



Safeguarding the Nation's Drinking Water: EPA and Congressional Actions

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Summary

The events of September 11, 2001, focused heightened attention on the security status of the nation's drinking water supplies and the vulnerability of this critical infrastructure sector to attack. Congress since has enacted security requirements for public water systems and has provided funding for vulnerability assessments, emergency planning, and drinking water research. The Environmental Protection Agency (EPA), the lead federal agency for the water sector, has worked with water utilities, state and local governments, and federal agencies to improve the drinking water security.

The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188) amended the Safe Drinking Water Act to require some 8,400 community water systems to assess vulnerabilities and prepare emergency response plans. It authorized funding for these activities and for emergency grants to states and utilities, and it directed EPA to review methods to prevent, detect, and respond to threats to water safety and infrastructure security. The act did not require water systems to make security upgrades to address potential vulnerabilities. In most years since FY2002, Congress appropriated roughly \$5 million annually for EPA to work with states and the water sector to improve the security of drinking water supplies.

In creating the Department of Homeland Security (DHS) with the Homeland Security Act of 2002 (P.L. 107-296), Congress gave DHS responsibility for assessing and protecting the nation's critical infrastructures. However, the act did not transfer EPA's water security functions, and the 2003 Homeland Security Presidential Directive (HSPD-7) affirmed EPA's lead role in protecting the water infrastructure. Under this directive, EPA has responsibility for developing and providing tools and training on improving security to roughly 52,000 community water systems and 16,000 municipal wastewater treatment facilities.

In the 109th Congress, the Department of Homeland Security FY2007 appropriations act (P.L. 109-295) authorized DHS to regulate for three years high-risk chemical facilities, but the law excluded from coverage drinking water and wastewater treatment facilities.

In the 111th Congress, interest in extending and expanding security requirements for the chemical facility sector continues, as has debate over whether to include certain water utilities within the scope of such requirements. House-passed H.R. 2868 would revise and codify security requirements for chemical facilities and impose new security requirements on drinking water and wastewater utilities. EPA would have regulatory authority for water sector utilities. The version of H.R. 2868 ordered reported by the Senate Committee on Homeland Security and Governmental Affairs in July 2010 would extend DHS chemical facility authority for three years, create voluntary technical assistance and training programs, and create a best practices clearinghouse.

Although EPA, states, localities, and water utilities have taken steps to address security concerns, the security of the nation's water supplies has continued to attract congressional attention. Issues have included the status of efforts by the water sector to improve security, whether to increase federal requirements, funding needs for water systems to make security improvements, the relative roles and responsibilities of EPA and DHS regarding the water sector, and the status of research and development of technologies to help water systems detect and address potential biological and chemical contaminants. This report reviews governmental and water utility efforts to improve drinking water security.

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Background

Ensuring the security of the nation's drinking water supplies poses a substantial challenge, partly because the number of water systems is very large and also because the responsibility for protecting drinking water safety is shared among federal, state and local governments, and public and privately owned utilities. Nationwide, there are some 155,000 public water systems, and these systems range greatly in size, serving from as few as 25 persons to more than 1 million persons. Roughly 52,000 of all public water systems are community water systems (CWSs) that serve the same residences year-round.¹ These 52,000 systems provide water to approximately 292 million people. Some 400 community systems serve more than 100,000 people and provide water to nearly half of the total population served. Because water supplies support many uses (from drinking water to fire suppression), their disruption could have significant impacts.²

A 1996 executive order on critical infrastructure protection (E. O. 13010), included water supply systems as one of eight national infrastructures vital to the security of the United States.³ In 1997, the President's Commission on Critical Infrastructure Protection, created by the executive order, issued a report on the vulnerabilities of these infrastructure sectors and strategies for protecting them. The Commission identified three attributes crucial to water supply users: water must be available on demand, it must be delivered at sufficient pressure, and it must be safe for use.⁴ Actions affecting any of these factors could be debilitating for the infrastructure and also for the communities that depend on it.

Major threats to water supplies include physical destruction of facilities or distribution systems, biological or chemical contamination of supplies, and cyber attacks. The 1997 Commission found that drinking water systems had inadequate protection against the threat of chemical or biological contamination, and that technology was insufficient to allow detection, identification, measurement, and treatment of highly toxic, waterborne contaminants. Water utilities were also found to be vulnerable to cyber attacks as they rely increasingly on computers to control water flow and pressure and treatment processes. Information sharing was identified as the most immediate need, although warning and analytical capabilities and research and development all were found to be insufficient.

Presidential Decision Directive (PDD) 63 on critical infrastructure protection was issued in 1988 in response to these findings and related developments. Under this directive, a public/private partnership was established to put in place prevention, response, and recovery measures to ensure the security of the nation's critical infrastructures against criminal or terrorist attacks. PDD-63

¹ Another 19,174 public water systems are non-transient, non-community water systems (NTNCWS), such as schools or factories, that have their own water supply and generally serve the same individuals for more than six months but not year-round. More than 86,000 other public water systems are transient non-community water systems (TNCWS), such as campgrounds and gas stations, that provide their own water to transitory customers.

² For a broader review of security issues in the water resources sector (including dams and sewage treatment plants), see CRS Report RL32189, *Terrorism and Security Issues Facing the Water Infrastructure Sector*, by Claudia Copeland.

³ For a review of critical infrastructures, related security issues and protection initiatives, and activities within the Department of Homeland Security, see CRS Report RL30153, *Critical Infrastructures: Background, Policy, and Implementation*, by John D. Moteff.

⁴ The President's Commission on Critical Infrastructure Protection, *Critical Foundations: Protecting America's Infrastructures*. Report of the President's Commission on Critical Infrastructure Protection, Appendix A, Sector Summary Reports, October 1997, p. A-45.

designated the Environmental Protection Agency (EPA) as the lead federal agency for the water supply sector, and EPA appointed the Association of Metropolitan Water Agencies (AMWA) to coordinate the water sector. However, before September 11, 2001, the main focus of PDD-63 efforts for all critical infrastructure sectors was on cyber security. Subsequently, the breadth and depth of efforts to protect the nation's critical infrastructures have expanded significantly.

EPA Efforts to Increase Drinking Water Security

In 2003, President Bush issued Homeland Security Presidential Directive 7 (HPSD-7), which affirmed EPA as the lead federal agency for coordinating the protection of the nation's critical infrastructure for the water sector. Under this directive, EPA is responsible for developing and providing tools and training on improving security to roughly 52,000 community water systems and 16,000 municipal wastewater treatment facilities.

To carry out its water sector responsibilities, EPA established a Water Security Division within the Office of Ground Water and Drinking Water. This Division works with drinking water and wastewater utilities, states, tribes, and other stakeholders to improve the security of these utilities and improve their ability to respond to security threats and breaches. Among its responsibilities and activities, the Water Security Division provides security and antiterrorism-related technical assistance and training to the water sector. Although the Water Security Division was established in 2003, the Office of Water had provided assistance to its stakeholders for a number of years.

Security-related activities undertaken by EPA and the water sector have fallen into five general categories, including (1) establishing an information center for drinking water alerts or incidents, (2) developing vulnerability assessment tools, (3) identifying actions to minimize vulnerabilities, (4) revising emergency operations plans, and (5) supporting research on biological and chemical contaminants considered to be potential weapons of mass destruction. Several key government and private sector efforts are reviewed below.

Information Sharing and Analysis

One goal of PDD-63 in 1998 was to establish an Information Sharing and Analysis Center (ISAC) for each critical infrastructure sector. With assistance from EPA and the Federal Bureau of Investigation, the Association of Metropolitan Water Agencies has led the effort to develop and implement an ISAC for water utilities. The WaterISAC provides a secure, Web-based communications link between the water sector and federal homeland security, law enforcement, intelligence, environmental, and public health agencies. This system gathers, analyzes, and disseminates threat information specific to the water sector, and is a comprehensive source of security and disaster preparedness information for drinking water and wastewater utilities.⁵ The WaterISAC is supported by membership fees and EPA grants. It has been supplemented with the Water Security Channel (WaterSC), which provides free email notification of water security alerts and other information issued by federal government agencies.

⁵ For further information on the Water ISAC, see <http://www.waterisac.org>.

Tools and Technical Assistance

EPA has worked with its water sector partners to provide practical tools and technical assistance to utilities on a wide range of security matters. In 2000, the American Water Works Association Research Foundation (AWWARF) and the Sandia National Laboratories, with EPA support, initiated a project to develop a methodology for utilities to use to assess their vulnerabilities and develop plans to minimize identified risks. The project was expedited after September 11, 2001, and completed in November 2001, and many large water systems used this risk assessment methodology to conduct vulnerability assessments. States and drinking water organizations, in collaboration with EPA, developed additional vulnerability assessment tools, with a particular focus on the needs of smaller communities. To help cover the costs of conducting vulnerability assessments and preparing emergency response plans, EPA awarded a total of \$51 million in grants to community water systems that serve more than 100,000 persons. (Congress provided these funds in the Emergency Supplemental Appropriations Act for FY2002 (P.L. 107-117).)

While direct grants have not been available for smaller water systems, a considerable amount of technical assistance has been aimed at helping these systems, which typically may have less capacity to address security concerns. EPA used “train-the-trainer” grants to build a pool of environmental professionals that has provided training and technical assistance to water systems serving fewer than 50,000 people.⁶ In addition, on-site assistance for vulnerability assessment and emergency response planning was made available to small and medium wastewater utilities at no cost through the Wastewater Operator Training Program.

Technical assistance also has been provided through numerous guidance documents designed to help water utilities address a range of security concerns.⁷ A key product is the *Response Protocol Toolbox: Planning for and Responding to Contamination Threats to Drinking Water Systems*, which is intended to help public water systems respond to contamination threats and incidents. The “toolbox” includes separate modules that address water utility planning, contamination threat management, site characterization and investigation, water sample analysis, public health response, and remediation and recovery.⁸ Paralleling the toolbox, EPA developed response guidelines to help water utilities, emergency responders, and other officials during the management of an ongoing contamination threat or incident.

As a sector, drinking water utilities acted relatively quickly to assess vulnerabilities, upgrade emergency response plans, and take some initial steps to improve security of this critical infrastructure. The Office of Homeland Security's 2003 *National Strategy for the Physical Protection of Critical Infrastructure and Key Assets* reported that the water sector had taken great strides to protect its critical facilities and systems, and had focused on categories of possible

⁶ EPA generally has not performed security training; rather, the agency has delivered training at locations across the country through stakeholder organizations and other federal partners. Organizations that have provided training include professional associations, such as the American Water Works Association, the Water Environment Federation, and the National Rural Water Association. Congress has provided some grant funds to these organizations, through EPA, to support their water security training activities.

⁷ Water security reports, guidance documents, directives, and information on EPA security activities are available at <http://cfpub.epa.gov/safewater/watersecurity/index.cfm>.

⁸ U.S. Environmental Protection Agency, *Response Protocol Toolbox: Planning for and Responding to Drinking Water Contamination Threats and Incidents*, August 2004. Available at http://www.epa.gov/watersecurity/pubs/rptb_response_guidelines.pdf.

attacks that could have the greatest health or economic consequences.⁹ However, the report noted that the water sector needed better threat information to prioritize investments on security measures. It also reiterated the need for research and development of new monitoring and analytic capabilities to enhance detection of biological, chemical, and radiological contaminants that could be introduced to the water supply.

Research

A major security concern for the water sector has been the need for research to develop real-time monitoring methods to detect contaminants, and to develop technologies to remove or inactivate them. The water industry and security experts have identified a particular need for research to develop monitoring technologies that can quickly detect contaminants in water that has already left a treatment plant for distribution to consumers.

EPA has participated in various research and development projects related to water security, including research to evaluate the ability of drinking water treatment systems to remove and inactivate biological and chemical agents. The agency also has supported research efforts to determine the fate and transport of contaminants within rivers and streams and within water treatment plants and distribution systems, and to develop biodetectors for detecting and quantifying biological contaminants in drinking water supplies.

To coordinate and oversee research involving prevention and response to terrorist attacks, EPA's Office of Research and Development established the National Homeland Security Research Center (NHSRC) in 2002. The Center's key areas of research involve water infrastructure protection, decontamination and consequence management, and threat and consequence assessment.

The NHSRC's Water Infrastructure Protection Division and the Office of Water's Water Security Division developed a Water Security Research and Technical Support Action Plan in 2004, to define a specific program of research and technical support for protecting drinking water and wastewater facilities from terrorist threats and attacks. The action plan, which was reviewed by the National Research Council (NRC), addressed drinking water supply, water treatment, finished water storage, and distribution systems. It identified major research needs in the following areas:

- protecting physical and cyber infrastructure;
- identifying drinking water contaminants;
- improving monitoring systems and analytical methods for drinking water;
- containing, treating, decontaminating, and disposing of contaminated water and material;
- contingency planning;
- addressing infrastructure interdependencies;

⁹ Office of Homeland Security, *The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets*, February 2003, p. 39. The categories included (1) physical damage or destruction of critical assets (including the intentional release of toxic chemicals), (2) actual or threatened contamination of the water supply, (3) cyber attack, and (4) interruption of services from another infrastructure (such as energy supply).

- risk assessment and communication; and
- protecting wastewater treatment and collection systems.¹⁰

A key issue regarding the action plan was that it did not discuss the financial resources that would be required to complete the proposed projects and to implement countermeasures needed to improve water security. The NRC recommended that EPA attempt to quantify the costs and benefits associated with the research and technical support projects. The NRC further noted that more emphasis was needed on communicating the value of water and increased security, because water rate increases would likely be needed to generate the resources needed to implement counter measures.¹¹

In a progress report on the action plan, EPA reported that more than 100 projects had been initiated to address the needs listed in the plan.¹² Projects have included a review of early warning systems, a tracer studies guide for use by water utilities, a treatability guide for biological contaminants in water, a review of emerging detection technologies for water contaminants, a review of the impacts of biological toxins on water systems, and performance verifications of the effectiveness of monitoring, treatment, and decontamination technologies. The Water Infrastructure Protection Division has lead responsibility for much of this research and has been producing tools, guides, and other products for use by water utility operators, public health officials, and emergency responders.

For several years, EPA's major water security research effort has involved the Water Security Initiative (WSI), formerly called the WaterSentinel Initiative, which is a demonstration project to develop a model contamination warning system for drinking water systems. The goal of the initiative is to establish pilot early warning systems through intensive water monitoring and surveillance in selected cities. The agency has considered this initiative to be a key element of its effort to meet its water security responsibilities under HSPD-9.¹³ As discussed in the following section, Congress has partially, but not fully, supported this initiative. Using these resources, EPA has published guidance for the WSI, and is funding contaminant warning system pilots in five cities.

Funding for Drinking Water Security Activities

Since 2001, Congress has provided funds annually to EPA to improve the security of public water supplies. The Emergency Supplemental Appropriations Act for FY2002 (P.L. 107-117) provided EPA with \$175.6 million for emergency expenses to respond to the September 11 attacks and to support counterterrorism activities. The conference report, H.Rept. 107-350, specified that approximately \$90 million was for improving security at EPA laboratories, performing drinking

¹⁰ U.S. Environmental Protection Agency, EPA's Role In Water Security Research: The Water Security Research and Technical Support Action Plan, EPA/600/R-04/063, March 2004.

¹¹ National Academy of Sciences, A Review of the EPA Water Security Research and Technical Support Action Plan: Parts I and II, National Academy Press, 2003.

¹² U.S. Environmental Protection Agency, Water Security Research and Technical Support Action Plan—Progress Report for 2005, pp. 5-7.

¹³ Homeland Security Presidential Directive-9 directs EPA to develop a comprehensive and fully coordinated surveillance and monitoring system for drinking water, including a laboratory network to support surveillance and response activities.

water vulnerability assessments, and anthrax decontamination activities. Another \$5 million was for state grants for counterterrorism coordinators to work with EPA and water utilities in assessing drinking water safety. Congress has continued to provide roughly \$5 million for these state grants each year.

During **FY2002**, EPA allocated roughly \$89 million of the amount provided in the emergency supplemental appropriation to support security enhancements at the nation's drinking water systems. Of this amount, EPA targeted approximately \$80 million to (1) provide grants to the largest drinking water systems to conduct vulnerability assessments and enhance emergency response plans; (2) provide technical assistance on vulnerability assessments and emergency response plans to small and medium drinking water systems; and (3) refine security-related detection, monitoring, and treatment tools. Another \$4 million was used to accelerate the development and testing of counterterrorism tools, support vulnerability assessment training, provide technical assistance, and conduct and implement research on redesign and detection for collection and treatment systems. EPA also used funds to develop tools and provide training for medium and small drinking water systems to assess vulnerabilities and develop emergency response plans. In addition, EPA allocated \$5 million to the states to support homeland security coordination work involving EPA and drinking water utilities.

EPA awarded approximately \$51 million in water security grants to the community water systems that serve more than 100,000 individuals. Grants were made to roughly 400 publicly and privately owned community water systems for as much as \$115,000 per grant. Utilities were able to use their grants to develop vulnerability assessments, emergency response plans, and security enhancement plans and designs. Utilities also could use grant funds for in-house or contractor support; however, funds could not be used for physical improvements.

Although these grants were made only to large systems, EPA has worked with states and utilities to help meet the security needs of small and medium-sized drinking water systems. EPA provided roughly \$20 million of FY2002 supplemental funds directly to the states for technical assistance and training for drinking water systems serving fewer than 100,000 people.

For **FY2003**, EPA requested \$16.9 million to assist small and medium-sized systems with vulnerability assessments and emergency response plans, and \$5 million in grants to states to support homeland security coordination. The Consolidated Appropriations Resolution for FY2003 (P.L. 108-7), provided this amount. It also contained several drinking water security earmarks, including \$2 million for the National Rural Water Association to help small water systems conduct vulnerability assessments and \$1 million for the American Water Works Association for water security training activities.

As requested for **FY2004**, EPA received approximately \$32 million for critical water infrastructure protection, including \$5 million for state homeland security grants in P.L. 108-199. This funding supported states' efforts to work with water and wastewater systems to develop and enhance emergency operations plans; conduct training in the implementation of remedial plans in small systems; and develop detection, monitoring and treatment technology to enhance water security. EPA used funds to assist the nearly 8,000 community water systems that serve water to populations between 3,300 and 100,000 and are subject to the Bioterrorism Act. P.L. 108-199 also included \$2 million for the Water ISAC to gather, analyze, and disseminate sensitive security information to water and wastewater systems.

For **FY2005**, EPA requested \$5 million for state water security grants and \$6.1 million for other critical infrastructure protection efforts. EPA's budget justification explained that the \$21.3 million reduction reflected a shift in priorities from assistance and training on vulnerability assessments. (Under the Bioterrorism Act, community water systems were required to complete vulnerability assessments by June 30, 2004.) Congress provided the requested amount in the Consolidated Appropriations Act, FY2005 (P.L. 108-447). As in FY2004, the appropriated amount included \$2 million for the Water ISAC.

In the **FY2006** budget request, the President again requested \$5 million for state water security grants. The President also requested \$44 million to launch the Water Sentinel Initiative, a demonstration project to develop a model contamination warning system, now called the Water Security Initiative (WSI). EPA initiated this project to meet agency responsibilities under Homeland Security Presidential Directive (HSPD) 9, which directed EPA to develop a surveillance and monitoring program to provide early detection in the event of a terrorist attack contaminating water. The goal of the initiative is to establish pilot early warning systems through intensive water monitoring and surveillance for certain chemical and biological contaminants in five cities. Further responding to HSPD-9, EPA proposed to form a laboratory network to support the monitoring and response requirements of the surveillance program.¹⁴

In EPA's FY2006 appropriations act (P.L. 109-54), Congress provided \$8.1 million (after rescissions) of the \$44 million requested for the WSI. In recommending a large reduction, the House Appropriations Committee recommended that EPA develop clear goals for the initiative, seek the advice of the Science Advisory Board, and justify the request more clearly in the budget request for FY2007.¹⁵ Congress also provided \$5 million (\$4.93 million after rescissions) for state water security grants.

The **FY2007** budget request included \$4.95 million for state water security grants. Additionally, the request again included a significant amount, \$41.7 million (\$33.6 million more than Congress provided for FY2006), for the WSI. In its justification for the request, the agency noted that the program is an essential component of its water security activities, and explained that its purpose is to demonstrate an effective contamination warning system that could be used by drinking water utilities of various sizes.

The EPA FY2007 funding bill, H.R. 5386, as passed by the House, would have provided \$16.7 million (or \$25 million less than requested) for the WSI. The Senate Appropriations Committee (S.Rept. 109-275) recommended \$18.13 million, which was \$23.6 million less than requested but \$10 million above the FY2006 enacted level. The House Appropriations Committee report for H.R. 5386 (H.Rept. 109-465) stated that the committee's recommended funding level for the initiative included money for one additional WSI pilot project, which should be located in a metropolitan area that is highly vulnerable from a homeland security threat perspective. Congress did not complete action on this appropriations bill. The final continuing appropriations resolution for FY2007 (P.L. 110-5, H.J.Res. 20) generally funded EPA at the FY2006 level, but EPA used its discretion and allocated \$27 million for the WSI.

¹⁴ U.S. Environmental Protection Agency, *FY2006 Annual Performance Plan and Congressional Justification*, Science and Technology, Homeland Security: Critical Infrastructure Protection, pp. S&T-21 - S&T-23.

¹⁵ U.S. Congress, House Committee on Appropriations, *Department of the Interior, Environment, and Related Agencies Appropriation Bill, 2006*, report to accompany H.R. 2361, 109th Cong., 1st sess., H.Rept. 109-80, p. 94.

For **FY2008**, EPA requested \$25.6 million to support its water sector responsibilities to protect critical water infrastructure, including \$21.88 million for the WSI. The agency proposed to use the requested funds to support the existing pilot and to establish additional pilots, with a goal of having all planned pilots under way by 2008. EPA also proposed to continue providing special assistance to high-priority water systems under the Water Alliance for Threat Reduction (WATR) program. The goal of this assistance is to ensure that water utilities have tools and information to prevent, detect, respond to, and recover from terrorist attacks, other intentional acts, and natural disasters. The request again included \$4.95 million for state water security grants.

The committee report accompanying the House-passed EPA appropriations bill, H.R. 2643 (H.Rept. 110-187, p. 98), recommended reducing the amount requested for the WSI by \$3.88 million. The House Appropriations Committee explained that late action on the 2007 budget had delayed the obligation of funds for pilot projects until FY2008. In the Senate, the Appropriations Committee recommended a \$10 million decrease for the initiative (S. 1696, S.Rept. 110-91, p. 52), also noting that EPA plans to carry forward a large balance of unobligated funds. Both the House and Senate committees urged EPA to be prepared to report to the committees on the status and accomplishments of the WSI pilot projects. After applying the 1.56% rescission, the Consolidated Appropriations Act for FY2008 (P.L. 110-161) provided \$11.7 million for the WSI and \$4.87 million for state grants.

For **FY2009**, EPA requested \$21.4 million for the WSI, \$1.3 million for the Water Alliance for Threat Reduction, and \$4.9 million for state grants. EPA proposed to use WSI funds to support two new surveillance and monitoring pilots, bringing the total number of pilot projects to five. In its budget justification, the agency explained that five projects would be sufficient to generate the range of data needed for the program to have broad application to a variety of utilities in high-risk cities nationwide. Additionally, EPA planned to continue working with sector partners to establish the Water Laboratory Alliance (WLA). The WLA is intended to provide a network of laboratories that would be able to help confirm and speed responses to intentional contamination events. EPA further proposed to use FY2009 funds to continue to support research to develop methods to detect chemical and biological contaminants and to evaluate event detection software; the agency estimated that 90% of high-concern contaminants lack validated analytical methods.¹⁶ Again, Congress did not pass specific EPA appropriations, and the 2009 Omnibus Appropriations Act (P.L. 111-8) generally funded EPA programs at FY2008 levels.

EPA's **FY2010** budget request proposed to eliminate the state homeland security grants for drinking water and wastewater systems. The agency noted that actions required by the 2002 Bioterrorism Act (i.e., preparation of vulnerability assessments and emergency response plans) have been completed, and demand for these funds had declined. Within the Science and Technology Account, EPA requested \$22.4 million to complete funding for cooperative agreements supporting the fourth and fifth pilots in the WSI pilot program and to provide technical assistance to the other pilot projects. EPA also requested \$1.3 million for the Water Alliance for Threat Reduction (WATR) program to support additional training sessions for water systems that serve more than 100,000 people.¹⁷ The request further proposed to support research evaluating chemical, biological, and radiological (CBR) analytical methods and detection

¹⁶ U.S. Environmental Protection Agency, *FY2009 Annual Performance Plan and Congressional Justification*, Science and Technology, Homeland Security: Critical Infrastructure Protection, pp. 68-70.

¹⁷ U.S. Environmental Protection Agency, *FY2010 Annual Performance Plan and Congressional Justification*, Science and Technology, Homeland Security: Critical Infrastructure Protection, pp. 75-78.

software, and assist with outreach efforts to transfer knowledge gained from the pilot projects to the water sector. The conference agreement for the Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010 (P.L. 111-88, H.Rept. 111-316), specifies that the law fully funds the remaining two WSI pilot projects. The WSI received \$18.6 million for FY2010.

For **FY2011**, the President requested \$11.6 million for water security initiatives discussed above, including \$10.4 million for the WSI and \$1.2 million for WATR. The agency noted that the proposed \$7 million reduction reflects completion of funding for establishing five full-scale contamination warning system demonstration pilots. The requested FY2011 funding would be used primarily for WSI outreach, support, and evaluation activities.¹⁸ The continuing resolution, H.R. 3081, continues funding for EPA programs at FY2010 levels through December 3, 2010.

Thus far, Congress has not provided funding in EPA appropriations for grants to water systems specifically for making security improvements. However, EPA has identified numerous security measures that are eligible for funding through the Drinking Water State Revolving Fund (DWSRF) program.¹⁹ Eligible measures include making facility improvements, such as adding fencing, cameras, and lighting; securing chemical and fuel storage; hiring guards; and adopting enhanced filtration and disinfection treatment. Congress has provided roughly \$830 million annually for this program in recent years. However, it is uncertain how readily funds might become available for security measures, as the key purpose of the DWSRF is to facilitate compliance with federal drinking water regulations, and competition for these funds can be considerable.

Another potential source of funding for community water systems is the State Homeland Security Grant Program, administered by the Department of Homeland Security (DHS). Congress provided \$950 million for each of FY2008 and FY2009 for this program, which provides assistance to states to detect, prevent, and respond to terrorist attacks. States are required to allocate 80% of the grant funds received under this program to localities, in accordance with their approved homeland security plans. Funds may be used for homeland security-related training and for protecting critical infrastructure, including making physical security improvements. Local public works agencies, including water districts, are eligible to receive funding from the state; however, most of these funds have been used to support first responders. Moreover, for FY2009 and FY2010, Congress specified that 25% must be used for law enforcement terrorism prevention activities and \$60 million for border states to address illegal immigration, thus reducing the amount potentially available for water security purposes.²⁰

¹⁸ U.S. Environmental Protection Agency, *FY2011 Budget in Brief*, <http://www.epa.gov/ocfo/budget/2011/2011bib.pdf>.

¹⁹ See EPA Fact Sheet, *Use of the Drinking Water State Revolving Fund (DWSRF) to Implement Security Measures at Public Water Systems*, EPA 816-F-02-040, November 2001. Available at <http://www.epa.gov/safewater/dwsrf/pdfs/security-fs.pdf>.

²⁰ For information on DHS grant programs, see CRS Report R40246, *Department of Homeland Security Assistance to States and Localities: A Summary and Issues for the 111th Congress*, by Shawn Reese.

Bioterrorism Preparedness and Response Act of 2002

In 2002, two major laws were enacted that address the security of the nation's critical infrastructure. While the Homeland Security Act of 2002 broadly addressed critical infrastructure protection, the Bioterrorism Preparedness and Response Act of 2002 specifically aimed at improving the security of drinking water supplies.

Title IV of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107-188, 42 U.S.C. 300i) amended the Safe Drinking Water Act (SDWA) to require community water systems serving more than 3,300 individuals to conduct an assessment of their system's vulnerability to terrorist attacks or other intentional acts to disrupt the provision of a safe and reliable drinking water supply. These water utilities were required to certify that they had conducted a vulnerability assessment and to submit a copy of the assessment to EPA. The act also required the utilities to prepare or revise emergency response plans incorporating the results of the vulnerability assessments no later than six months after completing them. (Table 1 outlines the schedule for the roughly 8,400 water systems that were required to submit vulnerability assessments to EPA and complete emergency response plans.) As required, EPA issued guidance on conducting vulnerability assessments, preparing emergency response plans, and addressing threats to assist smaller water systems that were not covered by the Bioterrorism Act.²¹ EPA reports that the large- and medium-sized water systems achieved 100% compliance with the act's requirements, while smaller systems achieve nearly 100% compliance.

Table 1. Community Water System Requirements Under the Bioterrorism Act

System size by population served (est. no. of systems)	Date for completing vulnerability assessments	Date for completing emergency response plans
100,000 or more (approx. 400)	March 31, 2003	September 30, 2003
50,000 - 99,999 (approx. 460)	December 31, 2003	June 30, 2004
3,301 - 49,999 (approx. 7,500)	June 30, 2004	December 31, 2004

The act exempted the contents of the vulnerability assessments from disclosure under the Freedom of Information Act (except for information contained in the certification that identified the system and the date of the certification). As required by the Bioterrorism Act, EPA developed protocols to protect the vulnerability assessments from unauthorized disclosure. The act provides for civil and criminal penalties for inappropriate disclosure of information by government officials.

The Bioterrorism Act authorized \$160 million for FY2002, and such sums as may be necessary for FY2003-FY2005, to provide financial assistance to community water systems to conduct vulnerability assessments, to prepare response plans, and for expenses and contracts to address basic security enhancements and significant threats. (Security enhancements could include purchase and installation of intruder detection equipment and lighting, enhancing security of

²¹ EPA published Water Security Strategy for Systems Serving Populations Less than 100,000/15MGD or Less (2002).

automated systems, personnel training and security screening of employees or contractors, etc. Funding could not be used for personnel costs, plant operations, monitoring or maintenance.)

For grants to states and water systems to assist in responding to emergency situations, the act authorized \$35 million for FY2002, and such sums as may be necessary thereafter. Finally, the act authorized \$15 million for FY2002, and such sums as may be necessary for FY2003 through FY2005, for EPA to review methods by which terrorists or others could disrupt the provision of safe water supplies, and methods for preventing, detecting, and responding to such disruptions.

EPA and DHS Water Infrastructure Security Roles

The Homeland Security Act of 2002 (P.L. 107-296) combined the functions of all or parts of 22 federal agencies and departments into a new Department of Homeland Security (DHS). The act gave key responsibility for critical infrastructure protection to DHS, but did not transfer EPA water security functions to the new department.²²

With the establishment of DHS, which has overall responsibility for critical infrastructure vulnerability assessment and protection, the relative roles and responsibilities of EPA and DHS were not clear. In late 2003, the White House issued Homeland Security Presidential Directive 7 (HSPD-7), which superseded PDD-63. This Directive established national policy and outlined the roles and responsibilities of federal departments and agencies regarding critical infrastructure protection. It identified EPA as the federal agency (Sector-Specific Agency (SSA)) with lead responsibilities for ensuring the protection of the water infrastructure sector from terrorist attacks or sabotage. Under HSPD-7, DHS is responsible for overall coordination and integration of national critical infrastructure protection efforts by federal, state, and local governments and the private sector, whereas EPA is responsible for developing and providing water security tools and training for the nation's community water systems and municipal wastewater treatment facilities.

Some additional articulation of EPA's role was provided by HSPD-9, which established a national policy to defend the nation's water, agriculture, and food systems against terrorist attacks, major disasters, and other emergencies. This directive instructed EPA to develop a comprehensive surveillance and monitoring program to provide early detection of contaminants in water systems. HSPD-9 also directed EPA to develop an integrated network of water quality laboratories to support the surveillance program. EPA has pursued these responsibilities through its Water Security Initiative and Water Alliance for Threat Reduction program.

As both EPA and DHS have responsibilities for protecting critical water infrastructure, the potential for overlap and duplication is perhaps unavoidable. EPA and DHS, for example, have separate communications and information-sharing networks, and have had different policy advisory groups. In recognition of the need for a coordinating entity for the water sector, the major drinking water and wastewater organizations established the Water Sector Coordinating Council (WSCC) in 2004. This council is associated primarily with DHS, but coordinates with both agencies. In 2005, EPA and DHS facilitated the formation of a parallel Water Sector Government Coordinating Council (GCC) to enable interagency and cross-jurisdictional coordination. Members include DHS, EPA, the U.S. Army Corps of Engineers, the Bureau of

²² For a review of DHS reorganization actions related to critical infrastructure protection, see CRS Report RL30153, *Critical Infrastructures: Background, Policy, and Implementation*, by John D. Moteff.

Reclamation, the Federal Energy Regulatory Commission, the Centers for Disease Control and Prevention, state water and wastewater associations, and others. Chaired by EPA and co-chaired by DHS, the GCC coordinates strategies, activities, policies, and communication across government entities. The WSCC and GCC work together to coordinate critical infrastructure protection activities within the water sector.

A key requirement for DHS under HSPD-7 was to develop a national strategy to protect all critical infrastructure and key resources (CI/KR). Issued by DHS in June 2006 and revised in January 2009, the National Infrastructure Protection Plan (NIPP) is intended to provide a unifying structure for integrating CI/KR protection efforts into one national program. More specifically, it describes processes for (1) setting security goals; (2) identifying key assets; (3) assessing risks; (4) prioritizing assets as a basis for allocating resources; (5) implementing protection programs; and (6) measuring the effectiveness of CI/KR protection efforts.²³

The NIPP called for each sector's lead agency to work with its sector to develop Sector Specific Plans (SSPs) consistent with the NIPP. EPA's Water SSP is one of seven plans (out of 17) that are publicly available.²⁴ Taken together, the NIPP and the SSP are intended to provide the structure necessary to coordinate and synchronize activities under various laws, presidential directives, strategies, and initiatives into a unified national approach to protecting critical infrastructure. The goal of the Water SSP is to develop the sector's strategy and programs to protect CI/KR assets, identify priorities based on risk analysis, describe the resources needed to protect CI/KR, track progress, identify gaps, establish research and development priorities, and work with DHS to continuously improve the NIPP. The SSP also helps define the roles and responsibilities of EPA (as the Water Sector SSA) and other sector partners. Overall, the Water SSP is intended to assist drinking water and wastewater utilities to be better prepared to prevent, detect, respond to, and recover from terrorist attacks, other intentional acts, natural disasters, and other hazards.

The relative roles of EPA and DHS with regard to water sector security have also been at issue in debates on legislation to impose security requirements at chemical facilities. Several such bills in recent years have proposed to include certain water utilities within the scope of chemical facilities subject to regulation by DHS. This issue continues to receive attention and is discussed below.

Legislation and Issues

A key water sector issue has involved the status and adequacy of public and private efforts to improve the security of public water systems. Because of actions on the part of drinking water utilities, EPA, and Congress, vulnerability assessment and planning efforts in the water sector proceeded more rapidly than those in certain other sectors (such as chemical facilities). Additionally, numerous water utilities have implemented various practices to improve security at their facilities. In a 2008 survey of water and wastewater utilities 98% of roughly 300 responding drinking water utilities reported that they have in place physical or procedural controls to safeguard hazardous chemicals.²⁵ However, the number of respondents was relatively small, and

²³ The NIPP, as revised in 2009, can be found at http://www.dhs.gov/xprevprot/programs/editorial_0827.shtm. The revisions reflect program and procedural developments; underlying policies remain unchanged.

²⁴ The Water Sector-Specific Plan is available at http://www.epa.gov/safewater/watersecurity/pubs/plan_security_watersectorspecificplan.pdf.

²⁵ Ross and Associates Environmental Consulting, Ltd., *Water Sector Measures Analysis*, prepared for the Water Sector (continued...)

it is unclear how much has been done more broadly within the sector to implement security upgrades. Although the Bioterrorism Preparedness and Response Act required community water systems to conduct vulnerability assessments and prepare emergency response plans, it did not require systems to make security upgrades to address any identified vulnerabilities.²⁶ Consequently, interest in water sector security issues persists.

Chemical Facility Security Issues and Legislation

An issue for the water sector that has received significant legislative attention for several years involves the security of chemical facilities, including certain drinking water and wastewater utilities that are located where a terrorist attack could cause harm to nearby populations. For water utilities, the primary concern is the onsite storage of hazardous, gaseous chemicals (particularly chlorine) that pose potential risks to local communities if released. Bills to impose security planning and improvement requirements on such drinking water facilities have been considered in past several years, but none has been enacted.

Chemical Facility Anti-Terrorism Standards

The 109th Congress included a chemical facility security provision in the DHS FY2007 appropriations act (P.L. 109-295, Section 550). Section 550 authorized DHS to regulate, for three years, high-risk chemical facilities, excluding drinking water and wastewater treatment facilities and facilities in ports. The act directed DHS to establish risk-based security performance standards for designated chemical facilities, and to require these facilities to prepare vulnerability assessments and security plans. To implement this provision, DHS promulgated regulations in 2007 that established Chemical Facility Anti-Terrorism Standards (CFATS). These standards require chemical facilities to report the amounts and types of chemicals onsite so that DHS can determine whether a facility will be further regulated by CFATS rules. Regulated facilities are placed into one of four tiers, based on risk and performance. The facilities placed in the highest-risk tier are subject to the most stringent security requirements. Pursuant to P.L. 109-295, the CFATS regulations were scheduled to expire in October 2009.

In the 111th Congress, several chemical and water facility security bills have been offered. The Administration, in the DHS FY2010 budget justification, requested that the CFATS regulations be extended for one year without change, and Congress extended CFATS authority through October 4, 2010, in the DHS appropriations bill for FY2010 (P.L. 111-83). A one-year CFATS program extension also is included in the Senate's FY2011 homeland security appropriations bill (S. 3607, S.Rept. 111-222). Relatedly, H.R. 2477 was introduced to extend the sunset date for the DHS chemical facility security standards to October 1, 2012, while proposing no changes, thus continuing to exclude the water sector.

(...continued)

Coordinating Council and Water ISAC, December 30, 2008.

²⁶ SDWA §1433(b) states that emergency response plans “shall include, but not be limited to, plans, procedures, and identification of equipment that can be implemented or utilized in the event of a terrorist or other intentional attack on the public water system. The emergency response plan shall also include actions, procedures, and identification of equipment which can obviate or significantly lessen the impact of terrorist attacks or other intentional actions on the public health and the safety and supply of drinking water provided to communities and individuals.” (42 U.S.C. 300i-2)

Further in the 111th Congress, as discussed below, the House has passed H.R. 2868, which would revise and codify security requirements for chemical facilities and impose new security requirements on drinking water and wastewater utilities. The bill would give EPA regulatory authority for water and wastewater utilities. The drinking water and wastewater facilities titles in H.R. 2868 parallel H.R. 3258, the Drinking Water System Security Act of 2009, reported by the House Committee on Energy and Commerce. In the Senate, the Committee on Homeland Security and Governmental Affairs marked up H.R. 2868 and ordered the bill reported, amended in the nature of a substitute, in July 2010. The Senate bill would extend the current DHS CFATS program for three years, and does not address water or wastewater utilities.

Administration's Policy Principles

Water sector interests generally have argued that water utilities should remain exempt from DHS regulation of chemical facilities, as they are already subject to several EPA requirements under the Bioterrorism Act (i.e., vulnerability assessments and emergency response planning), and also to the risk management planning requirements of the Clean Air Act. (The risk management planning provisions apply to more than 2,800 of the largest water systems.²⁷) These stakeholders note that EPA has been designated the lead agency for water infrastructure security and already has an established water security program.

Nonetheless, there is continued congressional interest in expanding security requirements for the chemical facility sector, and in including certain water utilities within the scope of such requirements. Moreover, EPA and DHS officials have testified before subcommittees of the House Energy and Commerce Committee, the House Homeland Security Committee, the Senate Homeland Security and Governmental Affairs Committee, and before the Senate Environment and Public Works Committee in support of closing “the existing security gap” for drinking water and wastewater utilities by addressing their statutory exemption from CFATS.

In March 2010, testifying before the Senate Committee on Homeland Security and Governmental Affairs, the EPA Assistant Administrator for Water presented the Administration's policy principles for regulating security at water sector facilities. These principles are:

- EPA should be the lead agency for chemical security for drinking water and wastewater systems, with DHS supporting EPA's efforts;
- to address chemical security in the water sector, EPA would use, with modifications as appropriate considering statutory requirements and the uniqueness of the water sector, DHS's existing risk assessment tools and performance standards for chemical facilities;
- DHS should be responsible for ensuring consistency of high-risk chemical facility security across all 18 infrastructure sectors; and

²⁷ Clean Air Act section 112(r) imposes risk management planning and reporting requirements for facilities storing, using, or handling more than threshold quantities of regulated chemicals. The act's general duty clause directs owners and operators of stationary sources to identify hazards that may result from accidental releases, to design and maintain a safe facility, and to minimize the consequences of releases when they occur. Under Section 112(r), EPA requires facilities to submit a risk management plan describing the facility's program to prevent releases of harmful chemicals and mitigate the severity of any releases. Plans include analyses of the potential offsite consequences of a worst-case accidental release, a release prevention program, and emergency response planning.

- to enhance the security of high-risk chemical storing facilities, where possible, these facilities should use safer technology such as less toxic chemicals. Facilities posing the highest degree of risk should be required to implement IST methods if such methods enhance overall security, are feasible, and consider public health and environment requirements.

In addition to these principles, EPA also supports legislative authority to provide states an important role in regulating chemical security at water systems, including a prominent state role in IST determinations and audits and inspections.²⁸

The 109th Congress

Several bills in the 109th Congress targeted high-consequence facilities within the water sector. S. 2855 proposed to amend the Safe Drinking Water Act to require community water systems to replace hazardous, gaseous chemicals with inherently safer technologies (IST), for example, by switching from the use of chlorine gas to liquid chlorine. S. 2855 also would have required EPA to provide grants to high-consequence facilities for use in paying capital expenditures needed to make the transition to the use of IST. S. 2781 and S. 1995 proposed to amend the Clean Water Act to address security at wastewater treatment facilities.

The Senate Committee on Environment and Public Works reported a wastewater treatment facilities bill, S. 2781 (S.Rept. 109-345), which did not contain IST requirements but did authorize grants to wastewater treatment facilities for security-related efforts, including conducting vulnerability assessments, preparing site security plans, and making security upgrades. An identical bill was offered in the 110th Congress (S. 1303).

Broader chemical facility security bills also were offered in the 109th Congress that had implications for water utilities. These bills generally would have authorized the Secretary of the Department of Homeland Security to regulate chemical facilities, including water treatment plants, that pose certain risks. S. 2145, as reported by the Senate Homeland Security and Governmental Affairs Committee (S.Rept. 109-332), and its companion bill, H.R. 4999, proposed to require the Secretary of DHS to issue rules designating which chemical facilities would be subject to regulation, and to establish security performance standards for such facilities. Under these bills, facilities would have been required to submit to DHS vulnerability assessments, security plans, and emergency response plans for terrorist incidents. H.R. 5695 (H.Rept. 109-707) shared several similarities with S. 2145, but would have exempted water facilities covered by the legislation from redundant requirements (such as conducting vulnerability assessments), unless the DHS determined that more stringent security requirements were needed. S. 2486 proposed to cover a wider range of facilities and establish a general duty to ensure that facilities would be designed, operated, and maintained in safe manner; the bill prescribed this obligation to include use of IST to the maximum extent practicable. H.R. 1562 would have required consultation between DHS and EPA, and would have imposed stronger security and emergency planning measures, rather than requiring changes in technology. H.R. 2237 would have expanded EPA's existing authority to oversee chemical facilities but would have required consultation with DHS.

²⁸ U.S. Congress, Senate Committee on Homeland Security and Governmental Affairs, hearing on *Chemical Security: Assessing Progress and Charting a Path Forward*, testimony of Peter Silva, Assistant Administrator for Water, USEPA, March 3, 2010.

The 110th Congress

Because of the scope and time limitation of DHS authority to regulate chemical facilities, as well as implementation issues, chemical facility security remained on the congressional agenda. In particular, in the interim final rule, DHS stated that it might preempt future state and local chemical facility security regulations. In response to this preemption language, the 110th Congress amended P.L. 109-295 in the Consolidated Appropriations Act, 2008 (P.L. 110-161) to establish a state's right to promulgate chemical facility security regulations that are at least as stringent as the federal chemical facility security regulations. P.L. 110-161 further provided that state regulations would be preempted only in the case of an actual conflict between federal and state regulations.

Several other bills were introduced to modify DHS authority to regulate chemical facilities. Perhaps of most interest to the water sector was H.R. 5577 (H.Rept. 110-550), the Chemical Facility Anti-Terrorism Act of 2008. Reported, as amended, from the House Committee on Homeland Security in March 2008, H.R. 5577 would have revised, expanded, and made permanent DHS's authority to regulate chemical facility security. As noted, water and wastewater facilities are explicitly exempt from P.L. 109-295 and related CFATS regulations; however, these utilities were not categorically exempt under H.R. 5577. This legislation would have directed the DHS Secretary to maintain a list of covered chemical facilities determined to be of sufficient security risk, based on several criteria: (1) the likelihood that the facility would be the target of an attack; (2) the potential extent and likelihood of death or injury, or harm to the environment, critical infrastructure, national security, or the economy that could result from an incident; and (3) the proximity of the chemical facility to population centers. The bill also would have authorized DHS to designate any chemical substance as a "substance of concern" and to establish and revise the threshold quantity for designated substances.

Further, H.R. 5577 proposed to require owners and operators of covered facilities to conduct vulnerability assessments and to develop and implement DHS-approved security plans. To address the possibility of redundant federal requirements, DHS would have been authorized to consider whether requirements under other laws (such as the Bioterrorism Preparedness Act) satisfied these requirements. Another provision would have required owners and operators of affected facilities to complete an analysis of "methods to reduce the consequences of a terrorist attack" (the bill did not use the term "inherently safer technologies"), and would have authorized the DHS Secretary to require higher risk facilities to implement such methods or technologies under certain conditions. As amended in markup, the Secretary would not have been authorized to order drinking water or wastewater facilities to implement inherently safer technologies unless DHS provided funding to assist with the conversion. Also of relevance to the water sector was the provision authorizing DHS to order a facility assigned to the high-risk tier to cease operations if the facility failed to comply with a DHS compliance order. As reported, H.R. 5577 would have authorized DHS to order the shut down of a water facility only if the facility's continued operation presented a clear danger to homeland security.

The House Committee on Energy and Commerce, which traditionally has held jurisdiction over drinking water safety issues, was granted an extension for consideration of H.R. 5577. The bill was not referred to the House Committee on Transportation and Infrastructure, which has key jurisdiction over wastewater utilities. No further action occurred on this legislation.

The 111th Congress

Congress again has moved legislation to impose new security requirements on drinking water and wastewater utilities under broader chemical facility security legislation. In November 2009, the House of Representatives passed, amended, H.R. 2868, which broadly addresses security at chemical, drinking water, and wastewater facilities. As passed, this legislation includes provisions of H.R. 3258 (the Drinking Water Security Act of 2009) and H.R. 2883 (the Wastewater Treatment Works Security Act of 2009). In July 2010, the Senate Committee on Homeland Security and Governmental marked up and ordered H.R. 2868 to be reported with an amendment in the nature of a substitute. The substitute amendment proposes to extend the current DHS Chemical Facility Anti-terrorism Standards (CFATS) authority for three years beyond the expiration date of October, 4, 2010, and does not cover water or wastewater utilities. A one-year CFATS program extension was recommended in the Senate's DHS appropriations bill for FY2011 (S. 3607, S.Rept. 111-222). As an interim measure while deliberations proceed, Congress extended CFATS authority through December 3, 2010, in H.R. 3081, providing continuing appropriations for FY2011. Legislative proposals in the 111th Congress are discussed below.

H.R. 3258

In October 2009, the House Committee on Energy and Commerce reported the Drinking Water System Security Act of 2009 (H.R. 3258, H.Rept. 111-313). This legislation would replace SDWA section 1433 (added by the Bioterrorism Preparedness Act of 2002) and subject covered drinking water systems to an array of new security requirements. The bill defines a covered system as a community water system that serves a population greater than 3,300 or that the EPA Administrator determines presents a security risk. H.R. 3258 would direct the EPA Administrator to issue regulations to (1) establish tiered, risk-based performance standards for the security of covered systems; (2) set requirements and deadlines for covered systems to conduct and update vulnerability assessments, and develop site security and emergency response plans; and (3) provide annual training to system employees and contractor employees. The site security and emergency response plans must address the role of employees in preventing and responding to attacks. The EPA Administrator would be authorized to designate any chemical substance as a substance of concern in issuing water system security standards.

EPA regulations developed under H.R. 3258 would require a covered system that uses or stores a substance of concern in excess of a threshold quantity to include in the site security plan an assessment of methods to reduce the consequences of a chemical release from an intentional act. The bill specifies that such methods include eliminating or reducing the amount of a substance of concern used by a water utility through the use of alternative substances, formulations, or processes, and reducing onsite storage. For those water systems that have threshold quantities of a substance of concern and are assigned to the two highest risk-based tiers, the state would determine whether a system must implement methods to reduce the consequences of a chemical release. Before requiring a system to implement such methods, the state would be required to determine whether the methods would significantly reduce the risk of human death or injury arising from a chemical release, would not increase the interim storage of a substance of concern, would not make the system unable to comply with SDWA, state, or local drinking water regulations, and would be technologically and financially feasible. If a state failed to determine whether to require a high-risk system to implement methods, EPA would be authorized to make the determination. EPA could enforce the determination if a state failed to do so. H.R. 3258 would authorize funds for states, nonprofit organizations, and water systems to implement the requirements of the act.

H.R. 2868

In November 2009, the House passed, as amended, H.R. 2868 (H.Rept. 111-205), the Chemical and Water Security Act of 2009. This bill, initiated by the House Committee on Homeland Security, essentially incorporates (as Title II) H.R. 3258 as reported by the House Energy and Commerce Committee. H.R. 2868 addresses chemical facilities in Title I and wastewater treatment facilities in Title III. As passed, the bill would codify and expand the scope of the existing CFATS regulations; increase the types of facilities potentially subject to regulation; require, in certain cases, the adoption of methods to reduce the consequences of a chemical release from a terrorist attack (i.e., IST); and establish a citizen-suit process for chemical facilities (citizen enforcement provisions already exist for drinking water systems under the Safe Drinking Water Act and for wastewater facilities under the Clean Water Act). As preferred by various water sector stakeholders, H.R. 2868 would build on existing intergovernmental relationships and give EPA lead regulatory authority for water and wastewater facilities, while authority for chemical facilities would remain with DHS.²⁹

Under H.R. 2868, the EPA Administrator would be required to develop regulations that establish risk-based and performance-based standards for covered water systems, and assign systems to one of four risk-based tiers, with tier 1 including the highest-risk systems. EPA would be required to consult with states and DHS in developing and implementing the regulations, and would be required to review and approve covered systems' vulnerability assessments and site security plans. A provision, opposed by the water sector because of security concerns, would require water utilities to include an employee- or contractor-bargaining agent in developing and revising vulnerability assessments, site security plans, and emergency response plans.

As with the House Energy and Commerce Committee bill (H.R. 3258), H.R. 2868 would require a covered system that possesses a substance of concern exceeding a threshold amount to assess methods to reduce the consequences of a chemical release. For those water systems that have threshold quantities of a substance of concern and are assigned to the two highest risk-based tiers, the state would determine whether a system must implement such methods (essentially inherently safe technology). Before requiring a system to implement consequence reduction methods, the state would be required to determine whether the methods would significantly reduce risks of injury from a chemical release, would not increase the interim storage of hazardous substances, would not make the system unable to comply with drinking water regulations, and would be technologically and financially feasible. Additionally, the state would be required to give the system an opportunity to appeal the determination. If a state failed to determine whether to require a system to implement methods, EPA could make the determination. EPA also would be authorized to enforce a determination if a state failed to do so.

Among other provisions, the House-passed version of H.R. 2868 specifies that states and localities could enact more stringent security requirements for water systems. The bill would establish criminal penalties for the unauthorized disclosure of protected information, and authorize EPA to make grants to systems to assist in preparing vulnerability assessments, site security plans, and emergency response plans, and for assessing and implementing methods to reduce the consequences of a release. The bill also would authorize a worker training grant

²⁹ For a more detailed discussion of chemical facility security issues and legislation, see CRS Report R40695, *Chemical Facility Security: Reauthorization, Policy Issues, and Options for Congress*, by Dana A. Shea.

program and require EPA to report to Congress on the threats to drinking water posed by an intentional act of contamination.

S. 3598, the Secure Water Facilities Act, parallels Titles II and III of H.R. 2868. Introduced in July 2010, this bill would authorize the EPA Administrator to regulate community water systems and wastewater treatment facilities for security purposes. S. 3598 would amend section 1433 of the Safe Drinking Water Act to direct EPA to issue regulations establishing a tiered system of risk-based performance standards for covered water systems' site security plans, and would authorize implementation of methods to reduce the consequences of a chemical release from an intentional act. Among other provisions, S. 3598 would require EPA to promulgate regulations, as necessary, to prohibit the unauthorized disclosure of protected information. The bill would authorize EPA to provide grants or enter into cooperative agreements with states or covered systems to assist with compliance with the bill's requirements.

In July 2010, the Senate Committee on Homeland Security and Governmental Affairs ordered H.R. 2868 reported, amended in the nature of a substitute. The Senate version would extend DHS chemical facility security authority for three years, create a voluntary exercise and training program, and create a best practices clearinghouse. Additionally, the substitute bill would authorize DHS to establish a technical assistance program to identify and implement methods to reduce the consequences of a terrorist attack.

The Administration has stated its support for consistent IST approaches for all high-risk chemical facilities, regardless of sector. EPA specifically supports requiring all high-risk chemical facilities (tiers 1-4) to assess IST methods and requiring tiers 1 and 2 facilities to implement IST methods (provided that such methods improve overall security, are feasible, and in the case of water sector facilities, take into consideration public health and environmental requirements). Also, EPA has testified that any decisions on IST methods would need to involve the states.

Several local government and water associations, including the American Water Works Association (AWWA), have opposed legislation that would require water utilities to comply with IST requirements (for example, by switching from the use of chlorine gas to liquid chlorine) without considering specific utility circumstances. For example, many drinking water utilities have changed disinfection methods to comply with EPA disinfection regulations or for other reasons, but AWWA cautions that for other water utilities, chlorine gas remains the only viable form of disinfection to provide sufficient public health protection.³⁰ AWWA has testified that new security rules would have to be reconciled with SDWA's public health requirements, and that any future regulations would need to maintain flexibility for utilities to make decisions based on factors including public health requirements, maintaining reliability of treatment, accounting for local water chemistry and environmental characteristics, and ensuring plant worker safety, as well as addressing security concerns. Others have argued that mandating the adoption of safer technologies is warranted because of the potential risk that hazardous chemicals, particularly gaseous chlorine, may pose to communities. Additionally, AWWA has opposed chemical facility security provisions that would authorize the federal government to order closure of a noncompliant water utility, noting the critical importance of water supplies.

³⁰ Benjamin H. Grumbles, Director, Arizona Department of Environmental Quality, Testimony before the Senate Committee on Environment and Public Works, March 3, 2010.

Assistance for Security Measures

Another key issue has concerned the availability of funding for water systems to make security upgrades needed to address risks identified in their vulnerability assessments.³¹ Based on a limited assessment, EPA reported in 2005 that community water systems would need more than \$1 billion to make security improvements.³² In a 2007 survey updating that assessment, EPA reported that utilities would require an estimated \$422 million for projects to address security needs; however, EPA concluded that security-related needs were underestimated, as many water systems incorporate these costs into the costs of broader construction projects rather than report them separately.³³

Congress has not provided funding specifically for water systems to make security improvements. Although community water systems potentially are eligible to receive funding from the states through the DHS State Homeland Security Grant Program,³⁴ competition for funds has been severe, and funds largely have gone to meet the needs of first responders. In an effort to address one element of this funding issue, the conference report for the Department of Homeland Security Appropriations Act for FY2005 (P.L. 108-334, H.Rept. 108-774) modified the definition of “local unit of government” specifically to include water districts.³⁵ Congress has provided \$950 million annually for this grant program since FY2008; however, most of these funds have been used to support first responders, and the DHS appropriations acts have included specific spending directives that further reduce the availability of these funds for water security purposes.

Pending water security bills would authorize funding for security improvements for drinking water and wastewater treatment facilities, as well as chemical facilities. House-passed H.R. 2868, the Chemical and Water Security Act of 2009, would authorize EPA to provide grants to drinking water and wastewater systems for security-related measures including vulnerability assessments, implementation of security enhancements, and developing or upgrading emergency response and site security plans. For drinking water system security, H.R. 2868 would authorize appropriations for FY2011 at a level of \$315 million, of which up to \$30 million would be available for EPA and state administrative costs, and \$125 million would be available for covered water systems to implement methods to reduce the consequences of a chemical release from an intentional act, with priority given to tier 1 or 2 systems. The bill would further authorize such sums as may be necessary for FY2012 through FY2015. Similarly, S. 3598, the Secure Water Facilities Act, would authorize appropriations of \$340 million for each of FY2011 through FY2015, including \$30 million for administrative costs and \$225 million to implement methods to reduce the consequences of chemical releases from intentional acts at covered systems, with priority given to tier 1 or 2 water systems. An additional \$200 million would be authorized to be appropriated for each of FY2011 through FY2015, for wastewater treatment works.

³¹ As discussed on page 9 above, some security projects are eligible for funding under the EPA-administered drinking water SRF program.

³² U.S. Environmental Protection Agency, *Drinking Water Infrastructure Needs Survey and Assessment: Third Report to Congress*, June 2005. EPA 816-R-05-001. EPA noted that many water systems had not adequately captured security needs when this assessment was conducted in 2003. The agency anticipated that security needs would be reported more completely in the next assessment (2007).

³³ U.S. Environmental Protection Agency, 2007 *Drinking Water Infrastructure Needs Survey and Assessment: Fourth Report to Congress*, EPA 816-R-09-001, March 2009, <http://www.epa.gov/safewater/needs.html>.

³⁴ State Homeland Security Grant Program, 6 U.S.C. § 605.

³⁵ For information on DHS grant program funding, see CRS Report R40246, *Department of Homeland Security Assistance to States and Localities: A Summary and Issues for the 111th Congress*, by Shawn Reese.

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