and learned after such events, the more quickly EPA can apply them both to an ongoing response and to the Agency's long-term counter-terrorism strategy. The unprecedented nature of the anthrax incidents has raised the nation's awareness of the potential for terrorism using chemical or biological weapons. This awareness highlights the need for EPA to be well prepared for new and unusual chemical or biological threats, and to be able to respond during national-scale emergencies. While this report focuses on actions taken in response to the threat of anthrax, it also notes EPA's more general need to strengthen capabilities to address the consequences of biological, chemical, or radiological (BCR) threats, and to enhance preparedness for potential terrorist attacks using weapons of mass destruction (WMDs).

Focus

This report focuses on the actions taken by EPA in response to confirmed or suspected cases of anthrax contamination at various Congressional office buildings on Capitol Hill, U.S. Postal Service (USPS) facilities, and other government and private facilities since October 2001. However, lessons learned from these responses that are applicable to other types of BCR incidents are mentioned.

Overview (continued)

What does this chapter contain?

This chapter includes the following information:

- Report Purpose
- Report Methodology
- Events Prior to EPA Involvement
- EPA's Role in Responding to Anthrax Contamination
- Activities and Conditions at Major Response Sites
- Content Overview

Report Purpose

Intent

In any response of this magnitude, lessons learned will assist EPA in responding to future incidents. However, the purpose of this report is not to undermine or question the effectiveness of the Agency's response to the anthrax incidents. EPA is proud of the efforts of its personnel, and views this report as an opportunity to learn from their experience.

Goals for the study

The goals of the study efforts culminating in this report are as follows:

- Document the major actions taken by EPA;
- Identify the key accomplishments as related to significant advancement of the science and technology of detecting and remediating anthrax, as well as define areas where enhanced capabilities are most desirable; and
- Develop lessons learned and present recommendations for meeting the challenges ahead in the areas of emergency preparedness and counter-terrorism response.

Report Methodology

Gathering the information

A focused study based on extensive interviews of 67 individuals was conducted between March 6, 2002, and April 30, 2002. Interviewees involved in various facets of EPA's anthrax response were selected from across EPA, from both headquarters and regional organizations. Respondents were asked to describe and assess their organization's anthrax response activities and capabilities, and to answer questions with respect to EPA's authorities; operations; internal and external communications; health and safety; and resources during the response.

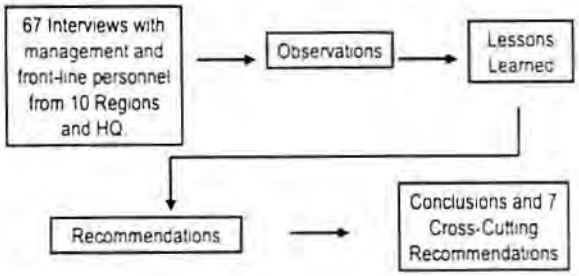
Study initiation

EPA Administrator Christine Todd Whitman charged Assistant Administrator Marianne Lamont Horinko, Office of Solid Waste and Emergency Response (OSWER), to chair an effort to draw lessons learned from EPA activities following the events of September 11, 2001. Due in part to the relevance of an initial report, *Lessons Learned in the Aftermath of September 11, 2001*, developed by Office of Emergency and Remedial Response (OERR), this lessons learned report, *Challenges Faced During the Environmental Protection Agency's Response to Anthrax and Recommendations for Enhancing Response Capabilities*, was commissioned on March 6, 2002.

Information collection and analysis

EPA offices were asked to identify a cross-section of individuals involved with all aspects of EPA's anthrax-related activities between October 2001 and February 2002. Individuals were representative of headquarters and regional management, OSCs, other responders, and personnel at all levels. The process for this effort, based on information collected from these respondents, is shown in the diagram below.

Development of Recommendations



Report Methodology (continued)

The information and assessments provided through interviews were examined to document actions, establish patterns and themes across different perspectives, identify lessons learned, and develop overarching "cross-cutting" recommendations. A more detailed description of the methodology is presented in Appendix A.

Data collected

During the course of the interviews, managers and personnel from EPA offices and regions described the following:

- Actions taken
- Authorities activated
- Organizational decision-making
- Operational environments
- Preparedness levels
- Communication successes and challenges
- Coordination with outside entities
- Methods of information exchange
- Health and safety measures
- Available resources
- Tools used for maintaining essential operations
- Overall successes and challenges of the response

Based on their firsthand knowledge, interviewees rated their satisfaction with EPA's ability to respond to the anthrax incidents in terms of five major areas:

- Authority
- Operations
- Communications and coordination
- Health and safety
- Resources

Finally, respondents listed up to five of the greatest challenges they felt the Agency faced in responding to anthrax contamination. See Appendix B for example questionnaires.

Events Prior to EPA Involvement

Background

Bacillus anthracis, commonly known as anthrax, is a naturally occurring spore-forming bacterium that causes acute infectious disease that is potentially fatal in humans. Occasionally, anthrax is found in some hoofed mammals and, in rare cases, infects people working closely with such animals or animal products. Prior to September 2001, anthrax had not been released in this country as a terrorist weapon, and much is still unknown about the properties of lab-produced anthrax spores. No anthrax cleanup of this scale had ever been attempted, and no registered antimicrobial agents were approved for civilian use against anthrax prior to October 2001. The logistics and engineering of decontaminating large areas within buildings had to be developed quickly, with limited knowledge about anthrax risk levels or the effectiveness of anthrax detection, cleanup, and disposal methods.

Anthrax-laced letters caused contamination and outbreak

During September and October 2001, at least four letters containing a powdered form of anthrax were mailed through the USPS. The first such letter was received by American Media, Inc. (AMI) in Boca Raton, Florida on or around September 25, 2001. The contamination was discovered after one employee died of inhalation anthrax on October 5, 2001, and another was sickened.

Other anthrax-contaminated letters were received in October at NBC News in New York, and at U.S. Senator Tom Daschle's office in the Hart Senate Office Building in Washington, DC. Contamination of the Brentwood Post Office in Washington, DC was discovered after two workers died of inhalation anthrax, and several others were sickened. New cases of inhalation and cutaneous anthrax emerged in October and November 2001, in New York, New Jersey, and Connecticut. Another contaminated letter, addressed to Senator Patrick Leahy, was later found in an off-site government mail facility.

The presence of anthrax spores was discovered at various other locations, including a mailroom at ABC News in New York; in New York Mayor Giuliani's office; in New York Governor Pataki's offices; in New York City Hall, the New York Post; and in various postal facilities in New York, Washington DC, New Jersey, Connecticut, Florida, North Carolina, Indiana, and Missouri. In the greater Washington, DC area, anthrax spores were identified at a number of federal government facilities, predominantly in mail areas, including at the Department of State, the Department of Justice, the Supreme Court, the Department of Health and Human Services (HHS), the Department of Defense (DoD), the Department of Treasury, and other departments. Additional anthrax contamination was detected at the Ford and

Longworth House Office Buildings and in a warehouse on P Street NW, on Capitol Hill.

Uncertainties and unknown risks

The scientific and medical information available to responders at the time when the contaminated letters were initially being identified indicated that workers in the postal facilities where the letters were processed were not at risk of infection. When postal workers at several facilities became ill, and two from the Brentwood Post Office subsequently died of inhalation anthrax, the limitations of existing knowledge to calculate the risks associated with this anthrax tragically became evident.

A number of postal workers and other mail handlers at various locations became infected, and it is still unconfirmed how two individuals, who died of inhalation anthrax (a hospital worker in New York and an elderly woman in Connecticut), were exposed.

National impact of anthrax contamination

Five individuals died of inhalation anthrax in Florida, New York, Washington, DC, and Connecticut in the first known cases in the United States in over 20 years. In total, 22 actual cases of the inhalation or cutaneous forms of anthrax were diagnosed, in addition to numerous confirmed exposures. Approximately 10,000 potentially exposed people were tested and treated with prophylactic regimens of antibiotics.

Widespread alarm over the fatalities and concern about the safety of the mail resulted in many thousands of reports nationwide of suspicious substances requiring investigation. False alarms and hoaxes nationwide placed a significant drain on resources needed to conduct emergency response.

Cross-contamination of mail now appears to have caused the spread of anthrax spores to some postal facilities that did not process the actual spore-containing envelopes, increasing the geographic scope of the incidents and heightening uncertainties about the magnitude of the responses that would be required.

EPA's Role in Responding to Anthrax Contamination

Protection of health and environment

EPA is one of the chief guardians of public health and the environment in the United States. In any large-scale environmental emergency, EPA coordinates with local and state first responders. In the case of anthrax contamination, EPA provided technical expertise and oversight in detection and ensured that the cleanup was fully protective of public health and the environment at both government and privately owned facilities. EPA's Technology Innovation Office led efforts to collect and disseminate information to appropriate entities on technologies that detect and kill anthrax. Currently, EPA is pursuing the development of additional procedures to handle bioterrorism, including procedures for decontamination and disposal, and improved coordinating mechanisms.

Coordination with other agencies

EPA responded to the recent anthrax incidents as part of a larger National Response System (NRS) that has been in place for nearly 30 years to effectively deal with a wide range of environmental emergencies. EPA is the lead agency for Hazardous Materials Response under Emergency Support Function #10 of the Federal Response Plan (FRP), and is also assigned to assist the Federal Emergency Management Agency (FEMA) during consequence management, with environmental monitoring, decontamination, and long-term site cleanup. Under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), National Response Team (NRT) member agencies engage in response efforts to environmental threats, as set forth in the FRP. The NRT was activated on October 29, 2001.

Generally, in planning efforts for responses to terrorism, the FRP provides the coordinating mechanism for a NRT response. However, there was never a Presidential declaration of a national disaster; therefore, the FRP was not activated. Nevertheless, most NRT agencies were involved in some way in the response to anthrax as a pollutant or contaminant under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The following NRT member agencies were involved in anthrax response activities:

- Environmental Protection Agency
- Federal Emergency Management Agency
- United States Coast Guard
- Department of State
- Department of Health and Human Services
- Department of Justice
- General Services Administration
- Department of Defense

EPA's Role in Responding to Anthrax Contamination (continued)

Because certain anthrax-contaminated sites were determined to be crime scenes, it was important for EPA to coordinate with the Federal Bureau of Investigation (FBI). DoD was involved in providing expertise in bio-weapons analysis. For human health advice, EPA sought support from HHS, in addition to National Institute of Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC), U.S. Public Health Service's (USPHS) Division of Federal Occupational Health, and Agency for Toxic Substances and Disease Registry. Because the mail was used as the method of anthrax delivery, USPS was another primary response agency with which EPA coordinated.

Technical expertise and oversight

EPA provided technical consultation and advice if requested by a federal agency conducting an anthrax removal action.

EPA response activities at anthrax sites included the following:

- Sampling to confirm and determine the extent of contamination;
- Evaluating sampling results;
- Isolating areas to prevent the spread of contamination;
- Removing critical objects for special decontamination procedures;
- Working with the USPS and other agencies to evaluate the effectiveness of potential disinfectants and cleanup technologies; and
- Cleaning up areas of contamination.

Development of new methods and technologies

In a short time, EPA significantly advanced the science and technology of detecting and remediating anthrax. Prior to October 2001, no antimicrobial pesticides had been approved for use against anthrax. Several different chemicals and devices were initially tested and used under carefully controlled conditions.

- Chlorine dioxide
- Ethylene oxide
- Bleach
- Paraformaldehyde

Additional chemicals tested later included hydrogen peroxide, peroxyacetic acid, and methyl bromide.

Anthrax decontamination is a rapidly evolving field, and new technologies are now being tested and advanced continually. The EPA Office of Pollution Prevention and Toxic Substances (OPPTS) is responsible for ensuring that antimicrobial pesticides used in anthrax decontamination plans meet all federal requirements for safety and effectiveness. In developing decontamination strategies, EPA consulted a variety of experts, including the following:

- EPA's Environmental Response Team (ERT)
- EPA research laboratories
- NIOSH
- CDC
- U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)
- Defense Advance Research Projects Agency
- State and local environmental and health officials
- National experts in universities and private industry

Counter-terrorism role

Several Presidential Decision Directives (PDDs) under the NRS specify a role for EPA in counter-terrorism activities. PDD 39 assigned EPA the task of assisting the FBI during crisis management in threat assessments and determining the type of hazards associated with releases or potential releases of materials in a terrorist incident. In addition to the activity generated by testing and cleaning, the anthrax-contaminated sites were also treated as crime scenes. EPA's Criminal Investigation Division (CID) worked closely with the FBI and local and state law enforcement agencies. CID assisted the FBI in gathering evidence for use in identifying the criminals responsible for the terrorist attacks.

PDD 62 reinforces EPA's mission to enhance the nation's capabilities to respond to terrorist events, and gives EPA responsibility for cleaning up buildings and other sites contaminated by chemical or biological agents as a result of a terrorist act.

The primary response agencies for incidents resulting from a terrorist event under PDDs 39 and 62 are the following:

EPA's Role in Responding to Anthrax Contamination
(continued)

- Environmental Protection Agency
- Federal Bureau of Investigation/ Department of Justice
- Federal Emergency Management Agency
- Department of Energy
- Department of Defense
- Department of Health and Human Services

Activities and Conditions at Major Response Sites

Overall EPA response to anthrax emergencies

EPA responded to both actual and potential releases of anthrax. Individual departments, agencies, and private companies performed sampling and cleanup to the extent of their capabilities, with EPA providing assistance as appropriate. If initial sampling results by local authorities, CDC, or others indicated the presence of anthrax, more comprehensive sampling was undertaken with assistance from EPA to assess the extent and severity of contamination. EPA provided expert technical advice to facility managers throughout the country on sampling plans, worker safety, and actual site cleanup methods. In general, most situations were relatively simple to stabilize. If it was an emergency response, the situation was quickly stabilized to a non-emergency response. Steps were taken to isolate the contaminated area, and potentially exposed people were placed on prophylactic antibiotics.

Capitol Hill facilities (Washington, DC)

EPA provided massive technical support and assistance as part of a multi-agency effort in response to anthrax contamination discovered in Congressional buildings in the Capitol Complex. Using CERCLA authority, EPA was able to write action memos to authorize EPA funds for the cleanup. EPA responders reported to an Incident Commander (IC) under the Capitol Police Board, working in conjunction with the Congressional Offices of the Architect of the Capitol, and of the Senate and House Sergeants at Arms. The U.S. Coast Guard (USCG) Atlantic Strike Team Commander supported the IC as Deputy Incident Commander. Strike Team personnel established and staffed an Incident Command structure and provided logistical assistance to EPA.

After anthrax spores were detected in the letter opened in Senator Daschle's office in the Hart Senate Office Building, several areas of the building were immediately evacuated and closed. Two days later, the entire Hart Building and the House of Representatives were closed because of health and safety concerns. The immediate threat to the United States government's Legislative Branch resulted in extensive sampling of Capitol Hill buildings and testing of staff for exposure.

EPA emergency responders took thousands of samples to determine the presence of anthrax, and to design and carry out site-specific cleanup strategies where contamination was found. Positive results indicating the presence of anthrax spores were found at the Ford and Longworth House Office Buildings, the Hart and Dirksen Senate Office Buildings, and the P Street Mail Warehouse on Capitol Hill. Once a decision was made to decontaminate a building, EPA advised the IC about the extent to which a building must be cleaned to make it safe.

By far, the cleanup of the Hart Building posed the largest and most extensive anthrax cleanup challenge ever undertaken in a building. The Hart Building is a 10,000,000 cubic foot building that houses the offices and staffs of 50 senators. Following the initial discovery, further contamination was detected on the 1st, 5th, 6th, and 9th floors of the building, as well as in filters within a regional heating, ventilation, air conditioning, and cooling system. Fumigation with chlorine dioxide gas was conducted on December 1 and on December 30, 2001. Approximately 100,000 cubic feet of the Hart Building were sealed prior to fumigation. Further fumigation was performed in the air handling system that serves that area. Several other suites and common areas in the Hart Building and in other buildings in the Capitol Complex were cleaned using chlorine dioxide liquid, Sandia foam, and high efficiency particulate air filter vacuuming. Post-cleanup sampling showed no remaining viable anthrax, and on January 22, 2002, the Hart Building was cleared for reoccupancy.

U.S. Postal Service facilities

EPA has provided USPS with technical expertise and advice in the cleanup of contaminated USPS facilities. EPA was requested by USPS to provide full-time OSC presence at the USPS command center, which was established at USPS headquarters at L'Enfant Plaza in Washington, DC, for consolidation of information and coordination. Postal facilities in EPA Regions 1, 2, 3, 4, 5, and 7 were affected, including the following facilities:

- Boca Raton main postal facility, Boca Raton, FL
- Green Acres postal facility, Lake Worth, FL
- Lucerne Station postal facility, Lake Worth, FL
- Lake Worth main postal facility, Lake Worth, FL
- West Palm Beach postal facility, West Palm Beach, FL
- Blue Lakes postal facility, Boca Raton, FL
- Morgan postal facility, New York, NY
- Brentwood mail processing facility, Washington, DC
- Hamilton postal facility, Hamilton, NJ
- West Trenton postal facility, Trenton, NJ
- USPS Westgate Processing and Distribution Center, Raleigh, NC
- USPS Postal Distribution Center, Wallingford, CT
- DDD Building (USPS Contractor), Indianapolis, IN
- USPS Stamp Fulfillment Center, Kansas City, MO

The deaths of two workers at the Brentwood Post Office, and the serious illnesses of two others, alerted authorities to the presence of anthrax spores at the Washington, DC facility where two anthrax contaminated letters were processed. The facility was closed on October 21, 2001, and remains closed at this time. Decontamination of the facility using chlorine dioxide fumigation will require sealing 17.5 million cubic feet. The successful decontamination of the Hart Building is being used as a blueprint, although the much larger scale of the Brentwood facility will require logistical adjustments.

An EPA OSC has remained on site at the Brentwood postal facility since October 2001, providing technical assistance, and serving as a technical liaison with the USPS Command Center.

EPA OSCs have provided consultation during the various USPS sampling operations and cleanups conducted during the past months, and EPA continues to assist USPS in ongoing anthrax cleanup efforts. EPA has facilitated the creation of a National Coordination Council, a working group composed of NRT member agencies and USPS, to involve USPS with NRT and its creation of the Technical Assistance Document on Anthrax Response. EPA is preparing a Memorandum of Understanding with USPS that will formalize the relationship between USPS and EPA for anthrax responses, and will provide a model for future interagency cooperation.

Facilities of other federal agencies

EPA provided technical support and assistance to a number of other federal agencies with anthrax-contaminated facilities. For federal agencies (other than the Department of Energy and DoD), EPA collaborated with the Government Services Administration (GSA) to develop a list of environmental contractors who were awarded GSA indefinite quantity contracts to sample for anthrax and perform remediation. A Region 3 OSC was assigned to monitor the progress of the removal and remediation operations being conducted by federal agencies other than USPS in the greater Washington, DC area.

EPA collected data from each response, including: health and safety standards and procedures; sampling and analysis methods; remediation and treatment methods and technologies; and waste disposal procedures. In an emergency situation, EPA may conduct removal operations if the affected agency is incapable of performing the necessary actions.

The following federal agencies confirmed positive anthrax hits at one or more of their facilities:

- Department of Justice
- Department of State
- Bureau of Alcohol, Tobacco and Firearms
- Department of Agriculture
- Veterans Administration
- Central Intelligence Agency
- Corporation of National Services
- Federal Bureau of Prisons
- National Aeronautics and Space Administration
- Defense Intelligence Agency
- Federal Aviation Administration (Dulles Airport)
- General Services Administration

AMI and private facilities

On or around September 25, 2001, a letter containing a powdery substance was received and handled by several employees at the Sun offices of the AMI building in Boca Raton, Florida. The serious health and safety implications to the employees in the building were not realized until October 5, 2001, when one employee died of inhalation anthrax. Initially considered a health issue by CDC, the site was quickly declared an FBI crime scene.

The FBI released control of AMI to EPA on October 20, 2001. FBI provided data analyzed by CDC, and the information was used by EPA ERT and operations team personnel to develop a site specific sampling plan. EPA and the Florida Health Department secured laboratory resources of the USAMRIID. Of 278 samples collected from the AMI building, 32 samples indicated positive results.

EPA also oversees private-sector sampling and clean-up efforts when requested by local, state, or other federal agencies, such as the FBI. EPA provided assistance in varying capacities to several privately-owned facilities in Florida and New York, and to privately owned facilities of USPS contractors in Missouri and Indiana.

Hoaxes and false alarms

Responding to false alarms and hoaxes with all necessary precautions diverted valuable resources from other responses. Of the many thousands of reports of suspected anthrax contamination received nationwide during the months of the ongoing responses, the vast majority were false alarms, including a number of pranks and criminal hoaxes. Most false alarms, however, were due to public fear (of white powders) rather than intentional hoaxes. The number of calls declined as response activities progressed, in part because dispatch centers became more adept at screening calls, and in part due to a better educated public as additional guidance was released.

Activities and Conditions at Major Response Sites (continued)

False alarms occurred in all EPA regions, and the regions worked with state and local authorities to ensure the protection of public health and the environment. Because of the extreme hazards associated with anthrax contamination, reports were treated seriously and investigated by state and local authorities, with EPA consultation and assistance where appropriate.

Content Overview

Time period

This report is inclusive of EPA anthrax response activities conducted from October 2001 through February 2002. No major new anthrax contamination has occurred since November 2001. However, several sites remain contaminated and sealed to date, and scattered hoaxes and false alarms continue nationwide.

Report structure

The report is organized as follows:

- Executive Summary
- Acronym List
- Chapter 1: Introduction
- Chapter 2: Lessons Learned and Recommendations
- Chapter 3: Conclusions and Cross-Cutting Recommendations
- Appendix A: Report Methodology
- Appendix B: Sample Interview Questions

Lessons learned

Lessons learned are grouped in the following five categories:

- Authorities
- Operations
- Communications and coordination
- Health and safety
- Resources

To enhance clarity, lessons are framed in the following format:

- Lessons learned
- Recommendations

Cross-cutting recommendations

After evaluating the above lessons, the most significant and broad-reaching issues were identified as overarching challenges that span the previously described area categories. These issues are intended to encompass the more specific lessons addressed in Chapter 2.

Conclusions and action items

The report concludes that EPA is at a crossroads in the scope of its mission. Lessons learned indicate that to effectively respond to environmental hazards associated with large-scale biological or terrorist emergencies, commensurate resources and organizational support must be available to EPA.

Chapter 2

Lessons Learned and Recommendations

Overview

Chapter 2 presents the lessons learned that were drawn from the observations of the interviewees. Corresponding recommendations were either taken directly from the responses of interviewees or developed from their observations.

In this chapter

Overview (continued)

Topic	See Page
Resources • Funding Resources • Personnel Resources • Training Resources • Equipment Resources	2-16

Authority

A number of jurisdictional issues were raised during EPA's responses to anthrax releases and suspected releases concerning EPA's constitutional, statutory and regulatory, and contractual authorities.

Multi-Branch of Federal Government Issue:

Lesson learned

Although the response on Capitol Hill may itself have been a unique situation, questions about lines of authority could potentially complicate or delay a response if an incident were to occur on property under the control of the other branches of the federal government, legislative or judicial, such as the Supreme Court.

Recommendation

- OSWER, in conjunction with executive branch responders and appropriate representatives of the legislative and judicial branches, should reach agreement on future responses at legislative and judicial branch sites. Legal and regulatory issues should be addressed en route to this agreement.

Multi-agency Interaction:

Lessons learned

The FRP was not activated to respond to Capitol Hill and did not provide the structure for a response involving all the various federal agencies.

The NCP is available in the absence of an FRP activation. At the anthrax response in Florida, the NCP was used to guide the response.

EPA was not operating under a traditional response structure and the structure that was chosen did not make best use of EPA's experience and established procedures, resulting in defining roles and responsibilities "on the fly."

Recommendations

- Recommend using already established response structures available during a multi-agency response when the FRP is not activated, including defined roles and responsibilities.

- Determine who will be accountable for the cleanup in non-FRP multi-agency responses.

Authority (continued)

CERCLA and the NCP:

Lesson learned

Although CERCLA provides authority to respond to biological incidents, the NCP is not specific about cleanup methods for such incidents.

Recommendation

- Revise the NCP to address specific cleanup methods for biological agents, such as anthrax.

Contractual Authority:

Lessons learned

EPA's current authority to indemnify response contractors could delay cleanup in future responses where the agency may need flexibility to implement innovative cleanup methods using contract resources.

To be effective in carrying out their responsibilities, non-lead region OSCs involved in a large-scale response must be able, at least on an emergency basis, to direct contractors.

Recommendations

- Work to acquire expanded indemnification authority, similar to that of FEMA and DoD, to implement existing federal law that would enable the EPA to more readily provide contractor indemnification when necessary during unique emergency circumstances.
- Develop a contractual mechanism that gives non-lead region OSCs delivery order project officer authority to direct contractors.

EPA Non-CERCLA Authority:

Lessons learned

Remediation of contamination that requires the use of unusual substances or methods may require emergency exemptions from other EPA program areas. However, it is important to note that federal OSCs leading a response do not have to get permits for on-site work, per CERCLA.

Responders need knowledge of, and access to, the expertise and resources of all EPA program offices.

Recommendations

- To the extent possible, anticipate and develop a process for acquiring other emergency exemptions that may be required for biological, chemical, radiological, and nuclear response activities, and work with the appropriate offices to implement these processes.

Authority (continued)

- Ensure that the capabilities, authorities, and resources of all EPA program offices are known and available to responders.

Operations

The anthrax incidents occurred while EPA's response at the World Trade Center was ongoing. There were thousands of anthrax incidents, scares, and hoaxes nationwide. EPA regions responded to many incidents, most of which were false alarms. The operating environment was, in the opinion of responders, "unlike any previous operating environment" that EPA had faced.

Command Structure:

Lesson learned

Complex, national-scale responses involving multiple agencies are not managed most effectively in the absence of a clearly defined and fully implemented command structure. Some responders observed that the command structure at Capitol Hill was unfamiliar with federal response authorities. In other, similar responses, the IC would be a Federal OSC. In this case, the IC was a private consultant hired by the Capitol Hill Police Board and was not initially familiar with the role of the Federal OSC under the NCP.

Recommendations

- Implement a clearly defined and scalable command structure, such as the Incident Command System (ICS), based on the National Interagency Incident Management System (NIIMS). All EPA OSCs will be trained in the ICS by December 2003. Evaluate using a separate ICS for each site in a multi-site response.
- Ensure that training includes exercises in which OSCs from across the regions participate together to strengthen teamwork.
- Shared operational responsibilities among OSCs worked well on Capitol Hill. The lead OSC was effective in responding to the press and Congress, while managing overall site activities. Some responders observed that more resources should be available to help support the OSCs in this area. For future nationally significant responses, use a more formal ICS with Unified Command (UC).

Technical Issues:

Lessons learned

Adequate expertise was not available in the operational technicalities associated with responding to anthrax contamination, or other biological agents. Because there were no established protocols for responding to anthrax contamination or other biological agents, extensive time and resources were devoted to the processes of searching for candidate methods, coordinating logistics, implementing untried procedures, and assessing the efficacy of candidate methods.

Operations (continued)

Without a comprehensive comparison of candidate methods for dealing with the anthrax contamination and their costs, EPA and contractors may not be able to use the most efficient response methods.

Recommendations

- Develop response teams trained for specific incident types, for example, three to four people specialized in biological agents. To facilitate inter-regional cooperation and support, develop cross-regional consistency and evaluation of skill sets, similar to the USCG Strike Team's qualification process. A standby list of qualified OSCs and responders (and state resources) should be available for crisis situations.

- Identify and conduct research on potential contaminants for which vulnerabilities exist, and develop processes for characterizing site contamination.

- Develop biostatistical or other models for demonstrating when cleanup levels have been achieved.

- Conduct interagency research to evaluate potential decontamination technologies, their scientific bases, and cost effectiveness. Evaluate processes for decontamination of personal property.

- Document and record the information developed to respond to anthrax incidents, including best practices, protocols, technologies used at the various sites, and identify the pros and cons of using them. Ensure that future responders can access this information, and evaluate plans for an electronic "field book," to be expanded to address other potential incident types.

Preparedness:

Lesson learned

Although the response personnel did a good job of solving the problems they faced, EPA was not fully prepared to scale up its efforts to the magnitude required of the anthrax cleanup, and did not have sufficient technical information or procedural guidelines at hand.

Recommendations

- Develop tools, protocols, and procedures required to respond to releases of biological agents based on EPA's experience responding to anthrax.

- Develop and conduct response exercises geared toward other potential terrorist scenarios in cooperation with other EPA program offices and appropriate outside agencies.

- Review the regional preparedness resources to determine whether they can be shared with, or expanded across EPA regions.

Intra- and Interagency Support:

Lesson learned

Support provided to responders from other EPA entities and external agencies and departments varied in quality and consistency.

Recommendation

- Work with counterparts in other agencies to define roles, assess capabilities, and develop the necessary technical resources and knowledge to respond to biological or unconventional contaminants.

Communications and Coordination – Internal EPA

Because of the politically sensitive environment and strong pressure for a fast response to the Capitol Hill cleanup, internal and external communications were critical to implementing an effective response. Many of the communication processes worked well, such as the use of cellular phones between OSCs and other key responders; daily conference calls; written daily updates of site activities; and frequent press conferences and updates to Congress. In other responses of this magnitude, EPA would also consider implementing a traditional ICS/UC structure that would include a Joint Information Center (JIC).

On-Site Communications:

Lessons learned

A more systematic approach to internal on-site communications was needed. A more centralized process for tracking site personnel, activities, and progress toward completion at the Capitol Hill sites would have enhanced coordination among EPA staff, and thereby improved the efficiency of the response.

To maintain up-to-date information across all components of the response operation, EPA should look into securing more telecommunications equipment for on-site responders.

Recommendations

- Implement the communications and coordination processes of the ICS for large-scale responses, and ensure that all responders are fully trained in ICS.
- Clear protocols should be established for standard operating procedures in responses that require coordination with federal legislative authorities, or in politically sensitive situations. Work with the EPA Office of Congressional and Intergovernmental Relations to help develop protocols.
- Some responders observed that security concerns, such as reporting confidential information critical to a criminal investigation, prohibited normal documentation of site activities. A recommendation was made to develop appropriate reporting alternatives to satisfy both the need to share information, and to preserve sensitive information.

Communications and Coordination – Internal EPA (continued)

Communication among Regions, Headquarters, and Sites:

Lesson learned

Use of EPA's established systems for inter-office coordination, such as the National Incident Coordination Team (NICT), and the Regional Incident Coordination Team (RICT), would have made better use of EPA's prior planning efforts for emergency response situations and coordination within the Agency.

Recommendations

- Maintain a formal, written communications plan that details the processes for internal coordination among various offices that may be called upon to support responses of political sensitivity and national security.
- Revitalize and ensure the use of EPA's existing communications and coordination structures such as NICT and RICT.
- Assume that the NRT and Regional Response Team functions under the NCP are prepared to facilitate national and regional inter-agency coordination respectively, through enhanced planning, training, and exercising.

Communications and Coordination – External

Keeping the press and public updated throughout the anthrax cleanup on Capitol Hill and at other facilities was a key priority for EPA. At Capitol Hill, the U.S. Capitol Police Board elected a spokesperson who held regular press conferences. The lead OSC participated in the press conferences and kept members of Congress updated on progress. An effort was also made to implement EPA's normal community involvement activities for emergency responses. Lessons learned reflect the need to implement a more formal communication structure, such as a JIC, typically used for responses of this magnitude. Lessons learned also reflect a need to have proper on-site communications equipment and resources.

Interagency Coordination with the Incident Command Structure:

Although a central planning and support station was in operation, greater familiarity with its existence, roles, and functions, would improve coordination among responders, and thereby increase the efficiency of response efforts.

Lessons learned

Coordination between organizations is critical. Knowing each others' roles, responsibilities, and capabilities in addressing environmental contaminants, and creating a structure for sharing information is critical.

Recommendations

- Work with partner agencies to clearly define functional and organizational roles, and improve understanding between agencies potentially involved in coordinated response activities.
- Elevate the priority of emergency communications structures and capacities, and ensure full training in, and implementation of, existing programs developed for emergency response.

Public Information Dissemination and Community Involvement:

In most responses of this size, a JIC is a standard communications structure within a UC and is used by EPA to coordinate information, and to ensure that public information was disseminated to all interested parties.

Lessons learned

In multi-jurisdictional responses, EPA would normally work with all organizations to implement emergency communications and implement existing outreach programs developed for emergency responses.

Communications and Coordination – External (continued)

Recommendations

- Work with key agencies and organizations to ensure the establishment of a JIC.
- Implement Superfund's standard external communications programs for emergency responses.
- Continue to deploy the Emergency Communications and Outreach Team (ECOT) in support of regions during long-term responses.
- Provide communicators with appropriate communications resources, such as mobile telephones, communications-ready laptops, printers, and fax machines.

Health and Safety

In an emergency response, EPA's paramount responsibility is the protection of health and safety of humans and the environment. EPA's health and safety experience primarily involves responses to hazardous materials. EPA has no standard mode or protocols for addressing the special health and safety concerns associated with the release of a biological agent, such as anthrax. As a result, EPA relied on expertise and information from other organizations, and the approaches to health and safety changed and evolved during this response.

Although the U.S. government has sponsored anthrax research for several decades, the availability of useful, accurate scientific information for a response to anthrax in a civilian environment is limited. Anthrax-related information from other health agencies was not initially as useful as EPA had anticipated. In the initial phases, there was no organized system that EPA responders could use to locate the available technologies, capabilities, and facilities in either civilian or government agencies that may have been useful in the anthrax response. This lack of access to all of the available, relevant scientific data limited EPA's decision-making regarding operational issues such as personal protective equipment (PPE). For example, in the first few days of the response, information such as spore size data was not yet available to EPA. Once the IC was set up, and EPA began coordinating with other agencies who had better information about anthrax and spore size, the necessary data became available and was shared with the responders.

Medical support on site is another key health and safety issue reviewed in this report. EPA should examine the medical policies, regulations, and laws that played a role in providing adequate medical support at the site. This may involve working with the DoD Directorate of Military Support office, the USPHS as well as other agencies, and EPA's Office of Administration and Resources Management, to ensure that EPA will have the ability to access adequate and continuous medical support at the beginning of a future large-scale response.

External Factors:

Lessons learned

EPA responders need access to all available information related to the health and safety aspects of an anthrax response.

EPA needs faster and greater access to better interagency (both civilian and military) information on potential biological WMD.

EPA's traditional Hazardous Waste Operations and Emergency Response approach to health and safety (based on chemical hazards) needs to be

revisited when responding to biological agents such as anthrax. Additionally, clear guides on PPE levels for biohazard responses need to be established.

Recommendation

- Work with health authorities, such as HHS, to produce medical and responder guidance on all potential biological threats.

Evolving Internal Procedures:

Lessons learned

A health and safety plan was available and accessible to all responders on-site. All responders were directed to review the plan as soon as they entered the command post. Some responders observed that more information should be available in the plan that specifically addresses reconnaissance safety.

Because there were no clearly established protocols for anthrax, there was some concern among the responders, especially during the first month of the response.

Responders need a clear understanding of exposure, correct prophylactics, and location of contamination when they report to duty on site.

Responders from Region 5, where more extensive counter-terrorism training and drills had occurred, were very helpful in using their training experience to assist Region 3 in responding to biological agents.

Responders need to be in good health and fitness, and need confidence in the adequacy of their medical monitoring. ERT and some (but not all) regions have special arrangements facilitating gym memberships for exercise.

Responders need sufficient levels of PPE to protect them without hampering the response.

Mid-course changes in field procedures without sufficient clarification and re-training were a concern among some responders because of the potential for human error, safety, and health issues.

Recommendations

- Establish and maintain proper health and safety precautions. EPA should have sound health and safety protocols for biological contaminants that have been reviewed by experts in the medical field.

- Test and assess effectiveness of PPE against biological agents to determine level of protection offered by existing PPE. Response

personnel must be protected and prepared with the appropriate equipment and medication (i.e., prophylactic antibiotics).

- Resolve any liability issues involved with the prescription of medical drugs for uses considered to be investigative. Specifically, the CDC offered site workers an anthrax vaccine that had not yet been tested for the accelerated regimen site workers would have to take. For site workers to accept the accelerated vaccine regimen, CDC required them to sign a liability waiver.

- Develop medical protocols for determining the risk to human health posed by biological contaminants.

- Support the convening of a Health and Safety Advisory committee to address pertinent issues, and plan for future events and possible scenarios.

- Develop a medical surveillance monitoring and provision program for OSCs subject to bio/counter-terrorism activities; the current program is proven only for chemicals.

- Develop in each region a team that deals with health and safety with available doctors to support the Site Safety Officer for WMD incidents, and other issues as they arise. EPA should develop in-house medical expertise, and establish a medical monitoring team for biohazards.

- Ensure proper training of personnel to deal with anthrax and other biologicals; regions may need to have a response team ready for these types of incidents.

- Re-evaluate long-standing shortfalls in the Core Emergency Response program regarding responder health and fitness for duty, and support responders in maintaining their physical fitness.

Resources

The anthrax response was unprecedented in terms of the amount of resources needed by EPA to accomplish its mission safely and effectively. As observed by the front-line responders, availability of resources proved to be multidimensional, overlapping with operations, communications, and health and safety issues. In addition, the mechanisms typically used by EPA to obtain resources had to be exercised and interpreted in ways not previously used by EPA in an emergency response. Without established protocols for a biohazard response or a cost comparison of candidate methods, EPA and contractors repeatedly consumed valuable resources in searching for methods, coordinating logistics, implementing untried procedures, assessing the efficacy of candidate methods, and at times repeating the process, if the methodology did not work.

This section specifically addresses resource issues dealing with funding, personnel, training, and equipment.

Funding Resources:

Lesson Learned

EPA did not have a mechanism, procedure, or source of funding in place to financially support this magnitude of an emergency response for which the FRP had not been activated.

Recommendations

- Be able to respond and obtain resources quickly to alleviate the restrictions on funding and contracts, and depletion of mission funds. Explore with others how funds could be made available in a non-declared disaster.

- Maintain someone with authority to be on call to answer questions, make funding decisions, and obtain resources quickly. Appropriate administrative support to supplement the OSC's $250K response spending ceiling and limited contract officer authority is needed on site.

- Use resources obtained by EPA to fill gaps in equipment, personnel, and contractor support.

Personnel Resources:

Lessons learned

Because of the unfamiliar command structure, and the unique circumstances of a response of the magnitude, EPA was not always in control of its resources, personnel workload, response schedule, or working conditions. A more traditional command structure, such as the ICS, would have helped manage resources more formally.

Resources (continued)

Valuable information for response continuity (shift-to-shift and day-to-day) was lost because the command structure did not establish a clear procedure for transferring information through the use of log books, rotation reports, and pollution reports that would normally be used in other, similar responses.

EPA's standard response contracts did not provide for the staffing needs for biological emergencies. There were times when there were not enough qualified contractors available to conduct specialized work.

Insufficient contractor staff with accepted security clearance hindered the response effort.

Recommendations

- Maintain Agency control over its work load planning so that resources can be appropriately scheduled.
- Determine ways for regions to support their ongoing programs while sustaining a long-term response effort. Similar to the USPHS, EPA may consider the use of a volunteer service as backup, to respond to concurrent regional emergency events when regular personnel may be on-scene at a nationally significant response.
- Review EPA's process for acquiring qualified contract personnel to access contractors that match the specifications of jobs EPA needs to have done. This must include technical and medical experts in the area of bioterrorism who can be on-site as needed.
- Work with other response agencies to ensure, ahead of time, that EPA security clearances for contract personnel are recognized in order for EPA response contractors to gain access to critical response information.
- Deploy adequate medical staff on-site to monitor the health of responders.

Training Resources:

Lesson learned

EPA was well prepared and trained for an emergency response, but not well trained or prepared to handle the unfamiliar and unique aspects of a biohazard, or specifically, anthrax response.

Recommendations

- Provide more training for responding to a biological incident to OSCs and ERT. While it may be unrealistic to focus the training on all possible biological agents, training should address responses to the most probable agents and the range of threat characteristics. Before training can occur, however, adequate protocols for dealing with biohazard remediation must be developed and implemented.
- Coordinate interagency training to ensure broad familiarity with EPA's capabilities in emergency response.
- Provide OSCs with ICS training and certification.
- Train teams of OSCs intensively in specialized response efforts, and enable them to act as technical advisors when the response is larger than the team can handle.
- Train remedial project managers (RPMs) and site assessment managers as back-up for OSCs so they can temporarily maintain continuity of ongoing removal actions on-call if OSCs are responding to national emergency situations.
- Provide additional staff exercises for emergency operations, specifically regarding emergencies of a biological nature

Equipment Resources:

Lessons learned

The lack of real-time analyses, compounded by the lack of cleanup levels, hindered response.

EPA does not have an inventory of the equipment needed to sample microbial agents or to perform disinfection. It also does not have a database of possible sources of equipment as it does for chemical responses.

Planning of health and safety resources had not included mechanisms to procure antibiotics or prophylactics for responders or the appropriate PPE needed during the disinfection stage of the operation.

OSCs should have access to their own PPE; they should not have to "drum up" PPE at the beginning of each shift or borrow it from other agencies.

Responders need adequate, reliable communications resources.

Resources (continued)

Recommendations

- Provide responders with access to an on-site lab for the testing and analysis of samples for "real time" emergency response. A nationwide network of laboratory capacity for microbial testing, including adequate in-house capabilities, needs to be provided.

- Establish an emergency inventory of the equipment and protocols needed to respond to bioterrorism, including state resources, or at least a database of sources of the needed equipment and protocols.

- Provide responder with access to a sufficient amount of equipment to minimize reuse and to address all activities that would compromise worker health and safety regardless of the PPE level chosen.

- Maintain a minimum communications infrastructure. For example, two-way radio capability cell phones and full-time network computers are tools that can be implemented quickly. The use of remote television capability should be explored.

Chapter 3

Conclusions and Cross-Cutting Recommendations

Conclusions

Using more than 30 years of experience in responding to hazardous substance releases, EPA planned, tested, and implemented the first ever cleanup of several large, anthrax-contaminated buildings in a matter of three months, while responding to other anthrax incidents and hoaxes, and continuing activities at the World Trade Center.

However, EPA's current challenge is evident. Managing adequate resources in terms of personnel, funding, equipment, and training, to meet the evolving requirements of its counter-terrorism role are all issues that must be addressed to maintain the level of commitment EPA has in protecting human health and the environment.

If EPA is to continue responding to large-scale incidents requiring multi-agency involvement, it must take actions to surmount these challenges before another incident occurs. The cross-cutting recommendations and supporting steps identified in Chapter 3 of this report were designed to meet these challenges.

EPA considers the anthrax cleanup a success. Using the Agency's well-tested problem solving approach to emergencies, EPA met and resolved the following challenges:

- EPA was able to clean up the anthrax on Capitol Hill efficiently and safely, while having to adapt and operate within a command structure that used new approaches to organizing an emergency response.

- Because of the circumstances and location of the anthrax response on Capitol Hill, EPA worked within the established command structure facilitating the management of its response activities and personnel, while also communicating and coordinating effectively with the other agencies and organizations.

- Although highly trained and experienced in hazardous substance responses, EPA responders had only limited technical information and experience for cleaning up biological contaminants. Despite these challenges, EPA was able to implement a plan of action based on sound science.

Conclusions (continued)

- Before cleanup activities could begin, EPA, along with others, worked to access the technical and medical expertise necessary to identify appropriate health and safety procedures, and implement safeguards for the biological response.

In this chapter

After evaluating the lessons learned and interviewees' recommendations, the most significant issues were identified as overarching challenges that "cut across" at least four of the five area categories of focus: authorities, operations, communications, health and safety, and resources. Seven recommendations addressing these challenges encompass the more specific recommendations described in Chapter 2.

Recommendation #1

Enhance capability to efficiently scale up emergency response, and develop specialized response skills for unfamiliar threats.

Steps to enhance scale up capabilities include the following:

- Ensure that EPA responders are familiar with and well trained in a standardized ICS as an internal response management structure (such as the ICS/NIIMS).

- Define the scope of EPA's and other agencies' roles, responsibilities, capabilities, and authorities prior to the initiation of major response activities, and ensure that each is understood clearly by EPA responders, contractors, and personnel from partner agencies.

- Establish a JIC to help lead OSCs with the public/external relations and political interaction functions in a large-scale response in order to protect the response management role of the lead OSC.

- Develop and implement an agency-wide coordination plan to best use support staff and resources from across the regions when needed. Provide a coordination structure for staff rotation in a large-scale response, and minimize impact on ongoing programs.

- Develop a database that includes available EPA, contractor, and local/state expertise in order to match the best available resources to specialized response needs.

Recommendation #2

Develop, with the Office of Homeland Security, a response coordination structure to be followed in a multi-federal agency response to a terrorist incident for which the FRP is not activated.

Such an interagency coordination structure must:

- Involve EPA leadership working with counterparts in other agencies or departments to clearly define roles and responsibilities in a non-FRP multi-federal agency response.
- Institute periodic interagency emergency response training and exercises to ensure preparedness and mutual familiarity with EPA and other agencies' roles, responsibilities, and capabilities.
- Plan with the FBI and other law enforcement agencies for scenarios involving concurrent crisis and consequence management. Ensure appropriate interagency cooperation on evidence gathering and health and safety protocols for cases in which investigation and emergency response must occur simultaneously.
- Resolve funding and cost recovery issues in the absence of the declaration of a national emergency under the FRP.

Recommendation #3

Improve response capability and develop in-house expertise on biological agents and other WMD.

Steps to improve response capabilities for biological agents and WMD include the following:

- Coordinate closely with other federal agencies.
- Research biological agents for which potential threat of terrorist or criminal contamination exists, and identify and develop a database for technologies and methods for detection, sampling, and cleanup.
- Identify nationwide resources and a capacity for sampling and analysis of biological and new or unconventional agents, including the development of interagency and public-private networks (e.g., with CDC, FBI, DoD, universities and/or commercial labs, etc.), to facilitate sharing of best available science and laboratory resources in emergency responses.
- Document all relevant data developed in responding to anthrax incidents for use in developing protocols for responding to biological agents or

WMD, including appropriate procedures for site characterization and risk assessment.

- Develop and train response teams for specific emergency scenarios (e.g., 3-4 people specialized in biological agents). Training should involve an evaluation of skill sets that is consistent across regions (similar to USCG Strike Teams' qualification process) to facilitate cross-regional cooperation.

Recommendation #4

Enhance safeguards to ensure that responder health and safety is given precedence among competing priorities, especially in multi-agency led responses.

Steps to safeguard responder health and safety include the following:

- Support the efforts of a recently convened Health and Safety Advisory Committee to address unfamiliar health and safety issues associated with responding to biological or unconventional agents.

- Establish and enforce clear limits on hours spent by on-site personnel in high stress or high risk capacities. Take steps to safeguard the ability of EPA personnel to make hazard level determinations and appropriate health and safety decisions independently of external pressures or deadlines.

- Examine current response contracts to resolve funding to cover the costs of contractor medical monitoring and health needs, including physicals, blood work and other lab tests, vaccines, antibiotics, etc. Ensure timely reimbursement of contractor's out-of-pocket medical expenses where appropriate.

- Monitor research on efficacy and long term effects of prophylactic antibiotics against biological agents. Monitor and, where appropriate, conduct followup studies, especially on responders treated with prophylactic antibiotics for extended periods of time.

- Expand the routine Medical Monitoring Program to address health issues specific to biological agents, and ensure that responders undergo pre-entry and post-exposure medical testing for pathogens or biotoxins.

Recommendation #5

Revisit, and revise as needed, EPA's existing internal emergency response coordination authority, plans, and structures.

Actions to update existing plans and structures include the following:

- Revitalize and then ensure the use of EPA's existing internal communications and coordination structures, specifically the NICT and RICT, which reflect prior planning efforts for inter-office coordination during emergency responses.
- Clarify the role of ERT personnel as Science Support Coordinators to OSCs, to make best use of ERT expertise.
- Ensure that the special capabilities, authorities, and resources of all EPA program offices are known and available to responders.
- Clarify jurisdictional issues with regard to EPA's emergency response authority at a site under the control of the legislative or judicial branches.

Recommendation #6

Elevate priority of emergency communications structures and capacity, and implement existing communications programs developed for emergency responses.

Steps to strengthen the effectiveness of emergency communications include the following:

- Implement the Superfund's required community involvement activities and best practices for emergency response communications. Required activities include implementation of a robust community involvement program; establishment of a JIC; development of a communications strategy; and deployment of the ECOT.
- Work with key agencies and organizations to recommend establishing a JIC for all major responses to coordinate external communications, and ensure that information is available and communicated to the press and the public.
- Ensure that OSCs and Community Involvement Managers are aware of and able to deploy ECOT when long term communications support is needed throughout a response.

Conclusions (continued)

- Work with EPA's Office of Public Affairs (OPA) to develop national guidance on media policies during emergency responses of national significance. The guidance would be used to help OERR develop the appropriate information needed for OPA to disseminate information to the public from a national forum.

Recommendation #7

Acquire equipment, lab capacity, funding, and trained personnel sufficient to support EPA's role in responding to biological agents and other WMD.

Steps to secure adequate response resources include the following:

- Identify and seek dedicated funding for advancing counter-terrorism efforts, commensurate with EPA's counter-terrorism role.

- Invest in enhanced field and lab analytical capacity for sampling and analysis of new agents, equipment needed to perform appropriate decontamination, and specialized PPE. Develop interagency and public/private networks to maximize available resources.

- Develop and provide training in emergency response to biohazards and other WMD, and in the operation of multi-agency responses. Provide training to OSCs in management skills needed for large-scale responses as well as for working effectively as part of a team.

- Review existing contracts to determine how best to acquire expertise for biohazard and WMD responses. Establish contract mechanisms to adequately indemnify contractors and to provide non-lead region OSCs emergency authority to direct contractors.

- Acquire and maintain adequate emergency communications infrastructure and electronic equipment, including fully equipped laptop computers, two-way radio cell phones, fax machines, and remote closed-circuit television capacity.

Appendix A

Report Methodology

Appendix A
Report Methodology

Introduction

EPA Administrator Christine Todd Whitman charged Assistant Administrator, Marianne Lamont Horinko, OSWER, to chair an effort to draw lessons learned from the wide-ranging EPA activities following the events of September 11. The resulting report, *Lessons Learned in the Aftermath of September 11, 2001*, developed by OERR, was released on February 1, 2002. Due in part to the relevance of the initial report, this second lessons learned report was commissioned on March 6, 2002, to address challenges faced during EPA's activities in responding to nationwide anthrax from October 2001 to February 2002, and to propose recommendations for enhancing response capabilities in the future.

Process

The process for this effort involved the following steps:

- Request names of EPA personnel representing a cross-section of individuals involved with all aspects of EPA's anthrax related activities from EPA offices.
- Conduct interviews of identified EPA personnel regarding key aspects of actions taken and experience responding to anthrax.
- Synthesize raw data from interviews and identify common themes, perspectives, and patterns.
- Develop lessons learned for major response aspects: operations, authorities, health and safety, communications, and resources.
- Collaborate to identify cross-cutting issues and overarching recommendations which encompass several, or all of the major response categories.
- Develop first draft of lessons learned report.
- Circulate first draft to Assistant Administrators (AAs), Regional Administrators (RAs), and contributing interviewees for feedback.
- Review comments from AAs, RAs, and contributing interviewees, and incorporate additions or edits where appropriate.
- Present final Anthrax Lessons Learned to EPA Administrator.

Report Methodology (continued)

Time periods of interest

Data collection for this study was designed to solicit input for the time period following the initial identification of anthrax contamination at the AMI Building in Boca Raton, Florida on September 25, 2001, to include anthrax response activities through February, 2002.

The greatest intensity of EPA activity over a duration of time, however, was from October 15, 2001 when anthrax contamination was confirmed in the Hart Senate Office Building, until January 22, 2002 when the building was cleared for reoccupancy. It was also during this period that other Congressional buildings were sampled and cleaned, and that the vast majority of anthrax cross-contamination was discovered in other federal and postal facilities, and mailrooms in several states.

Information sources

Information for this study was gathered from the following sources:

- Sixty-seven interviews with EPA personnel, representing input from all EPA regions and headquarters, including responders and EPA management at all levels. (All regions responded to anthrax contamination either in the region, or by contributing rotational personnel in support of the Region 3 Capitol Hill response.)
- Other resources such as internal reports, summaries of events, and documentation from the Emergency Operations Center (EOC), including the following:
  - Meeting and conference call summaries from Capitol Hill and Regional responses
  - Press releases
  - Situation, Incident, and Pollution Reports (where existing)
  - EPA regional offices' lessons learned
  - External groups' lessons learned reports

Interviewees

ORGANIZATION	TITLE, OR FUNCTION SERVED IN ANTHRAX RESPONSE ACTIVITIES
Upper Management	
1. HQ	Administrator
2. HQ	Special Assistant for Homeland Security
3. HQ	Deputy Administrator (DA)
4. HQ	DA Chief of Staff
5. HQ - OSWER	Assistant Administrator, Office of Solid Waste and Emergency Response
6. HQ	Chief Adviser for Bioterrorism Issues
7. R3	Deputy Regional Administrator
Middle Management	
8. HQ - OERR OPC	Center Director
9. HQ - OERR CIOC	Program Manager
10. HQ - OPA	Public Affairs Specialist
11. HQ - OERR	Senior Process Manager
12. HQ - OSWER	EOC/Regional Coordinator
13. HQ - OPPTS	Program Manager
14. HQ - OGC	General Counsel
15. HQ - USPHS	Program Officer
16. ERT (R2)	Center Director
17. R1	Removal Manager
18. R3	Technical Manager
19. R3	Chief, Removal Branch (Acting)
20. R3	Congressional Liaison
21. R3	Associate Regional Counsel
14. R3	Community Involvement Coordinator
15. R3	Removal Manager

Report Methodology (continued)

ORGANIZATION	TITLE, OR FUNCTION SERVED IN ANTHRAX RESPONSE ACTIVITIES
16. R3	Section Chief, Removal Branch
17. R3	Chief, Removal Branch
18. R3	Division Director
19. R4	Chief, Removal Branch
20. R4	Section Chief
21. R5	Public Affairs Specialist
22. R5	Chief, Removal Branch
Front Line Responders	
23. R1	OSC
24. R1	OSC
25. ERT	Veterinary Medicine Officer
26. ERT	OSC/Technical Support
27. ERT (R2)	Environmental Engineer
28. ERT (R2)	Engineer
29. R2	OSC
30. R3	Federal Facilities Branch RPM/Technical Specialist OSC
31. R3	Lead OSC
32. R3	Community Involvement Coordinator
33. R3	OSC
34. R3	OSC
35. R3	Regional Response Coordinator
36. R3	OSC
37. R3	OSC
38. R3	OSC
39. R3	Regional Counter-Terrorism Program Coordinator

Report Methodology (continued)

ORGANIZATION	TITLE, OR FUNCTION SERVED IN ANTHRAX RESPONSE ACTIVITIES
40. R3	OSC
41. R3	OSC
42. R3	OSC
43. R4	OSC
44. R4	OSC
45. R4	OSC
46. R4	OSC
47. R4	OSC
48. R5	OSC
49. R5	OSC
50. R5	OSC
51. R5	OSC
52. R5	OSC
53. R6	OSC
54. R7	OSC
55. R7	OSC
56. R8	OSC
57. R9	OSC
58. R10	OSC
59. R10	OSC
60. R10	OSC

Appendix B

Sample Interview Questions

Appendix B
Sample Interview Questions

Interviewee_____Office/Title_____Date_____

Interviewer_____

Questions for Anthrax Interviews with Headquarters and Regional Management Personnel

A. Authority (Laws/Regulations)

1. Under which laws and authorities did you respond?

2. Did you have authority appropriate for the response actions that were required?

3. Did you encounter any problems or issues related to your authority or the authority of other parties involved in the response? If so, how were the problems or issues resolved?

4. What law/regulations could be strengthened to provide the adequate authority?

B. Operations

1. What, specifically, was your role in the response? What actions did you take to carry out your responsibilities?

2. Describe the operating environment. What were the issues that you faced?

3. What were the cleanup technologies, specific to your site/facility, used in the anthrax response?

4. What were some of the issues associated with the technicalities of remediating the anthrax?

5. Were there any technologies that would have been helpful to you if they were available during the response operation in terms of analytical methods, monitoring, etc.?

6. How prepared was your organization to respond to the anthrax incident(s)?

7. Did you receive the support you required to carry out your responsibilities?

Sample Interview Questions (continued)

C. Communications/Coordination

Internal Communication/Coordination

1. Describe the structure for ensuring that HQ, Regions, and EOC operations were kept updated on response progress. How well did this structure work? What could be improved?

2. Was a Joint Information Center (JIC) established? If so, talk about how the JIC functioned. If not, describe the decision-making process for not having a JIC. Describe what was implemented in lieu of a JIC.

3. How were you notified of the anthrax incident(s)?

4. Describe the process for information gathering. Was there an organized structure for obtaining information from key personnel responsible for the response? What worked and what could be improved?

5. Did you receive the information you required to carry out your responsibilities initially? As the response activities progressed?

6. What information requests, including reporting requirements, were made of you?

7. What EPA groups did you communicate/coordinate with? What was the nature of the communication? Was it successful?

8. Were there any significant challenges that kept you from communicating internally? Describe the challenges and offer suggestions for improving internal communications.

External Communication/Coordination

9. Which organizations, outside of EPA, did you coordinate with?

10. What was the nature of the coordination/communication with outside organizations? Was it successful?

11. How were crisis communication, public information, or media relations decisions made and communicated?

12. Were there any significant challenges that kept you from communicating externally? Describe the challenges and offer suggestions for improving external communications.

Sample Interview Questions (continued)

Community Involvement

13. Was there a formal communications strategy that outlined who the key audiences were and how the agency would involve them during the response?

14. What were some of the challenges of conducting community involvement activities during the response? How could those challenges have been resolved?

D. Health and Safety

1. Was the health and safety planning sufficient to address the activities of your organization in response to the anthrax incident(s)?

2. How were you involved in hazard and risk management decisions?

3. Was the level of training you and your organization had received sufficient to prepare you to address the health and safety issues associated with the anthrax incident(s)?

4. Describe the challenges you faced and what specific recommendations you would give.

E. Resources: Technical and Administrative

1. What resource issues did you face in carrying out your responsibilities?

2. How did you handle resource (personnel, equipment, funding) shortfalls?

3. Did responding to the anthrax incident(s) require you to make adjustments in other program activities?

F. Overall Significance and Impact

1. Please indicate your degree of satisfaction with EPA's ability to respond to the challenges presented in each of the areas previously discussed:

	Very Satisfied	Reasonably Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
Authority	5	4	3	2	1
Operations	5	4	3	2	1
Internal (EPA) Communications	5	4	3	2	1

Sample Interview Questions (continued)

	Very Satisfied	Reasonably Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
External (other agencies) Communications	5	4	3	2	1
Community Communications	5	4	3	2	1
Health and Safety	5	4	3	2	1
Resources	5	4	3	2	1

2. What do you believe to be the most significant problems or challenges facing the Agency in the case of anthrax contamination? (List no more than five.)

Questions for Anthrax Interviews with OSCs and Other Response Personnel

A. Authority (Laws/Regulations)

1. Under which laws/regulations did you respond?

2. Did you have authority appropriate for the response actions that were required?

3. Did other parties act under other authorities, laws or regulations? If so, what were they?

4. Did you encounter any problems or issues related to your authority or the authority of other parties involved in the response? If so, how were the problems or issues resolved?

5. What law/regulations could be strengthened to provide the adequate authority?

B. Operations

1. What, specifically, was your role in the response? What actions did you take to carry out your responsibilities?

2. Describe the operating environment. What were the immediate issues that you faced?

3. What were the cleanup technologies, specific to your site/facility, used in the anthrax response?

Sample Interview Questions (continued)

4. What were some of the issues associated with the technicalities of remediating the anthrax? Were there any technologies that would have been helpful to you if they were available during the response operation in terms of analytical methods, monitoring, etc.?

5. How prepared was your organization to respond to the anthrax incident(s)?

6. Did you receive the support you required to carry out your responsibilities?

C. Communications/Coordination

Internal Communication/Coordination

1. Describe the structure for ensuring that HQ, Regions, and EOC operations were kept updated on response progress. How well did this structure work? What could be improved?

2. Was a Joint Information Center (JIC) established? If so, talk about how the JIC functioned. If not, describe the decision-making process for not having a JIC. Describe what was implemented in lieu of a JIC.

3. How were you notified of the anthrax incident(s)?

4. Describe the process for information gathering. Was there an organized structure for obtaining information from key personnel responsible for the response? What worked and what could be improved?

5. Initially, did you receive the information you required to carry out your responsibilities? As the response activities progressed?

6. What information requests, including reporting requirements, were made of you?

7. What EPA organizations did you communicate/coordinate with?

8. What was the nature of the communication/coordination? Was it successful?

9. Were there any significant challenges that kept you from communicating internally? Describe the challenges and offer suggestions for improving internal communications.

External Communication/Coordination

10. Which organizations, outside of EPA, did you coordinate with?

11. Was there a clear structure for keeping external audiences updated?

12. What was the nature of the coordination/communication? Was it successful?

Sample Interview Questions (continued)

13. How were crisis communication, public information, or media relations decisions made and communicated?

14. Were there any significant challenges that kept you from communicating externally? Describe the challenges and offer suggestions for improving external communications.

Community Involvement

15. Was there a formal communications strategy that outlined who the key audiences were and how the agency would involve them during the response?

16. What were some of the challenges of conducting community involvement activities during the response? How could those challenges have been resolved?

D. Health and Safety

1. Was there a written HASP for employees involved in the response?

2. Was the level of training you had received sufficient to prepare you to address the health and safety issues associated with the anthrax incident(s)?

3. Was the site evaluated to identify specific site hazards and to determine the appropriate safety and health control procedures?

4. Were appropriate procedures implemented to control exposure to hazardous substances before clean-up work began?

5. Were you or are you covered under a medical surveillance program?

6. Did the site manager use engineering controls, work practices, and PPE appropriately to protect employees from exposure to hazardous substances and safety and health hazards?

7. Were decontamination procedures developed, communicated to employees and implemented before any employees or equipment entered areas on site where potential for exposure to hazardous substances exist?

8. Was a written site emergency response plan developed and implemented for the site, and made available to you?

9. Describe the challenges you faced and what specific recommendations you would give.

E. Resources: Technical and Administrative

1. What resource issues did you face in carrying out your responsibilities?

Sample Interview Questions (continued)

2. How did you handle resource (personnel, equipment, funding) shortfalls?

3. Did your response activities require you to make adjustments in other program activities?

F. Overall Significance and Impact

1. Please indicate your degree of satisfaction with EPA's ability to respond to the challenges presented in each of the areas previously discussed:

	Very Satisfied	Reasonably Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
Authority	5	4	3	2	1
Operations	5	4	3	2	1
Internal (EPA) Communications	5	4	3	2	1
External (other agencies) Communications	5	4	3	2	1
Community Communications	5	4	3	2	1
Health and Safety	5	4	3	2	1
Resources	5	4	3	2	1

2. What do you believe to be the most significant problems or challenges facing the Agency in the case of anthrax contamination? (List no more than five.)