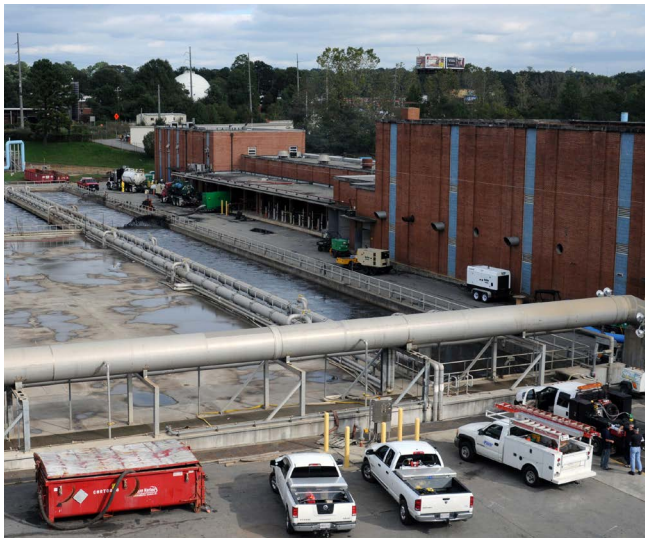


United States Environmental Protection Agency

EPA Water Security & Resiliency Highlights

Program Overview

Safe drinking water and properly treated wastewater are critical to human health, the environment, and the economy. Protecting this critical infrastructure is key to maintaining not only the public health and environmental benefits of safe and clean drinking water, but also to maintaining the services of the other 17 critical infrastructure sectors, which share interdependencies with the Water Sector.

The U.S. Environmental Protection Agency's (EPA's) mission is to provide national leadership in developing and promoting security and resiliency programs that enhance the Water Sector's ability to prevent, detect, respond to, and recover from all hazards.

EPA, in partnership with drinking water and wastewater utilities and their associations, has developed four goals that will drive development of EPA's security and resiliency program. These goals are:

Goal 1 – Sustain protection of public health and the environment

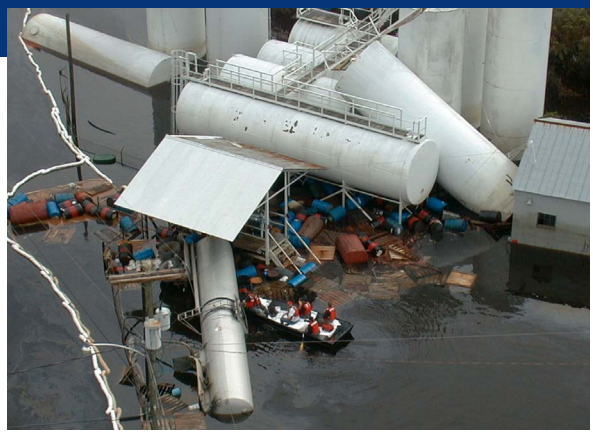
Goal 2 – Recognize and reduce risk

Goal 3 – Maintain a resilient infrastructure

Goal 4 – Increase communication, outreach and public confidence

This document highlights water security projects and partnerships managed or funded by EPA.
For more information, visit **www.epa.gov/watersecurity**.

Goal 1 Sustain Protection of Public Health & the Environment



Water Security initiative: The overall goal of this initiative is to design and demonstrate an effective system for timely detection of and appropriate response to drinking water contamination threats and incidents that will have broad application to the nation's drinking water utilities. The initiative is being implemented in three phases: (1) develop the conceptual design of a contamination warning system; (2) demonstrate, evaluate, and refine the contamination warning system design through full-scale pilot programs at drinking water utilities and municipalities; and (3) develop practical guidance and provide outreach and training to promote and support voluntary national adoption of a contamination warning system.

Currently, five Water Security initiative pilots are in different stages of deployment in Cincinnati, San Francisco, New York City, Dallas, and Philadelphia. Using information gathered through deployment of the Cincinnati pilot, EPA has published three interim guidance documents on drinking water contamination warning systems. The documents advise utilities regarding the design, development, deployment, and use of monitoring and warning systems.

Water Laboratory Alliance (WLA): Provides the Water Sector with an integrated nationwide network of laboratories with the analytical capability and capacity to respond to drinking water contamination events. Launched in September 2009, the WLA is composed of public health, environmental, and commercial laboratories. The WLA leverages existing laboratory network capability and infrastructure and is designed to fill gaps in national laboratory preparedness for water analyses. The foundation of the Alliance is the Water Laboratory Alliance Response Plan (WLA-RP). It establishes a comprehensive, national laboratory response approach to water contamination events including preparedness, response, remediation and recovery. In particular, the WLA-RP provides laboratories with a structure for a systematic, coordinated response to a water contamination incident that can be used in conjunction with existing Incident Command System (ICS) structure and procedure. Additional activities of the Alliance include laboratory response exercises and the development of chemical and biological methods. WLA membership has multiple benefits, including: improved laboratory emergency preparedness and response capabilities; improved communications with peer laboratories to help address emerging analytical, security, or operational challenges; access to validated methods for unregulated contaminants of interest to the Water Sector; and opportunities for water security-related training.

EPA/U.S. Department of Homeland Security (DHS) Coordination: EPA coordinates with DHS on critical infrastructure/key resource activities to ensure a consistent approach to security across the Water Sector. EPA activities include participating in Water Government Coordinating Council (GCC) and Critical Infrastructure Partnership Advisory Council (CIPAC) working groups, and updating the Water Sector-Specific Plan and Water Sector Annual Report.

Coordination with Emergency Management Agencies: EPA has recently developed two documents to help further the coordination and integration of the water sector and emergency management community. *Coordination of the Water Sector and Emergency Services Sector* is an eight-page document that discusses the value of water to the emergency management community, and provides recommendations on how utilities can work together with their local emergency management agency. The document references examples of successful coordination between water and emergency management agencies for activities such as funding, training, exercises, and responding to incidents. *Bridging the Gap* is a similar document, but focuses on the relationships between state drinking water primacy agencies and state emergency management agencies. It includes numerous examples from states where these agencies are working together to support water sector preparedness and response activities.

Goal 2 Recognize & Reduce Risk

Risk Assessment Methodologies: Drinking water and wastewater utilities are encouraged to conduct or update risk assessments as well as to prepare or revise Emergency Response Plans (ERP) on a regular basis. EPA's Vulnerability Self-Assessment Tool (VSAT) provides Water Sector utility owners and operators with qualified and quantified risk assessment processes to measure risk at the asset and system level; prioritize utility investments and efforts to mitigate risk; and, track utility risk management performance and investment over time.

VSAT uses consistent vulnerability, consequence, and threat information within the Risk Analysis and Management for Critical Asset Protection framework, also known as RAMCAP. VSAT also aligns with the features and elements of risk assessments as identified in the National Infrastructure Protection Plan. The VSAT software tool is currently available for download.

Consequence Analysis: EPA-supported efforts on consequence analysis include coordination with the Water Sector and experts in risk assessments, utility operations, public health, and economics to analyze the potential health and economic consequences of various contamination and damage scenarios.

EPA has developed version 2.0 of the Water Health and Economic Analysis Tool (WHEAT). WHEAT is a generalized (threat-neutral) consequence analysis tool, designed to assist drinking water and wastewater utility owners and operators in quantifying public health consequences, utility-level financial consequences, direct and indirect regional economic consequences, and the downstream impacts of an adverse event that pose risks to the water sector. WHEAT analyzes two different event scenarios—release of hazardous gas and loss of operating assets—and provides information that can be used by utilities as part of a comprehensive risk assessment.

Future versions of the tool will include contamination scenarios. The WHEAT tool which includes loss of operating assets and hazardous gas release modules for drinking water and wastewater systems is currently available for download.

Goal 3 Maintain a Resilient Infrastructure

Water Contaminant Information Tool (WCIT): This free, secure online tool has been created to support the Water Sector in preparedness, detection, response, and remediation. WCIT is a comprehensive database of information for 102 chemical, biological and radiological contaminants of concern to the Water Sector. In 2010, EPA integrated the National Environmental Methods Index for Chemical, Biological, and Radiological Methods (NEMI-CBR) database of analytical methods into WCIT, providing a one-stop, easy-to-use tool for the Water Sector. NEMI-CBR contains analytical methods for over 700 contaminants. EPA continues to enhance the tool and update its information to reflect the most current data available to the Water Sector.

Water/Wastewater Agency Response Networks (WARNs): Intrastate mutual aid and assistance agreements, available to both private and public Water Sector utilities, facilitate the sharing of resources, personnel and equipment during events that disrupt drinking water and wastewater services. WARNs have been established in 47 states and the National Capital Region. EPA continues to support WARNs with tabletop exercises, attracting new members, and sponsoring annual meetings of WARN chairs.

Emergency Response Exercises/Training: EPA, working with its partners in the States and national Water Sector associations, has conducted exercises and provided extensive training programs to improve coordination and communication between emergency response partners at the local, state, and federal levels. For example, EPA has sponsored state-wide emergency response exercises that examine Water Sector-specific issues. Recent exercises were completed in Connecticut, Utah, and South Carolina. EPA recently published a fact sheet that provides lessons learned from these exercises. In addition, EPA provides training on the Incident Command System (ICS) and National Incident Management System (NIMS), which are national standards used by the Water Sector and its first response partners.

Tabletop Exercise (TTX) Tool for Water Systems: The TTX Tool is designed to provide the Water Sector with the necessary resources to plan, conduct, and evaluate tabletop exercises. Tabletop exercises allow water systems to practice, test, and improve ERPs and procedures. The TTX Tool simplifies the process of planning and conducting tabletop exercises, and provides resources that aid in the development of customized scenario-driven, discussion-based tabletop exercises.

Community-Based Water Resiliency (CBWR) Initiative: The CBWR electronic Tool aims to enhance the resiliency of drinking water and wastewater utilities and the communities they serve in the face of water service interruptions from natural and manmade disasters. Users of the CBWR electronic Tool will understand how to integrate water utilities into community preparedness efforts and identify water interdependencies in the community. The main feature of the electronic Tool is a self-assessment that helps assess users level of preparedness and generates a summary report that includes specific recommendations, tools, and resources to enhance their organization's water security and protection measures. There are over 400 free tools and resources in the CBWR toolbox for a user to access. The Water Resiliency Action Plan kit, also known as the WRAP kit, provides a step by step guide for users to host a water preparedness roundtable (or workshop) in their community.

Key Features of an Active and Effective Protective Program: The Key Features provide drinking water and wastewater utilities with the elements of a protective program and address physical, cyber, and human aspects of prevention, detection, mitigation, response, and recovery. The Key Features help utilities protect against a range of threats, including natural disasters, aging infrastructure, cyber intrusions, and man-made disasters. The Key Features in Action fact sheets, Chicagoland Case Study, and Seattle-King County Case Study document how numerous utilities have implemented the Key Features and how the utilities have benefited from their enhanced security practices.

Federal Disaster Funding: Major disasters can disrupt water/wastewater operations and cause significant damage, however utilities may be eligible for federal funding to recover from or mitigate a disaster. In October 2012, EPA posted a new web-based tool called Federal Funding for Utilities – Water/Wastewater – in National Disasters (Fed FUNDS). Fed FUNDS provides tailored information, tips, and example applications for utilities to apply for federal disaster funding. EPA is conducting workshops on Fed FUNDS and next year will be developing a national webinar series and journal articles on federal disaster funding. In addition to Fed FUNDS, EPA developed a four-page brochure, *Public Assistance for Water and Wastewater Utilities in Emergencies and Disasters*, to help utilities better understand and obtain FEMA funding during a Presidential Disaster Declaration.

Federal Disaster Support: EPA provides Federal disaster support under the National Response Framework as a support agency to the U.S. Army Corps of Engineers (USACE) under Emergency Support Function (ESF) #3, Public Works and Engineering. Under ESF #3, EPA provides technical assistance to USACE in assessing the operating status of water and wastewater systems. EPA also provides assistance during hazardous material incidents involving contaminated water and wastewater systems, and during similar Water Sector-related incidents.

EPA also provides support under the National Disaster Recovery Framework (NDRF), which coordinates recovery efforts at all levels of government and private sector partners. Within the NDRF, EPA is identified as a support agency under the Infrastructure Systems Recovery Support Function. EPA has participated in several recent activations of the NDRF including the drought in the Midwest, Hurricane Isaac in Mississippi, and Hurricane Sandy in New York and New Jersey.

Decontamination Strategy and Technologies: The Water Sector Coordinating Council and the GCC, through the CIPAC Working Group developed a decontamination strategy to assist the Water Sector in establishing priorities for decontamination and recovery from water incidents. The strategy included 16 priorities and 35 recommendations related to the type of system (e.g., drinking water, wastewater), type of contaminant (e.g., chemical, biological, radiological), type of media affected (e.g., water, water infrastructure, decontamination equipment, household plumbing), type of incident (e.g., natural or man-made, accidental or intentional), and extent of contamination (e.g., concentrations, spatial and temporal variations).

In September 2012, EPA released the document entitled, "Containment and Disposal of Large Amounts of Contaminated Water: A Support Guide for Water Utilities." This guide addresses the number one priority recommendation as identified by the CIPAC Working Group in the decontamination strategy. The guide provides recommendations primarily for drinking water, wastewater and stormwater utilities following an all-hazard chemical, biological, and radiological contamination event.

All-Hazards Consequence Management Planning Document: The *All-Hazard Consequence Management Planning for the Water Sector* (All-Hazard CMP), was prepared by the Emergency Response CIPAC Working Group, and was finalized in November 2009. The All-Hazard CMP includes: customizable checklists of preparedness, response, and recovery actions that will improve resiliency, incident-specific flow charts and checklists, and information on how NIMS and ICS are used for preparedness planning, and implemented during response and recovery.

Goal 4 Increase Communication, Outreach & Public Confidence

Water Information Sharing and Analysis Center (WaterISAC): This tool is a mechanism for all-hazards security information within the Water Sector. WaterISAC facilitates sharing of information about physical and cyber threats, vulnerabilities, incidents, potential protective measures, and effective security practices. WaterISAC is a secure, Internet-based, rapid notification system and information resource for gathering, evaluating, conveying, and sharing security-related information on drinking water and wastewater systems; communications are geared to utility executives, managers, operators, and security officers.

For more information on any of the projects listed, please visit EPA's water security website at **www.epa.gov/watersecurity** or send an email to **WSD-Outreach@epa.gov**.