



## SECTION HIGHLIGHTS

This section describes potential bioterrorist threats to the air and water supply and the need for communities to be prepared, as well as the role of federal agencies in protecting the air and water supply.

- » It is important to identify the water supply and distribution systems in your area, and to know where they are located.
- » The U.S. Environmental Protection Agency (EPA) is the main federal agency responsible for water security. The U.S. Department of Health and Human Services (HHS) contributes during emergency response and recovery to provide technical assistance and support.
- » In the event of a public health emergency involving a release of harmful chemical and biological agents into the air, several federal agencies might be involved in the response: the U.S. Department of Homeland Security (DHS), the Centers for Disease Control and Prevention's (CDC's) National Institute for Occupational Safety and Health (NIOSH), and EPA.
- » Project Biowatch, a program of DHS in partnership with EPA and CDC, is an air-monitoring system that is intended to provide early warning in cases of airborne biocontaminants in urban areas.



# ENVIRONMENTAL SAFETY AND TESTING

## WATER SUPPLY

**W**ater has always been a strategic target during times of war, and the fear of a terrorist threat to the water supply is intense and widespread. As of this printing, no known terrorist act has ever involved the water supply. Most experts agree that the risk of casualties resulting from an attack on the water supply is low. This is because the toxins would be diluted by millions of gallons of water or inactivated by chlorination, ozone, or filters at water treatment plants (Johns Hopkins Center for Public Health Preparedness, 2004). Nonetheless, in the event of deliberate tampering with water supplies, people's confidence in the safety of drinking water will decline, while fear and anxiety rise, even if there is no health threat.

Water supply and distribution systems are vulnerable components of the nation's critical infrastructure. In addition to the water supply, the infrastructure for drinking and wastewater includes treatment plants, pumping stations, pipelines, and storage facilities. Nationally, there are more than 168,000 public drinking water facilities, with tens of thousands of miles of aqueducts and pipelines in remote rural areas and other unguarded locations.

Terrorist threats to the water supply include:

- › Deliberate contamination with biological, chemical, or radiological agents
- › Bombs or explosives at pumping stations or other critical facilities
- › Sabotage and disruptions of the distribution of drinking water or firefighting supplies

Many environmental health experts are concerned about unguarded chlorine gas supplies at water treatment facilities, which terrorists could release into the air or water or put into the food supply. Most treatment plants use chlorine to kill bacteria and viruses in drinking water, but in stronger concentrations, chlorine causes choking and tissue damage and can be fatal (Centers for Disease Control and Prevention, 2003). To reduce terrorism risks that target chlorine, some treatment plants have converted to safer purification technologies, such as sodium hypochlorite.

The following questions will help you think about the potential threats to your community:

- › Are there water treatment plants in your area?
- › Are reservoirs or other water storage facilities located in your community?
- › Are there water pipelines or aqueducts in your area?
- › Are there water pumping stations nearby?

It is likely that your local and state health departments are working on preparing for these specific threats to your area and can provide you with more information on the measures being taken.

## FEDERAL PARTNERS IN PROTECTING THE WATER SUPPLY

EPA, working in coordination with DHS, has primary responsibility for water infrastructure security. EPA is responsible for protecting the nation's water supply by enforcing the Clean Water Act (<http://www.epa.gov/region5/water/cwa.htm>), the Safe Drinking Water Act (<http://www.epa.gov/safewater/sdwa/sdwa.html>), and the Public Health Security and Bioterrorism Preparedness Response Act of 2002 (<http://www.fda.gov/oc/bioterrorism/bioact.html>).

## *Federal Agencies' Response to Water Emergencies*

In the event of an attack on the water supply, you may be working with several federal agencies. While the role of HHS in water security is to provide technical assistance and support during emergency response and recovery, the Federal Emergency Management Agency and the Army Corps of Engineers may both have leading roles. Within CDC, the Environmental Public Health Readiness Branch of the National Center for Environmental Health works with federal, tribal, state, and local agencies after natural and technological disasters. CDC's environmental disaster epidemiologists help communities assess the impact of hurricanes, floods, and other extreme weather conditions on health and the water supply (<http://www.cdc.gov/nceh/hsb/disaster/default.htm>).

CDC's activities may include conducting laboratory tests on water samples to identify toxic contaminants, setting up surveillance programs to monitor the number of people with waterborne diseases or other serious health risks, setting up programs to control the spread of disease, and providing other support and technical assistance.



## AIR

Terrorists could release harmful chemical and biological agents into the air, which might not be recognized for several days. An airborne communicable disease can spread through a ventilation system or pass person-to-person through coughing or sneezing before anyone realizes what has happened.

Noncommunicable bioagents, such as anthrax, also spread readily through the air. Technology has not kept pace with the need to detect these agents or remove them from the air by advanced surveillance and filtering techniques. Recognizing these technical gaps, the federal government is exploring several new biosurveillance programs, including new sensor networks and new health-tracking data analysis programs.

### FEDERAL PARTNERS IN MONITORING THE SECURITY OF THE AIR WE BREATHE

DHS, through the Interagency Modeling and Atmospheric Assessment Center (IMAAC), is responsible for coordinating scientific cooperation among federal agencies to improve plume modeling and assessment capabilities. IMAAC is responsible for the production, coordination, and dissemination of reliable predictions and consequences for the release of airborne hazardous materials. These predictions will be provided to federal, tribal, state, and local emergency responders and other government officials as necessary to guide decisions and help officials determine the best responses to protect the public health (<http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2004/secy2004-0221/2004-0221scy.html>).

NIOSH has primary responsibility for research and recommendations on air quality in the workplace, thus protecting the health of the workforce. In 2002, NIOSH issued detailed guidance for defending building environments against airborne chemical, biological, or radiological attacks (NIOSH, 2002).

### BIOWATCH

Project BioWatch is an air-monitoring system that aims to provide early warnings of biotreats in urban areas. The initiative is led by DHS, in partnership with EPA and CDC's Laboratory Response Network. This biosurveillance system

includes round-the-clock air-monitoring stations that have been operating in more than 30 cities across the nation since 2003.

Technicians collect air samples from BioWatch sensors. The samples are tested at designated state and local labs that are part of the Laboratory Response Network for the presence of specific bioagents, including anthrax, smallpox, and plague.

If lab workers detect a bioagent, the sample is sent to CDC for confirmation and a rapid response protocol goes into effect. This protocol involves state and local officials, DHS, CDC, EPA, and the Federal Bureau of Investigation. Though federal officials have not released the protocol to the public, they have indicated that CDC would notify the other agencies and the designated members of the Rapid Response Team would quickly make decisions and communicate a coordinated response and mitigation strategy (with recommended actions) to local health departments (Marburger, 2003).

If your community is affected by the deliberate release of radiological, nuclear, chemical, or biological agents into the air by terrorists, you will be coordinating your response with the IMAAC, EPA, CDC as well as other federal agencies and state and local officials.

### ADDITIONAL INFORMATION

EPA Counter-Terrorism Topic Page:  
<http://www.epa.gov/ebtpages/emercounter-terroris.html>

EPA Emergency Response Program:  
<http://www.epa.gov/superfund/programs/index.htm>

EPA Regional Offices:  
<http://www.epa.gov/epahome/locate2.htm>

CDC's National Center for Environmental Health:  
Emergency and Terrorism for Environmental Health  
Practitioners: <http://www.cdc.gov/nceh/ehs/ETP/default.htm>

CDC's National Institute of Occupational Safety and Health:  
Emergency Response Resources:  
<http://www.cdc.gov/niosh/topics/emres/default.html>

