



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

EPA Can Better Address Risks to the Security of the Nation's Drinking Water Through New Authorities, Plans, and Information

Report No. 13-P-0349

August 21, 2013



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Abbreviations

| | |
|-------|--|
| CIPAC | Critical Infrastructure Partnership Advisory Council |
| DHS | U.S. Department of Homeland Security |
| EPA | U.S. Environmental Protection Agency |
| ERP | Emergency Response Plan |
| FMFIA | Federal Managers' Financial Integrity Act of 1982 |
| FY | Fiscal Year |
| GAO | U.S. Government Accountability Office |
| GPRA | Government Performance and Results Act of 1993 |
| HSPD | Homeland Security Presidential Directive |
| ICR | Information Collection Request |
| NHSRC | National Homeland Security Research Center |
| OHS | Office of Homeland Security |
| OIG | Office of Inspector General |
| OMB | U.S. Office of Management and Budget |
| ORD | Office of Research and Development |
| OW | Office of Water |
| SAR | Sector Annual Report |
| SSP | Sector Specific Plan |
| VA | Vulnerability Assessment |
| WARN | Water/Wastewater Agency Response Network |
| WLA | Water Laboratory Alliance |
| WSD | Water Security Division |
| WSI | Water Security Initiative |

Cover photo: A drinking water facility in Washington, D.C. (EPA photo)

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At a Glance

Why We Did This Review

We conducted this review to determine how the U.S. Environmental Protection Agency (EPA): (1) ensures that its efforts and initiatives are safeguarding the nation's drinking water supply from attacks and natural disasters; and (2) addressed recommendations and suggestions from prior evaluations of the water security program.

Over 297 million people in the United States were served by 51,460 community water systems as of September 2010. The September 11, 2001, attacks prompted a national effort to secure critical infrastructure and resources, including drinking water. Since the 2001 attacks, there have also been a number of natural disasters, such as Hurricanes Katrina and Irene. These events have threatened individual drinking water systems, resulting in unsafe drinking water and shortages.

This report addresses the following EPA Goal or Cross-Cutting Strategy:

- *Protecting America's waters.*

For further information, contact our Office of Congressional and Public Affairs at (202) 566-2391.

The full report is at:
www.epa.gov/oig/reports/2013/20130821-13-P-0349.pdf

EPA Can Better Address Risks to the Security of the Nation's Drinking Water Through New Authorities, Plans, and Information

What We Found

EPA has implemented a number of activities to promote the security of drinking water systems. However, strategic planning and internal controls for the water security program need to be strengthened to allow the Agency to measure the program's performance and progress in drinking water systems' preparedness, prevention, response, and recovery capabilities. EPA's strategic planning in this area is hampered by its limited authority over water security, the voluntary nature of its water security activities, and concerns related to protecting information. These impediments could be overcome by the water security program utilizing available data; using alternative methods to gather data; and seeking additional authority from Congress to collect, protect, and utilize information from water systems. EPA should also expand its internal controls to meet Federal Managers' Financial Integrity Act requirements.

EPA has made progress improving water security by taking corrective actions based on the recommendations and suggestions from prior evaluations. However, the Agency has not fully addressed three Office of Inspector General (OIG) suggestions to establish a baseline and measure improvements, despite agreeing with OIG's assessment. Additional work remains for EPA, as the lead federal agency for the water sector, to enhance its efforts to manage the water security program and help reduce risks to drinking water systems and the public.

Recommendations and Planned Agency Corrective Actions

We recommend that EPA develop a comprehensive strategic plan, assess water security by gathering available data and incorporating measures into national guidance, and improve internal controls by developing a program review strategy and a multi-year review plan. We also recommend that EPA seek additional authority from Congress and utilize the authority, if granted, to develop a baseline and outcome measures. EPA initially agreed with four recommendations in the draft report. After further discussions with the Agency, the OIG modified the three remaining recommendations to seek additional authority and develop a baseline and outcome measures. As a result of these discussions and modifications, the Agency has also concurred with the remaining recommendations. The recommendations are resolved with corrective actions underway.

Noteworthy Achievements

EPA developed the Water Security Initiative and Water Laboratory Alliance. The Agency also supported the establishment of many intrastate mutual aid and assistance agreements called Water/Wastewater Agency Response Networks.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

August 21, 2013

MEMORANDUM

SUBJECT: EPA Can Better Address Risks to the Security of the Nation's Drinking Water Through New Authorities, Plans, and Information
Report No. 13-P-0349

FROM: Arthur A. Elkins Jr.

A handwritten signature in black ink, appearing to read "Arthur A. Elkins Jr.", is written over the printed name.

TO: Nancy Stoner, Acting Assistant Administrator
Office of Water

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by managers in accordance with established audit resolution procedures.

Action Required

You are not required to provide a written response to this report because you agreed to all recommendations and provided corrective actions and planned completion dates that meet the intent of our recommendations. All recommendations are resolved and open with corrective actions underway. Please update the EPA's Management Audit Tracking System as you complete the planned corrective actions for the OIG's recommendations. The OIG may make periodic inquiries on your progress in implementing these corrective actions. Please notify my staff if there is a significant change in agreed-to corrective actions. We will post this report to our website at <http://www.epa.gov/oig>.

If you or staff have any questions regarding this report, please contact Carolyn Copper, Assistant Inspector General for Program Evaluation, at (202) 566-0829 or copper.carolyn@epa.gov; or Dan Engelberg, Director for Water, at (202) 566-0830 or engelberg.dan@epa.gov.

Table of Contents

Chapters

| | | |
|----------|--|-----------|
| 1 | Introduction | 1 |
| | Purpose | 1 |
| | Background | 1 |
| | Noteworthy Achievements..... | 4 |
| | Scope and Methodology..... | 5 |
| 2 | Strengthening Strategic Planning and Internal Controls Will Enhance EPA’s Drinking Water Security Program | 7 |
| | EPA Assists Drinking Water Systems | 7 |
| | EPA Needs Improved Strategic Planning for Water Security | 8 |
| | Information Challenges Hinder Strategic Planning..... | 11 |
| | EPA Needs Additional Internal Controls for Water Security | 13 |
| | Prior Recommendations Implemented but Some Suggestions Remain..... | 15 |
| | Conclusion..... | 15 |
| | Recommendations | 16 |
| | Agency Comments and OIG Evaluation..... | 17 |
| | Status of Recommendations and Potential Monetary Benefits..... | 18 |

Appendices

| | | |
|----------|--|-----------|
| A | Prior Drinking Water Security Reports..... | 19 |
| B | Agency Response to the Draft Report and OIG Comments..... | 20 |
| C | Distribution | 24 |

Chapter 1

Introduction

Purpose

The purpose of this evaluation was to determine how effectively the U.S. Environmental Protection Agency (EPA) water security program is assisting drinking water systems protect against potential attacks and natural disasters. Our specific objectives were to determine:

- How EPA ensures its efforts and initiatives are safeguarding the nation's drinking water supply from attacks and natural disasters.
- How EPA addressed recommendations and suggestions from prior evaluations of the water security program.

Background

Drinking water is one of the nation's most vital resources. Over 297 million people in the United States were served by 51,460 community water systems as of September 2010. Potential threats to this resource include biological, chemical, and radiological contamination, and destruction of water infrastructure. The September 11, 2001, terrorist attacks prompted a national effort to secure critical infrastructure and resources, including drinking water. Since the 2001 attacks there have also been a number of natural disasters, such as Hurricanes Katrina and Irene. These events have threatened individual drinking water systems, resulting in unsafe drinking water and shortages.

The Bioterrorism Act and Homeland Security Presidential Directives

EPA's authority to assist drinking water systems with protecting the drinking water supply against threats is primarily based on the Bioterrorism Act of 2002, and is further reinforced through two Homeland Security Presidential Directives (HSPDs). The Bioterrorism Act contained a one-time requirement for most drinking water systems¹ to submit a vulnerability assessment (VA)² and emergency response plan (ERP)³ certification to EPA by the end of 2004.

¹ Community water systems serving a population greater than 3,300 persons had to comply with the Bioterrorism Act of 2002.

² A VA is a review of a drinking water system and its components to determine the likelihood that a terrorist attack or other intentional acts could substantially disrupt the ability of the system to provide a safe and reliable supply of drinking water.

³ An ERP addresses the threats identified in the VA and includes the water system's plans, procedures, and identification of equipment that can be used in the event of a terrorist attack or other intentional act.

HSPD-7, *Critical Infrastructure Identification, Prioritization, and Protection*, and HSPD-9, *Defense of United States Agriculture and Food*, describe EPA's general responsibilities when dealing with terrorist attacks and natural disasters. These HSPDs have led to a range of water security activities, as discussed in chapter 2. The HSPDs do not provide EPA authority to require specific security measures at drinking water systems.

HSPD-7 was issued in 2003. It established a national policy for the federal government to identify, prioritize, and protect critical infrastructure from terrorist attacks and natural disasters. It also designated EPA as the lead federal agency for ensuring the protection of the water sector. This involves assisting drinking water systems with protecting against terrorism and natural disasters. EPA does this by encouraging the use of risk management strategies. EPA supports the water sector by offering tools, training, and technical assistance. EPA is the sector-specific agency for the water sector and develops the Water Sector Specific Plan (Water SSP). The Water SSP is part of the overall National Infrastructure Protection Plan developed by the Department of Homeland Security (DHS).⁴ The Water SSP details risk-based protection strategies. The Water SSP describes the processes and activities that enable protection and increased resilience of water sector infrastructure. EPA is required to submit a Water Sector Annual Report (SAR) to DHS as part of its sector responsibilities. The SAR details EPA's water security activities. These activities are designed to mitigate risks, outline annual progress, and provide updates on water sector activities that are conducted or planned for the year.

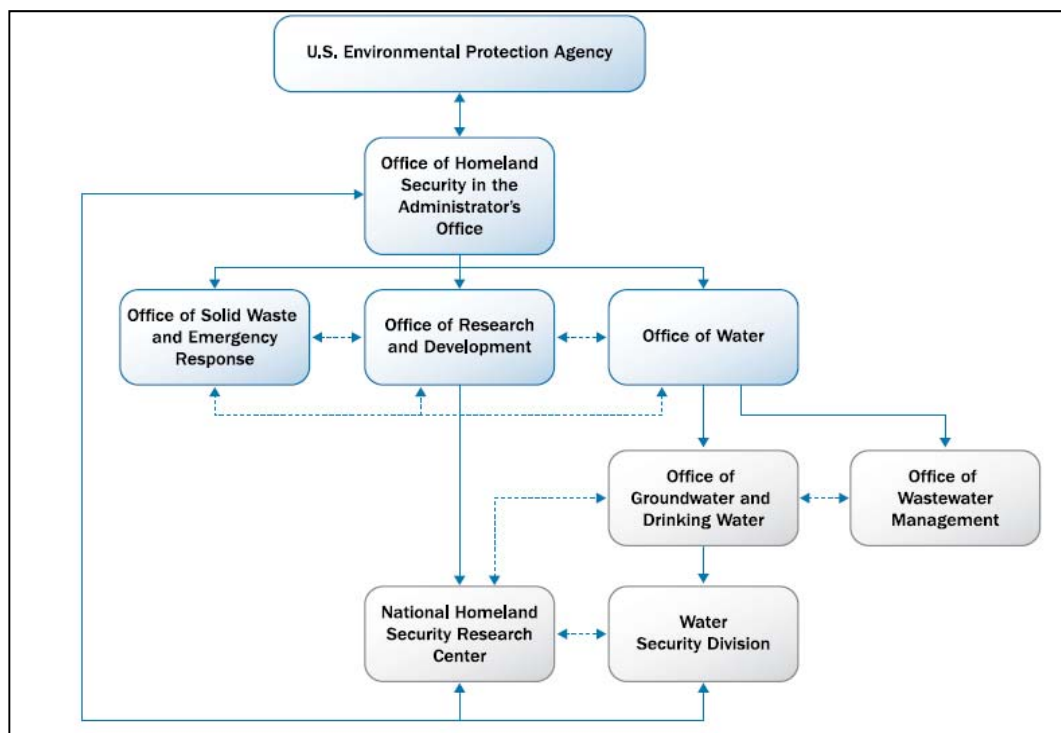
HSPD-9 was issued in 2004. It requires EPA to develop a robust and comprehensive surveillance and monitoring program. This program provides early detection of contaminants in water systems. HSPD-9 also directs EPA to develop a network of water quality laboratories to support the surveillance program. EPA has pursued these responsibilities through its Water Security Initiative (WSI) and Water Laboratory Alliance (WLA).

Organizational Structure of EPA's Water Security Program

EPA's Water Security Division (WSD) is the lead office for the water security program. WSD is located within the Office of Water (OW) and is supported by three other EPA offices: the Office of Homeland Security (OHS) in the Administrator's Office, the Office of Research and Development's (ORD's) National Homeland Security Research Center (NHSRC), and the Office of Solid Waste and Emergency Response's Office of Emergency Management. Coordination and collaboration efforts are needed because there are multiple offices involved in water security. An organizational chart of the water security program is in figure 1.

⁴ The National Infrastructure Protection Plan provides the framework for integrating the nation's critical infrastructure and key resource protection efforts across all sectors to achieve the goal of a safer, more secure nation.

Figure 1: EPA water security organizational chart



Source: EPA, Water SSP: An Annex to the National Infrastructure Protection Plan (2010).

EPA Water Security Funding

Current funding levels have declined from about \$175.6 million in fiscal year (FY) 2002 when EPA received the authority to oversee the VAs. According to budget data provided by EPA personnel, EPA’s water security program was funded at approximately \$22 million across the four water security program offices for FY 2012. WSD received the largest portion of this funding—\$12.4 million—of which \$7.3 million was allotted to the WSI and WLA programs.

Strategic Planning and Internal Controls

Congress has made strategic planning and internal controls cornerstones for managing federal agency operations. Strategic planning is an essential business practice for ensuring that programs efficiently achieve desired goals. Internal controls provide a mechanism for managing program performance. They also protect against program risk. The Government Performance and Results Act of 1993 (GPRA) and the Federal Managers’ Financial Integrity Act of 1982 (FMFIA) set the principles and processes that underlie accomplishing federal agencies’ missions, goals, and objectives. These acts support results-oriented management which, in the case of the water security program, would be ensuring effective water security efforts and initiatives.

GPRA requires agencies to develop strategic plans, set performance goals, and report annually on performance. Performance is assessed using outcome performance measures that are compared to a baseline to gauge progress. EPA supplements this agency-level reporting with program-level guidance. National Program Manager Guidance is issued annually by EPA program offices to provide direction on programmatic priorities and implementation strategies.

FMFIA establishes specific requirements regarding internal controls. These requirements include an annual evaluation and report about the internal control systems that are used to protect the integrity of programs. Internal controls include policies, procedures, performance measures, reviews, and other activities. Effective internal controls provide assurance for the timely detection or prevention of risks to the design or operation of a program. FMFIA requires federal agencies to establish internal controls in accordance with U.S. Office of Management and Budget (OMB) Circular A-123 and U.S. Government Accountability Office (GAO) standards.

EPA Order 1000.24 is the Agency's strategy and framework for implementing FMFIA. Agencies must submit annual statements concerning their internal controls' effectiveness at meeting FMFIA requirements and GAO standards. This is done through an annual assurance letter process. Each EPA program office submits an assurance letter to the EPA Administrator. These letters provide the basis for an annual statement of assurance to the President and Congress. EPA is required to identify key programs and develop program review strategies (referred to hereafter as "strategies") as part of this process. The strategies must identify and rank the risks of not achieving program objectives. The strategies must also outline the internal controls used to mitigate those risks. Each EPA office must also assess the effectiveness of its programs' internal controls using a multi-year internal control review plan (referred to hereafter as "multi-year plan"). This plan establishes priorities for assessing the internal controls based on risk levels assigned to programs in the strategy. The multi-year plan determines which programs and specific controls will be reviewed and in what order for each EPA office.

Noteworthy Achievements

EPA has conducted a number of activities to assist drinking water systems in addressing water security threats. These activities include:

- **The Water Security Initiative:** EPA developed and piloted a drinking water contamination warning system in five major cities. EPA also published interim guidance for other systems based on lessons learned from the pilots.

- **The Water Laboratory Alliance:** EPA has worked to establish a national network of laboratories to analyze water samples in the event of a terrorist attack or natural disaster. Notably, EPA has developed a WLA national response plan and has conducted exercises to test and obtain feedback on the feasibility of the plan.
- **Water/Wastewater Agency Response Networks (WARNs):** EPA supported establishing intrastate mutual aid and assistance agreements among water systems. These agreements outline how water systems assist each other with responding to and recovering from emergencies. Agreements exist in 47 states and the National Capital Region.

Scope and Methodology

We conducted this evaluation from February 2012 to February 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our evaluation objectives. The scope of this evaluation was focused on drinking water security. Our scope excluded chemical security, cyber security, and wastewater facilities.

We reviewed the Bioterrorism Act and HSPDs 7 through 10. We also reviewed the 2010 Water SSP Annex; the Water SAR; EPA's water security strategic planning documents; and relevant prior reports by GAO, Congressional Research Service, and EPA OIG. We also reviewed OW's National Program Manager Guidance.

We conducted interviews at EPA headquarters with personnel from WSD, OHS, NHSRC, and Office of Emergency Management. We distributed an information request to these offices. The request asked to identify budgets and staffing, water security efforts and initiatives (activities) and performance measures.

We collected information updates on EPA corrective actions taken due to prior EPA OIG and GAO water security report recommendations and suggestions.⁵ Further, we interviewed water security staff from EPA Regions 3 and 5.

We interviewed staff from the DHS Office of Infrastructure Protection. Additional staff interviews were held with the Association of State Drinking Water Administrators, American Water Works Association, and National Rural Water Association. We followed up with GAO staff on past GAO water security-related reports and prior recommendations.

⁵ OIG suggestions were offered to EPA when not all elements needed for a recommendation were present; e.g., when the evaluation process was abbreviated.

We analyzed EPA's strategic planning elements. We also analyzed the FMFIA management integrity process for internal controls in place for the water security program. We focused our analysis of FMFIA management integrity processes for internal controls on EPA OW. We did this because WSD plays the lead role in EPA's water security efforts.

Prior Audit Coverage

We collected information on the status of EPA's corrective actions for recommendations and suggestions from past evaluations as part of answering our second evaluation objective. We identified nine drinking water security-related reports between 2003 and 2008. Six reports were issued by EPA OIG and three by GAO (appendix A). The prior reports are discussed in chapter 2. The OIG also issued reports about the effectiveness of EPA's strategic planning efforts and on applying FMFIA. These reports relate to improving programmatic operations, internal controls, and the management integrity process. They also highlight the importance strategic planning and internal controls play in achieving programmatic success.

Chapter 2

Strengthening Strategic Planning and Internal Controls Will Enhance EPA's Drinking Water Security Program

EPA has implemented a number of activities to promote the security of drinking water systems. However, strategic planning and internal controls for the water security program need to be strengthened to allow the Agency to measure the program's performance and progress in drinking water systems' preparedness, prevention, response, and recovery capabilities. EPA's strategic planning is hampered by its limited authority over water security, the voluntary nature of its water security activities, and concerns related to protecting information. These impediments could be overcome by the water security program utilizing available data, using alternative methods to gather data, and seeking additional authority from Congress to collect, protect, and utilize information from water systems. Additionally, EPA's water security program has not fully met FMFIA requirements for internal controls. EPA has made progress in improving water security by taking corrective actions based on the recommendations and several suggestions from prior evaluations. However, the Agency has not fully addressed three OIG suggestions from earlier reports, despite agreeing with the OIG's assessment. EPA, as the lead federal agency for the water sector, needs additional strategic planning and internal controls in order to ensure it effectively assists drinking water systems in the protection of the nation's drinking water, has current information on the state of drinking water security, and helps reduce risks to drinking water systems and the public.

EPA Assists Drinking Water Systems

EPA administers a number of activities to promote water security and assist drinking water systems to protect against terrorist attacks and natural disasters. These activities include providing training, tools, technical assistance, and guidance. They also include conducting water security-related research and working with the water sector on water security activities. The water sector consists of EPA, other federal agencies, states, local agencies, water systems, and water associations. EPA serves as chair of the Water Government Coordinating Council, which, along with its private sector counterpart, forms the water sector component of DHS's Critical Infrastructure Partnership Advisory Council (CIPAC). CIPAC supports critical infrastructure protection, including the water sector. Below are some examples of EPA's water security activities.

Prevention and Preparedness

- WSI is an ongoing pilot program featuring a contamination warning and detection system EPA started in five cities.
- EPA's water security program provides access to the Water Information Sharing and Analysis Center for EPA staff and state drinking water officials. The Water Information Sharing and Analysis Center is a subscription service that shares threat information with drinking water systems.
- NHSRC shares various tools and technical assistance based on its water security research. This research is related to VAs; emergency response planning; and contaminant sampling, analytical, and mitigation methodologies.
- WSD provides training and hosts webinars on water security-related tools. WSD also works with states to design water sector exercises.

Response and Recovery

- EPA supports WARNs, an intrastate mutual aid network for water systems developed, through outreach, technical assistance, tabletop exercises, and development of operational plans.
- The WLA provides water sample analysis support during a terrorist attack or natural disaster.
- NHSRC conducts research and develops strategies to address decontamination challenges such as treatment protocols, disposal of decontamination waste, and the persistence of contaminants in water infrastructure.

As a result of EPA's activities, water systems now have access to resources which were not previously available. Information gathered from the WSI pilot programs is used to improve current tools for contamination monitoring systems. Water security training and exercises allow water systems to develop relationships with other systems; local, state, and federal entities; and responders. Exercises also enable water systems to test their ERPs.

EPA Needs Improved Strategic Planning for Water Security

The water security program needs to adopt a more thorough strategic planning process in order to assess its performance and guide future actions. Effective strategic planning involves five essential elements and should be framed by a comprehensive plan. The five essential strategic planning elements are outcome goal(s), long-term and annual outcome performance measure(s), output performance measure(s), and baseline(s).⁶ EPA has carried out significant

⁶ The five essential elements of strategic planning are identified in the GPRM Modernization Act of 2010, OMB Circular A-11, and prior OIG reports.

strategic planning efforts within the water security program. However, the Agency would benefit from a comprehensive strategic plan to guide its efforts across the four program offices that contribute to water security. A coordinated and collaborative planning approach is necessary to connect each office's activities to EPA's water security goals. EPA is also missing three of the five essential strategic planning elements that would allow it to better manage the water security program. The lack of these elements impacts EPA's ability to determine whether its activities are effective in assisting water systems to identify vulnerabilities.

Strategic Planning Efforts Are Not Comprehensive

EPA does not have a comprehensive water security strategic plan containing the five essential strategic planning elements. Such a plan would link the activities of the four program offices involved to EPA's overall water security goals. EPA's water security program has instituted multiple strategic planning initiatives since the implementation of the Bioterrorism Act of 2002 and periodically reviews its current activities. These initiatives do not collectively or individually address all five of the essential strategic planning elements.

Examples of existing water security planning documents include: (1) the Water SSP that serves as EPA's water security strategic plan, (2) WSD's Business Plans used to make the Water SSP operational, (3) ORD's Homeland Security Strategic Research Action Plan which identifies the water sector's research needs, and (4) OW's SAR which details annual progress and updates on water sector activities being conducted or planned. A comprehensive strategic plan would allow EPA to organize the collective efforts of the four program offices toward water security.

OHS recently collaborated with EPA program offices on a homeland security strategic review to identify future areas of work. The review covered eight areas and included water security. OHS completed a work plan to address these areas in May 2013. OHS's strategic review does not contain all five essential strategic planning elements.

Strategic Planning Elements Are Needed

EPA also does not have all of the necessary strategic planning elements for the water security program in place. EPA's water security program has two of the five elements (see table 1). However, EPA has not established a water security baseline, or annual and long-term outcome performance measures. These elements would allow EPA to understand how effective its activities are in assisting water systems and better manage the program. The documents listed below identify the water security program's outcome goals and output performance measures. The documents also allow the agency to set output targets and keep track of activities.

Table 1: Essential strategic planning elements—water security program

| Strategic planning elements | EPA’s water security program | Strategic planning documents |
|--|------------------------------|--|
| Outcome Goal ⁷ | Yes | Water SSP Water SAR ORD’s Strategic Research Action Plan |
| Long-Term Outcome Performance Measures | No | <i>None Identified</i> |
| Annual Outcome Performance Measures | No | <i>None Identified</i> |
| Output Performance Measures ⁸ | Yes | Water SAR WSD’s Annual Business Plans |
| Baseline for Program Measurement | No | <i>None Identified</i> |

Source: OIG Analysis of water security program documents provided by EPA.

Water Security Baseline

None of the water security planning documents we reviewed contains a baseline from which to measure the current status of water security. A baseline is an essential strategic planning component and is a reference point against which progress can be measured. A baseline is necessary to set and achieve water security goals. The effectiveness of any strategic planning effort is weakened if performance cannot be measured against a baseline. To establish a water security baseline, EPA needs to gather security information about a water system’s preventative measures, preparedness, response capability, and resiliency. A general example of baseline data for water security could include the percentage of community water systems that have an ERP, conduct ERP training and exercises, and review and update their ERP on a periodic basis. Once a water security baseline is established the Agency should be able to develop outcome performance measures to measure progress.

Annual and Long-Term Outcome Performance Measures

EPA does not identify annual or long-term outcome performance measures in any of the water security planning documents although it identifies output measures. While performance measures should distinguish between outcomes and outputs, there should be a logical connection between them, with outputs supporting outcomes. Annual and long-term outcome performance measures indicate progress toward overall water security

⁷ An outcome goal is the result or achievement toward which effort is directed. An outcome goal can be long- or short-term and may be expressed specifically or broadly. Progress against goals should be monitored using a suite of supporting targets, measures, and timeframes.

⁸ An output measure is the tabulation, calculation, or recording of an activity or effort and can be expressed in a quantitative or qualitative manner.

goals, over the course of a year and several years, respectively. These outcome measures indicate what is being accomplished, whether results are being achieved, and indicate changes in conditions the program is trying to influence. Examples of performance measures could include the following:

- **Annual:** By the end of a specified annual date, a specific percentage of large community water systems will have an ERP, conduct ERP training and exercises, and review and update their ERP on a periodic basis.
- **Long-Term:** By the end of a specified long-term date, a specific percentage of large community water systems will have an ERP, conduct training on their ERP, carry out exercises on their ERP, and review and update their ERP on a periodic basis.

OW's National Program Manager Guidance for FY 2012 does not have any performance measures for the water security program. This is despite water security being identified as one of the 26 key programs through the FMFIA process and a national water program priority for the fiscal year. A foundation for water security performance measures in the National Program Manager Guidance could be provided by a comprehensive strategic plan.

Information Challenges Hinder Strategic Planning

Many of the problems with EPA's strategic planning stem from the lack of information about water security. EPA lacks information about water systems, such as VAs, ERPs, and other data necessary to accurately evaluate the program's status and progress. While the water security program is voluntary and lacks regulatory provisions to collect and protect information beyond the Bioterrorism Act requirements, the Agency has not used existing sources or alternative methods to collect information from water utilities. The lack of information impacts EPA's ability to understand how its water security activities are assisting the water sector to protect against terrorism and natural disasters.

Limitations of EPA's Water Security Program

EPA does not have specific knowledge of water systems' security levels. This is because of the Agency's limited authority, the voluntary nature of its program, and concerns associated with protecting information from public disclosure under the Freedom of Information Act. According to EPA, drinking water systems decide if and how they will use EPA's water security program. EPA does not have authority to require water systems to submit security information; utilize training, tools, technical assistance, or guidance; or implement security enhancements or update their VAs and ERPs. Since EPA lacks the authority, the Agency has not requested any updates on VAs or ERPs since the Bioterrorism Act statutory deadline in 2004.

Currently, EPA may not be able to protect from disclosure information gathered outside of the Bioterrorism Act under the Freedom of Information Act. WSD advised OIG that the program attempts to develop meaningful metrics. However, a means to collect information directly from water systems for outcome measures does not currently exist. WSD depends on its working relationships with water systems and attendance at conferences to gather anecdotal water security information.

Approaches for Collecting Water Security Data

OW currently collects various output measures that provide an idea of how prepared and resilient water systems are if an event occurs. These data focus on outputs but could be helpful for the establishment of a baseline and measurement of water security progress. EPA, however, does not use these output measures to manage the program. Examples of pertinent output measures include: the number of trainings conducted; the number of water systems participating in WARNs; lessons learned from actual incidents, drills and exercises; and the 18 measures suggested by the CIPAC. OW also collects data in response to metrics in the Water SAR.

OW has also not used alternative information collection methods, such as an Information Collection Request (ICR), to gather more information about system preparedness and responsiveness. This information could include system data on preparedness and resiliency, such as security features and enhancements, staff security training, and the number of drills and exercises participated in. It could also include whether any EPA-based security tools are used by systems, and if VAs and ERPs are updated. OW has cited a number of reasons why an ICR may be impractical, including the cost of conducting an ICR, the lack of a statutory basis for obtaining OMB approval, and the unwillingness of water systems to provide such information.

Currently, OW does not have any statutory authority to collect, protect, and utilize new information from the water sector. As such, EPA is limited in knowing how effective its efforts are in assisting the water sector to protect against terrorism and natural disasters. In 2009, EPA's Assistant Administrator for Water testified before the Subcommittee on Energy and the Environment Committee on Energy and Commerce, U.S. House of Representatives, about the proposed Drinking Water Security Act of 2009, which primarily addressed chemical security at drinking water systems. The proposed act also considered risks in general and would have extended drinking water security requirements for drinking water systems as well as authority for the Agency. However, it did not pass both chambers of Congress. In January 2013, the Secure Water Facilities Act was referred to the Senate Committee on Environment and Public Works and would expand the requirements for vulnerability assessments, site security plans, and emergency response plans for both the Agency and drinking water systems.

This bill also proposes performance standards and provides protection for water security information within vulnerability assessments and site security plans. The bill currently remains with the committee. Additional authority could improve EPA's effectiveness in carrying out its water security duties and may further enable the Agency to establish a baseline and outcome performance measures.

EPA Needs Additional Internal Controls for Water Security

In its FY 2010 FMFIA Assurance Letter, OW identified the water security program as one of 26 key programs. OW established a strategy and multi-year plan for the WSD and its water security activities. We determined that, overall, the strategy and multi-year plan lack several elements required by FMFIA, as implemented by OMB and EPA guidance.

Program Review Strategy

OW's water security strategy does not fully comply with the internal control standards in OMB Circular A-123, which are based upon the GAO Standards for Internal Control. Therefore it also does not fulfill FMFIA requirements.⁹ There are five required GAO standards for internal controls: control environment, risk assessment, control activities, information and communications, and monitoring. OW must address and comply with each of these standards in its water security strategy. Also, the purpose of the strategy is to identify the risk associated with the program and the internal controls to mitigate the risk. EPA Order 1000.24 directs that strategies meet the program's needs. The strategy should be evaluated regularly because it serves as the basis for the FMFIA assurance letters.

According to OMB Circular A-123, internal controls do not guarantee the success of an agency's programs or the absence of waste, fraud, and mismanagement. Rather, internal controls are an essential means of managing the risks associated with the operations of the water security program, such as ineffective tools, insufficient training, waste of taxpayers' dollars, and natural disasters. A strategy with inadequate internal controls will often fail to identify program risks and result in unaddressed vulnerabilities pertaining to preparedness, prevention, response, and recovery. Therefore, the application of additional internal controls in the water security strategy will lead to improvements in program operations, FMFIA compliance, and reduced programmatic risk. Examples of some of the shortcomings in the water security strategy are discussed below.

⁹ EPA OIG's 2009 report, *EPA Should Use FMFIA to Improve Programmatic Operations* (Report No. 09-P-0203), found that EPA had not used FMFIA to improve program operations as intended. Further, the report stated that EPA offices were not developing strategies that systematically and annually assess the effectiveness of internal controls or include elements such as GPRA. These conclusions are aligned with observations noted from the water security program during this evaluation.

Control Activities

OW identified VAs, ERPs, tools, and technical assistance as water security strategy control activities. Control activities are policies, procedures, mechanisms, and performance measures. They mitigate the program's risk and fulfill the program's objective of helping water systems enhance their security and response capability. However, VAs and ERPs are insufficient control activities. They are handled by drinking water systems and not by WSD. In fact, there is no requirement for water systems to update VAs or ERPs, or submit updates to EPA. Further, OW does not currently use the information contained within VAs or ERPs that was originally submitted by the end of 2004. OW only has immediate control over its tools and technical assistance, which are appropriately identified as control activities.

Monitoring

The strategy also does not incorporate an adequate process for monitoring. According to the GAO standards and EPA Order 1000.24, the monitoring aspect of the strategy should assess the quality of a program's performance over time. Monitoring can include periodic reviews, self-assessments, audits, comparisons of detective and preventative data, reconciliations, and separate external evaluations. Monitoring should be performed continually as part of the agency's operations. OW identified conference calls, meetings, and conferences for the monitoring activities in the water security strategy. However, while these may be acceptable means for monitoring, our review of recent meeting minutes did not reveal any substantive discussions about internal controls. Therefore, we do not have evidence to suggest that the use of meetings, conferences, and calls for monitoring are effective to evaluate how well the program's internal controls are performing.

Multi-Year Internal Control Review Plan

OW's multi-year plan does not have an adequate process for evaluating the water security program's internal controls. Along with the program review strategy, the multi-year plan is an Agency requirement, for FY 2010 and beyond, intended to establish more systematic and rigorous reviews of internal controls over programmatic operations. A multi-year plan evaluates implemented internal controls identified in the strategy for effectiveness at assessing the program's operations. The multi-year plan is designed so any weaknesses or deficiencies can be identified and corrected. Examples of sources of information EPA could use for the multi-year plan are provided in OMB Circular A-123, EPA Order 1000.24, and EPA's Management Integrity Program—FY 2011 Annual Guidance for Assessing Internal Control over Programmatic Operations. Internal control reviews for the multi-year plan can be done with audits, questionnaires, site visits, external evaluations, and internal self-assessments. Similar to the water security

strategy previously discussed, conference calls, meetings, and conferences were identified as what the internal control evaluation process would include. Although they may serve as ways to review a program's internal controls, we determined that there were no significant discussions on the program's internal controls or potential deficiencies during the minutes we reviewed. Without improvement in the multi-year plan, water security program operations cannot be properly assessed. Any weaknesses that would hinder the program from reaching its goals may be overlooked and program management subsequently would not improve.

Prior Recommendations Implemented but Some Suggestions Remain

EPA has addressed OIG and GAO recommendations pertaining to EPA's drinking water security program. EPA has also addressed six of the 11 OIG suggestions. However, three pertinent suggestions have not been fully addressed. Although OIG does not formally track EPA adherence to or implementation of suggestions, these past suggestions offered meaningful information on how to make improvements. Nonetheless, the priority is that the Agency address agreed-to recommendations, which was accomplished.

EPA has implemented both OIG recommendations to evaluate VAs for completeness and prioritization of its research activities. However, EPA has not established a baseline or outcome-focused performance indicators (measures), which were outlined in three prior OIG suggestions. In 2003, EPA had agreed with OIG's assessment for needed performance measures and baseline. EPA has made a significant effort to enlist the assistance of the CIPAC workgroup to be responsive to these OIG suggestions. Thus far, this effort has not resulted in the development of any of the missing performance measure elements: outcome performance measures and a baseline. As a result of this evaluation, OIG found that the missing performance elements continued to limit EPA's ability to measure the water security program effectiveness and progress. For these reasons, we have elevated these prior suggestions to recommendations.

Additionally, GAO made two drinking water security recommendations which EPA has implemented. GAO directed EPA to assess the need for public policy tools to encourage the Water ISAC to continue its protection activities and increase information sharing. GAO also directed EPA to consider how to best allocate security-related funds to drinking water systems and how security-enhancing activities should be supported. Both of these recommendations have been implemented and closed out by GAO.

Conclusion

EPA has taken a number of steps to assist drinking water systems to protect the nation's drinking water against terrorist threats and natural disasters. However, EPA's strategic planning and internal control processes for water security must be

improved to enhance programmatic operations and minimize risks to critical infrastructure. We acknowledge that EPA's strategic planning process in this area has been hampered by a number of impediments, namely, its lack of statutory authority, the voluntary nature of the water security program, and concerns pertaining to protecting security information. However, the Agency has not sought additional authority from Congress recently or utilized all available approaches to establish a water security baseline and outcome performance measures. Without additional authority, the water security program will be unable to fully gauge its effectiveness in assisting drinking water systems to protect the nation's drinking water supply against attacks and natural disasters. The Agency needs authority that is commensurate with its responsibility as the lead federal agency for the water sector, and which allows it to properly address this national issue. EPA must strengthen management of the water security program, assess water security progress, and support resources expended in order to help water systems protect drinking water accessed by 297 million people in the United States.

Recommendations

We recommend that the Assistant Administrator for Water:

1. Develop a comprehensive strategic plan across all program offices that are involved in EPA's water security program.
2. Utilize information currently available to assess the state of water security across the nation, specifically, by:
 - a. Gathering water security data, and
 - b. Incorporating water security-related performance measures, targets, and annual commitments into OW's National Program Manager Guidance.
3. Seek additional authority from Congress to better manage the security of drinking water systems and their water supply. Additional authorities should include the ability to collect, protect, and utilize water system-specific security information
4. If additional authority is granted, further assess the state of water security across the nation, specifically, by:
 - a. Developing and utilizing a drinking water security baseline and conducting periodic reassessments, and
 - b. Developing and utilizing annual and long-term outcome measures.

5. Develop and implement a program review strategy and a multi-year internal control review plan for water security in accordance with requirements set by FMFIA, as implemented by OMB Circular A-123 and EPA Order 1000.24, which enables the Agency to address risks, assess effectiveness, reveal any weaknesses, and monitor actions to address those weaknesses.

Agency Comments and OIG Evaluation

OW provided a written response to a draft of this report and expanded on and clarified that response in subsequent meetings with the OIG. OW's response to the draft report, along with the OIG's evaluation, is in appendix B. The Agency also provided technical comments. Where appropriate, we made changes to the report based on these comments.

In its written response and in follow-up meetings, OW agreed to address all recommendations. EPA initially agreed with four recommendations in the draft report (currently recommendations 1, 2a, 2b, and 5). After further discussions with the Agency, the OIG modified the three remaining recommendations (currently recommendations 3, 4a, and 4b) to seek additional authority and develop a baseline and outcome measures. As a result of these discussions and modifications, the Agency has also concurred with the current recommendations 3, 4a, and 4b. The OW provided corrective actions and estimated completion dates for the recommendations that it develop an agencywide work plan with enhanced metrics; include water security measures, targets, and commitments into the OW's National Program Manager Guidance; seek additional authority; and develop and implement a program review strategy and multi-year internal control plan. If additional authority is granted, EPA has agreed to obtain the necessary information needed to establish a baseline and outcome measures. All recommendations are resolved and open with corrective actions underway.

Status of Recommendations and Potential Monetary Benefits

| RECOMMENDATIONS | | | | | | POTENTIAL MONETARY BENEFITS (in \$000s) | |
|-----------------|-------------|---|---------------------|--------------------------------------|-------------------------------|--|---------------------|
| Rec. No. | Page No. | Subject | Status ¹ | Action Official | Planned Completion Date | Claimed Amount | Agreed-To Amount |
| 1 | 16 | Develop a comprehensive strategic plan across all program offices that are involved in EPA's water security program. | O | Assistant Administrator for Water | 6/30/14 | | |
| 2 | 16 | Utilize information currently available to assess the state of water security across the nation, specifically, by: | | Assistant Administrator for Water | | | |
| | | a. Gathering water security data, and | O | | 6/30/14 | | |
| | | b. Incorporating water security-related performance measures, targets, and annual commitments into OW's National Program Manager Guidance. | O | | 9/30/14 | | |
| 3 | 16 | Seek additional authority from Congress to better manage the security of drinking water systems and their water supply. Additional authorities should include the ability to collect, protect, and utilize water system-specific security information. | O | Assistant Administrator for Water | 3/31/14 | | |
| 4 | 16 | If additional authority is granted, further assess the state of water security across the nation, specifically, by: | | Assistant Administrator for Water | | | |
| | | a. Developing and utilizing a drinking water security baseline and conducting periodic reassessments, and | O | | 3/31/16 | | |
| | | b. Developing and utilizing annual and long-term outcome measures | O | | 3/31/16 | | |
| 5 | 17 | Develop and implement a program review strategy and a multi-year internal control review plan for water security in accordance with requirements set by FMFIA, as implemented by OMB Circular A-123 and EPA Order 1000.24, which enables the Agency to address risks, assess effectiveness, reveal any weaknesses, and monitor actions to address those weaknesses. | O | Assistant Administrator for Water | 12/31/14 | | |

¹ O = Recommendation is open with agreed-to corrective actions pending.
 C = Recommendation is closed with all agreed-to actions completed.
 U = Recommendation is unresolved with resolution efforts in progress.

Prior Drinking Water Security Reports

| EPA OIG | | |
|---|-------------------|-------------------------|
| Report Title | Report No. | Publication Date |
| EPA Needs a Better Strategy to Measure Changes in the Security of the Nation's Water Infrastructure | 2003-M-00016 | September 11, 2003 |
| EPA Needs to Assess the Quality of Vulnerability Assessments Related to the Security of the Nation's Water Supply | 2003-M-00013 | September 24, 2003 |
| Survey Results on Information Used by Water Utilities to Conduct Vulnerability Assessments | 2004-M-0001 | January 20, 2004 |
| EPA's Final Water Security Research and Technical Support Action Plan May Be Strengthened Through Access to Vulnerability Assessments | 2004-P-00023 | July 1, 2004 |
| EPA Needs to Determine What Barriers Prevent Water Systems from Securing Known Supervisory Control and Data Acquisition (SCADA) Vulnerabilities | 2005-P-00002 | January 6, 2005 |
| Summary of Recent Developments in EPA's Drinking Water Program and Areas for Additional Focus | 08-P-0120 | March 31, 2008 |

| GAO | | |
|---|-------------------|-------------------------|
| Report Title | Report No. | Publication Date |
| Critical Infrastructure Protection: Challenges for Selected Agencies and Industry Sectors | GAO-03-233 | February 2003 |
| Drinking Water: Experts' Views on How Future Federal Funding Can Best Be Spent to Improve Security | GAO-04-29 | October 2003 |
| Protection of Chemical and Water Infrastructure: Federal Requirements, Actions of Selected Facilities, and Remaining Challenges | GAO 05-327 | March 2005 |

Source: EPA OIG analysis.

Agency Response to the Draft Report and OIG Comments

(Received April 24, 2013)

MEMORANDUM

SUBJECT: Response to the Office of Inspector General Draft Project No. OPE-FY12-006, “EPA Needs Additional Strategic Planning and Internal Controls to Enhance Drinking Water Security,” dated February 21, 2013

FROM: Nancy K. Stoner /s/
Acting Assistant Administrator

TO: Arthur A. Elkins, Jr.
Inspector General

Thank you for the opportunity to respond to the issues and recommendations in the subject audit report. Following is a summary of the agency's overall position, along with its position on each of the report recommendations. For those report recommendations with which the agency agrees, we have provided either high-level intended corrective actions and estimated completion dates to the extent we can or reasons why we are unable to provide high-level intended corrective actions and estimated completion dates at this time. For those report recommendations with which the agency does not agree, we have explained our position. For your consideration, we have included a Technical Comments Attachment to supplement this response.

AGENCY'S OVERALL POSITION

The EPA takes the responsibility of promoting risk reduction in the water sector with respect to all hazards, whether extreme weather events or intentionally malevolent acts very seriously. We welcome the IG's recommendations on potential improvements to this program in an effort to enhance the EPA's water security program. The EPA would like to acknowledge that the water security program is a non-regulatory program. This might pose a programmatic challenge when determining how the EPA can adopt some of the corrective actions cited in the IG's report.

OIG Overall Response:

The OIG understands that the agency currently is implementing a non-regulatory, voluntary program and has limited statutory authority. The OIG also recognizes the constraints identified by OW and has discussed them in the report, and we believe we have proposed a recommendation to provide EPA with the authorization it needs. The intent of the report recommendations was to provide the OW with ways to mitigate these limitations. Until the OW addresses these limitations, the water security program will continue to operate with inadequate performance measures and internal controls.

AGENCY'S RESPONSE TO REPORT RECOMMENDATIONS

| No. | Recommendation | High-Level Intended Corrective Actions | Estimated Completion by Quarter and FY | OIG Response |
|------|--|---|--|---|
| 1 | Develop a comprehensive strategic plan across all program offices involved in EPA's water security program | The OW will meet on an annual basis with each office to describe the program outcomes and priorities that it intends to achieve and to determine how the other offices can contribute to these outcomes and priorities as their resources permit. | 1QFY14 | Based upon OW's response and subsequent discussions, the OIG believes the proposed corrective action will address the intent of the recommendations. The meetings will foster improved coordination and collaboration with the end-product being a more complete work plan than what the water security program is currently operating from. In subsequent discussions, the OW estimated the work plan, enhanced with more outcome-type metrics, will be completed by 3QFY14 (June 2014). |
| 2(a) | Gather water security data by utilizing existing information, and employing alternative means to gather data | The EPA will be limited in its ability to fulfill this recommendation due to statutory constraints. | NA | In subsequent discussions with the OW, it was explained the OW is currently using available information to get a pulse on the state of water security. The OW also intends to develop more outcome-type metrics to augment the ones they currently use, as part of the work plan being developed to address Recommendation 1. The OW estimates the work plan will be completed by 3QFY14 (June 2014). The OIG accepts the corrective actions proposed by the OW as meeting the intent of this recommendation. |

| | | | | |
|------|--|---|--------|--|
| 2(b) | Develop and utilize a drinking water security baseline and conduct periodic reassessments | The EPA will be limited in its ability to fulfill this recommendation due to statutory constraints. | NA | In subsequent discussions, EPA has committed that, if additional authority is granted (Recommendation 3), it will work with OMB and water sector partners in order to collect the necessary information and develop a baseline to fulfill this recommendation by second quarter FY 2016 (March 2016). The OIG accepts the OW's plans to address the recommendation. This is Recommendation 4a in the final report. |
| 2(c) | Develop and utilize annual and long-term outcome measure(s) to assess overall water security progress | The EPA will be limited in its ability to fulfill this recommendation due to statutory constraints. | NA | In subsequent discussions, EPA has committed that, if additional authority is granted (Recommendation 3), it will work with OMB and water sector partners in order to collect the necessary information and develop outcome measures to fulfill this recommendation by second quarter FY 2016 (March 2016). The OIG accepts the OW's plans to address the recommendation. This is Recommendation 4b in the final report. |
| 2(d) | Incorporate water security related performance measures, targets and annual commitments into Office of Water's National Program Manager Guidance | In future iterations of this guidance, EPA will include key water security metrics. | 4QFY14 | The OIG accepts the OW's plans to address the recommendation. This is Recommendation 2b in the final report. |

| | | | | |
|---|---|---|--------|---|
| 3 | Seek additional authority from Congress to better manage the security of drinking water systems | The EPA expects that it will need to operate the program under the current constraints. | NA | Based upon subsequent discussions with OW about this recommendation, the OIG believes the corrective action proposed by the OW will address the intent of the recommendation. The OW has committed to meeting with Administration officials outside of EPA about obtaining additional authority for the water security program by second quarter FY 2014. The OIG accepts the OW's plans to address the recommendation. The OIG agrees with the proposed corrective action to develop a strategy and plan within the limitations and constraints of the program. This is Recommendation 5 in the final report. |
| 4 | Develop and implement a program review strategy and a multi-year internal control review plan for water security in accordance with FMFIA | The EPA can commit to undertaking this recommendation with the caveat that the performance and outcome-based metrics required of these tasks will of necessity be limited to the output and limited outcome-based metrics that OW currently collects in assessing its water security program. | 1QFY14 | |

Attachments

Technical Comments

cc: Mike Shapiro
Peter Grevatt
David Travers
Michael Mason
Marilyn Ramos

Distribution

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