U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF INSPECTOR GENERAL

*Catalyst for Improving the Environment*

## Evaluation Report

# EPA Lacks Internal Controls to Prevent Misuse of Emergency Drinking Water Facilities

**Report No. 11-P-0001**

**October 12, 2010**

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**Abbreviations**

| | |
|---|---|
| ASDWA | Association of State Drinking Water Administrators |
| CWS | Community Water System |
| EPA | U.S. Environmental Protection Agency |
| Illinois EPA | Illinois Environmental Protection Agency |
| OGWDW | Office of Ground Water and Drinking Water |
| PWS | Public Water System |
| SDWA | Safe Drinking Water Act |
| SDWIS/FED | Safe Drinking Water Information System/Federal Version |
| SDWIS/State | Safe Drinking Water Information System/State Version |

**Cover photo:** Glass of drinking water from a faucet. (EPA photo)

U.S. Environmental Protection Agency
Office of Inspector General

11-P-0001
October 12, 2010

# At a Glance

*Catalyst for Improving the Environment*

## Why We Did This Review

We conducted this evaluation to assess the ability of the U.S. Environmental Protection Agency (EPA) and States to ensure community water systems do not distribute water from contaminated wells to their customers in violation of the Safe Drinking Water Act (SDWA).

## Background

SDWA regulates the nation's public drinking water supply. Approximately 6,700 public water systems have at least one water source designated for emergency use. In 2008, the Illinois Environmental Protection Agency discovered that one of its public water systems supplemented purchased surface water with contaminated water from an emergency facility without notifying the State agency.

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

**To view the full report, click on the following link:**
**www.epa.gov/oig/reports/2011/20101012-11-P-0001.pdf**

# *EPA Lacks Internal Controls to Prevent Misuse of Emergency Drinking Water Facilities*

## What We Found

EPA cannot accurately assess the risk of public water systems delivering contaminated drinking water from emergency facilities because of limitations in Safe Drinking Water Information System (SDWIS) data management. EPA and State officials we interviewed said they were unaware of instances similar to the Illinois situation. However, they also stated that they currently have no way to know whether an emergency facility had been turned on without notice. There is no federal regulatory requirement for EPA or States to oversee or monitor emergency facilities. As a result, neither EPA nor the States know the amount of risk that public water system customers may face from misuse of water from emergency facilities.

EPA and the States do not have common definitions or understandings of what constitutes an emergency facility, and there is no common understanding of when and how emergency facilities may be used, especially with regard to drinking water. States rely on water systems to self-report when they use these emergency facilities. However, that system is voluntary, based on trust rather than a verifiable control. Consequently, EPA cannot accurately assess the risk faced by those served by water systems with emergency facilities.

## What We Recommend

We recommend that the Assistant Administrator for Water develop standard definitions for the five facility availability codes, develop standard operating procedures to assist the States with entering data into SDWIS/State databases, and determine whether additional fields are needed in the SDWIS/Federal Version to improve the oversight of emergency facilities. We further recommend that the Assistant Administrator for Water assess the risk associated with the unauthorized use of emergency facilities and, if necessary, develop controls to mitigate that risk.

The Agency neither agreed nor disagreed with our recommendations. EPA acknowledged the concerns raised in this report. To improve oversight of emergency facilities, EPA has opened a dialogue with the Association of State Drinking Water Administrators about the reported data issues and will request that the EPA-State Data Technical Advisory Committee review SDWIS/Federal Version data fields. EPA stressed the challenges associated with assessing health risk from emergency facilities, since risk assumes exposure to a contaminant. We consider these recommendations to be open.

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

THE INSPECTOR GENERAL

October 12, 2010

**MEMORANDUM**

**SUBJECT:** EPA Lacks Internal Controls to Prevent Misuse of Emergency Drinking Water Facilities
Report No. 11-P-0001

**FROM:** Arthur A. Elkins, Jr.
Inspector General

**TO:** Peter S. Silva
Assistant Administrator for 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 EPA managers in accordance with established audit resolution procedures.

The estimated cost of this report – calculated by multiplying the project's staff days by the applicable daily full cost billing rates in effect at the time – is $517,867.

**Action Required**

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days. Your response will be posted on the OIG's public Website, along with our comments on your response. Your response should be provided in an Adobe PDF file that complies with the accessibility requirements of section 508 of the Rehabilitation Act of 1973, as amended. If your response contains data that you do not want to be released to the public, you should identify the data for redaction. You should include a corrective actions plan for agreed-upon actions, including milestone dates. We have no objections to the further release of this report to the public. This report will be available at http://www.epa.gov/oig.

If you or your staff have any questions regarding this report, please contact Wade Najjum at (202) 566-0832 or najjum.wade@epa.gov, or Dan Engelberg at (202) 566-0830 or engelberg.dan@epa.gov.

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# Chapter 1
# Introduction

## Purpose

We conducted this review to assess the U.S. Environmental Protection Agency's (EPA's) oversight of public water system (PWS) wells with drinking water considered unsafe for human consumption. This review was in response to the recent discovery that a local community water system (CWS) in Illinois distributed to its customers drinking water from a known contaminated well that should have been removed from the distribution system and properly closed. We sought to answer the following question: How do EPA and States ensure CWSs do not distribute water from contaminated wells to their customers?

## Background

In 1974, Congress passed the Safe Drinking Water Act (SDWA) to protect public health through regulation of the nation's public drinking water supply. The 1996 SDWA amendments enhanced existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water.

SDWA authorizes EPA to set national health-based standards to protect the public against naturally occurring and manmade contaminants that may be found in drinking water. EPA's Office of Ground Water and Drinking Water (OGWDW), EPA regional offices, States, and water systems work together to ensure that drinking water meets the established standards for approximately 90 contaminants.

The drinking water program is largely administered by the States; their programs must establish regulations that are at least as stringent as EPA's and maintain a formal enforcement program to ensure violations are addressed and that public health is protected. All States and territories, except the District of Columbia and Wyoming, have received primacy for most drinking water rules and authority to implement and enforce their drinking water programs. EPA Regions 3 and 8 act in that capacity for the District of Columbia and Wyoming, respectively.

SDWA and EPA's established standards apply to all of the approximately 154,000 PWSs in the United States. Under SDWA and its regulations, a PWS provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections, or serves an average of at least 25 people for at least 60 days a year. The three types of PWSs are shown in Table 1-1.

**Table 1-1: Types of public water systems**

| Public water systems | |
|---|---|
| Community water systems | Supply water to the same population year-round |
| Nontransient noncommunity water systems | Supply water to at least 25 of the same people at least 6 months per year |
| Transient noncommunity water systems | Supply water in a place such as a gas station or campground where people do not remain for long periods of time |

Source: EPA OGWDW.

PWSs, which often consist of multiple facilities (e.g., wells, springs, treatment plants, and retention ponds), must ensure that the drinking water provided to their customers meets all federal and State standards. PWSs are responsible for complying with monitoring and reporting requirements, performing treatment techniques, recordkeeping, and following public notice requirements.

PWSs must periodically monitor for contamination throughout the system (i.e., at the treatment plant, in the distribution system, and at customer taps). When monitoring results show that a health-based standard has been exceeded, the water system must notify all of its customers through available media (newspaper and radio) or by mail, depending on the seriousness of the violation and any adverse health effects that may be involved. The water system must also take steps to correct the problem by treating the water to remove or reduce the contaminant to safe levels.

A consecutive system is a PWS that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems. Consecutive water systems that purchase their water from another system have fewer monitoring and reporting requirements because the seller/supplier is usually responsible for these activities.

### *State and Federal Drinking Water Information Systems*

EPA maintains a federal database, the Safe Drinking Water Information System/Federal Version (SDWIS/FED), to evaluate the effectiveness of its programs and regulations and to determine whether new regulations are needed to protect public health. EPA developed the SDWIS/State Version (SDWIS/State) to help States run their drinking water programs. Most States use SDWIS/State to maintain inventory data, monitor results reported by water systems, and track information about violations and enforcement actions. EPA only requires States to report inventory data, violations of maximum contaminant levels, enforcement actions, and lead and copper 90th percentile sample results to SDWIS/FED quarterly.

### *Prior EPA Evaluations of SDWIS/FED Data Quality*

EPA periodically conducts data verification audits to ensure that States (1) determine compliance in accordance with federal drinking water regulations, and (2) properly report data to SDWIS/FED. The data verification audits showed that a majority of the data are accurate but incomplete, which may primarily be a result of the different interpretations of the regulations by the States and EPA. Some violations are unreported by States to EPA and are not entered in the SDWIS/FED database. In 2006, only 29 percent of monitoring and reporting violations and 62 percent of the maximum contaminant level/treatment technique violations (part of the health-based standards) had been reported to SDWIS/FED.

EPA recognizes that the information and the analyses based on incomplete data in SDWIS/FED compromise its ability to determine whether and when the Agency should take action against noncompliant systems, to oversee and evaluate the effectiveness of State and federal programs and regulations, to alleviate burden on States, and to determine whether new regulations are needed to further protect public health. Further, EPA's response to public inquiries and preparing national reports on the quality of drinking water in a thorough and complete manner is limited by the incomplete data.

### *Incidences of Improper Use of Contaminated Emergency Wells*

In 2008, the Illinois Environmental Protection Agency (Illinois EPA) discovered that the Crestwood CWS, serving approximately 11,000 customers, was illegally using a well contaminated with vinyl chloride to supplement its primary source of distributed water from Lake Michigan. After Illinois EPA's triennial monitoring program uncovered the presence of vinyl chloride in 2007, the agency gave the Crestwood CWS the option of treating the well, abandoning the well, or obtaining another source of water. Without treatment and approval by Illinois EPA, the contaminated well was kept operational by the town for emergency backup situations. Illinois EPA managers and staff said that State law did not require the water system to conduct routine sampling of the well water, but did require the system to report when the well was activated. Crestwood never reported to Illinois EPA that the well was being used until the water system operator's admission in 2008. Illinois EPA investigators verified the illegal use of the well through a review of billing records against pumping records dating back to at least 1999.

While the finished water (water that is ready for distribution and consumption without further treatment) distributed to customers met federal and State standards after blending, the Illinois EPA cited Crestwood for SDWA violations and for knowingly providing false information about the source of its drinking water to the Illinois EPA and to its water consumers. An Illinois EPA records analysis also confirmed that only Lake Michigan water has been used by the Crestwood

CWS since November 2007. In March 2009, the Crestwood CWS's well was sealed.

According to the Agency for Toxic Substances and Disease Registry, similar situations occurred in the early 1990s in the U.S. Virgin Islands and Minnesota. The water systems each had a ground water well with known contamination and knowingly distributed water from these wells, even though health advisories had been issued to discontinue use of the wells. The State and territory agencies did not discover the use of the contaminated wells until each of the wells had been capped for more than 5 years; it is unclear when the water systems began using these wells again.

## Noteworthy Achievements

EPA's OGWDW conducts program reviews of randomly selected State drinking water programs, while the Ground Water Rule requires States to conduct onsite sanitary surveys of ground water PWSs every 3 to 5 years. OGWDW also issues a Water Supply Guidance manual, a useful resource for stakeholders (EPA regions, States, and water systems) that clarifies safe drinking water policies and regulations implemented under SDWA.

EPA has started the process of developing a new drinking water strategy, which will:

- Address contaminants as groups rather than one at a time so that enhancement of drinking water protection can be achieved cost effectively.
- Foster development of new drinking water technologies to address health risks posed by a broad array of contaminants.
- Use the authority of multiple statutes to help protect drinking water.
- Partner with States to share more complete data from monitoring at PWSs.

## Scope and Methodology

We conducted this review in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the review to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our review objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our review objective. We performed our review from November 2009 to August 2010.

We reviewed the SDWA, EPA policies and guidance, information from Illinois EPA regarding the Crestwood contaminated well, and relevant reports by other federal agencies. We also reviewed recent data verification audits and program reviews for the 17 States located in Regions 3, 5, and 8 for information pertaining

to monitoring and reporting requirements for emergency facilities. We evaluated agency Websites from those States that are involved in providing safe drinking water, allocating water resources, and permitting of wells for construction and abandonment.

We conducted interviews with personnel from EPA in OGWDW, within the Office of Water; the Office of Civil Enforcement and the Office of Criminal Enforcement, Forensics and Training, both within the Office of Enforcement and Compliance Assurance; and EPA Regions 3, 5, and 8. We visited the Illinois, Delaware, and Colorado State agencies responsible for administering State safe drinking water programs, as well as one public water supplier serving in Delaware. During our interviews, we discussed their respective safe drinking water programs; oversight, monitoring, and tracking requirements for emergency facilities; sanitary surveys; and the SDWIS/FED and SDWIS/State databases.

We analyzed data pulled from SDWIS/FED by OGWDW for all States in all 10 EPA regions for the period June 1, 1976, to June 30, 2009 (approximately 33 years since the first drinking water compliance period). We specifically requested inventory and site visit data for all facilities designated for emergency utilization (Facility Availability Code = E) that are wells or springs (Facility Type Code = WL (well) or SP (spring)). We analyzed the data to determine the number of PWSs with facilities designated for emergency utilization in each State, the categorization of those PWSs and the population served, the number of total emergency facilities located in each State, the number of active emergency facilities, the number of total site visits made to emergency facilities in each State, the predominant reasons for those site visits, and the number of PWSs with facility names that indicate the facility's use for emergencies or some other event.

While we did not independently verify the accuracy or reliability of the inventory data provided by SDWIS/FED, there are known data quality issues with the database, as discussed in Chapter 2 of this report. We determined the errors to be insignificant to our overall analysis of emergency ground water facilities.

# Chapter 2
# EPA Lacks Data to Assess the Risk from Emergency Facility Water Usage

EPA cannot accurately assess the risk of PWSs delivering contaminated drinking water from emergency facilities because of limitations in SDWIS data management. EPA and State officials we interviewed said they were unaware of instances similar to the Crestwood situation. However, they also stated that they currently have no way to know whether an emergency facility had been turned on without notice. There is no federal regulatory requirement for EPA or States to oversee or monitor emergency facilities. As a result, neither EPA nor the States know the amount of risk that PWS customers may face from misuse of water from emergency facilities.

## Consecutive and/or Small Systems More Vulnerable[1]

As of October 2009, the SDWIS/FED listed 139,205 PWSs whose primary source of water is ground water. Of that number, approximately 5 percent (6,722) have at least one active and/or inactive well or spring designated for emergency use (see Appendix A, Table A-1). A little over 82 percent of these PWSs serve 3,300 people or fewer (i.e., small or very small PWSs) (see Appendix A, Table A-2). Roughly 58.5 million people get their drinking water from systems with emergency facilities and could be potentially impacted if these sources were contaminated with pollutants (see Appendix B). EPA regional staff we interviewed believed consecutive and/or small systems are most vulnerable to a Crestwood-like situation because of economic considerations.

## Risk Assessment of Emergency Facilities Precluded by Data Management Process

The data management process used by both EPA and States hinders a thorough evaluation of the risk posed by emergency facilities. EPA cannot accurately assess the risk without knowing the actual universe of these facilities, and limitations in the quantity and quality of data reported to SDWIS/FED prevent EPA from accurately calculating the universe and assessing the risk. There are no federal or generally accepted standards or processes to define and manage emergency facilities. States vary in how they define "emergency facility," categorize/manage these facilities, and oversee their use. These State differences further challenge EPA's ability to identify vulnerabilities that may exist.

[1] The estimates in this section are based on the best data available from OGWDW and SDWIS/FED during this evaluation.

### *SDWIS/FED Data Limited*

States use their respective drinking water databases, generally SDWIS/State, to manage the PWSs within the State and to transfer required information to SDWIS/FED. State drinking water databases contain information that is not reported to EPA through SDWIS/FED. The facility comment field in SDWIS/State may hold an explanation for why a well was abandoned or whether the facility has known contamination, but this is not information States are required to track in SDWIS/FED. Additionally, in SDWIS/FED, violations are tied to the water system and are not linked to the individual facility responsible for the violation. Once a facility is in SDWIS/FED, it is never removed. However, if a facility is sold to another water system, the facility will receive a new facility identification number associated with the new water system in SDWIS/FED. In these instances, SDWIS/FED does not allow for historical information about the facility to be included in its newly created record associated with the new water system.

EPA is unable to evaluate the potential impact of the improper classification of consecutive water systems with mixed source water types. A consecutive PWS that uses a combination of ground water and purchased surface water defaults to a "purchased surface water" system in both SDWIS/FED and SDWIS/State. The databases do not allow consecutive PWSs to indicate the purchased surface water is supplemented with ground water. As a result, the water system may not meet the additional monitoring and reporting requirements associated with ground water sources.

States have used a variety of measures to address the shortcomings in SDWIS/State. States modify their drinking water databases, develop add-on tools, or include comments in SDWIS/State to create a thorough database and to address issues particular to their State and/or region. For example, Colorado recognizes that SDWIS classifies consecutive water systems that purchase surface water as "purchased surface water" even though they may have their own ground water, or may have ground water under the influence of a surface water source. To address this limitation, monitoring schedules are determined by the water source type at each individual facility. These types of water systems will have more extensive monitoring requirements than those systems that solely purchase fully treated surface water.

### *State Procedures for SDWIS/State Vary*

Different State-level procedures for entering data into SDWIS/State databases further prevent EPA from forming an accurate estimate of the universe of emergency facilities. States have their own interpretations and procedures for indicating a facility's condition and can change the facility status code (active or inactive), the facility availability code (emergency, interim, permanent, seasonal, or other), and the facility name. For example, Illinois EPA changes a facility's

availability code from "emergency" to "other" once it is properly abandoned and no longer available for use. For sources no longer used for drinking water purposes, Colorado changes the facility status to "inactive" and the facility availability field to "other." Once the source has been reclassified, the water system should never use it for drinking water purposes without the Colorado Water Quality Control Division's approval. While EPA's intent is that abandoned facilities would be classified by States as "inactive" in the SDWIS/State and SDWIS/FED databases, States interpret "inactive" to mean a variety of statuses, such as temporarily abandoned or not currently in use. California adds "inactive," "abandoned," or "destroyed" to the facility name, but does not change the facility status code to "inactive."

In some States, more than one State agency may be involved in the construction, monitoring of water allocation/usage, or abandonment of drinking water emergency facilities, further complicating their management. For example, in 8 of 17 States reviewed from Regions 3, 5, and 8, the permitting, construction, and/or abandonment of wells are handled by agencies other than the one responsible for the safe drinking water program. Because of its arid climate, water use in Colorado is strictly monitored through the Office of State Engineer, existing "water rights," and the seven water courts. The State office responsible for ensuring drinking water quality may not have access to the data and information managed by these other agencies.

### *Definitions of Emergency Facility Inconsistent*

There is no federal framework or definition for an emergency facility, nor is there consistency among States on how facilities are designated as "emergency." EPA accepts a broad spectrum of State definitions for facility availability codes (permanent, emergency, interim, seasonal, or other) in SDWIS/FED. States may refer to emergency wells as backup wells, standby wells, auxiliary wells, or interim emergency wells. EPA defers to each State's policy, code, or regulation for defining and designating emergency facilities. For example, staff and managers at Illinois EPA said emergency wells in the State should not be used to supplement peak demand. Staff and managers at Delaware's Department of Health and Social Services indicated that the agency allows the intermittent use of emergency wells during periods of high demand. Emergency facilities in Colorado should be used only in extreme circumstances, when there is a "need of quantity" in the case of fire or drought.

Not all emergency facilities are contaminated; some could be activated as needed by the water system without risk to its customers. Some States encourage or require water systems to have emergency facilities available for dire or unexpected situations and contingency planning. Additionally, some emergency facilities are designated for uses other than providing drinking water to the public, e.g., firefighting, irrigation, and agriculture.

A few States such as Colorado and Pennsylvania have attempted to remove the ambiguity and define emergency facility in their drinking water regulations or drinking water database manual. Colorado's Primary Drinking Water Regulations include a formal definition for an emergency source or connection. Colorado also provides definitions for the availability codes used in SDWIS/State. In 2005, Virginia's Office of Drinking Water issued a memorandum to its staff establishing policy for the use of emergency wells, which included routine use, activation and deactivation, sampling, notification, and other requirements. The Office of Drinking Water also recommends that the facility name for an emergency well actually include the term "emergency."

## EPA and States Do Not Know if Emergency Facilities Are Used Without Notification

### *Emergency Facility Monitoring Not Federally Required*

There is no federal regulatory requirement for EPA or States to oversee or monitor use of emergency facilities. SDWA only requires water systems to monitor the finished water for federal health-based standards. Emergency facilities do not have federal monitoring requirements before they are brought online. EPA staff in Regions 3 and 5 indicated States have limited resources and do not see monitoring emergency facilities, which are not supposed to be activated except in emergencies, as a priority. However, States may have their own monitoring requirements for these types of facilities.

EPA and State staff we interviewed believe the drinking water program is based on trust and assumes that the water system operator and owner are acting in the customers' best interest. While the drinking water program has preventative aspects, the compliance portion is designed to discover problems or violations after they have occurred. As a result, if a water system operator or owner is not truthful about the utilization of emergency wells, EPA and States lack internal controls to detect and prevent the fraud. Based on our Website review, 11 of the 17 State drinking water programs in Regions 3, 5, and 8 do not appear to routinely monitor their emergency facilities.

### *State Monitoring of Emergency Facilities Voluntary*

States have the ability to increase their monitoring requirements for emergency facilities. Prior to and after the Crestwood incident, Illinois EPA increased monitoring requirements for emergency wells. Water systems now must take annual samples of all volatile organic compounds, synthetic organic compounds, and nitrate/nitrite; triennial samples for radionuclide contaminants and inorganic chemicals; and monthly bacteria samples. Such actions could ensure emergency facilities meet drinking water standards and identify potential water systems at risk in the event of a water crisis.

Based on our Website review, 9 of the 17 State drinking water programs in Regions 3, 5, and 8 require that PWSs notify them if they use their emergency facilities. However, other than self-reporting, States have little way of knowing if these facilities are used without notification. According to OGWDW managers, sanitary surveys[2] conducted by States every 3 to 5 years are an important part of the PWS supervision program.[3] Sanitary surveys can also potentially detect whether a facility has been turned on. The sanitary surveyor examines the physical location and condition of all facilities, including unapproved new sources and abandoned sources. According to the analysis of SDWIS/FED data, 68 percent of all site visits were to conduct sanitary surveys and occurred on average every 5.3 years. However, sanitary surveys are preannounced, hindering their usefulness for identifying unauthorized use of emergency facilities.

### *Civil Penalties Could Deter Violations*

Under SDWA, civil penalties can be issued by EPA or States to water systems that fail to meet federal/State monitoring and reporting requirements. States have the ability to increase penalties, which could further discourage operator fraud. Managers and staff from the Colorado Department of Public Health and Environment indicated that the agency has more penalty authority than EPA; it can assess penalties for violations of the Colorado Primary Drinking Water Regulations, while EPA can only assess penalties for violations of formal enforcement orders. After the Crestwood incident, the State of Illinois passed legislation escalating the penalty to a felony offense for water system owners and operators who knowingly provide false information to the State.

## Conclusion

EPA does not know the total number of contaminated emergency facilities and the scope of their use. EPA and the States do not have common definitions or a common understanding of what constitutes an emergency facility. There is no common understanding of when and how emergency facilities may be used, especially with regard to drinking water. States rely on water systems to self-report when they use these emergency facilities. However, that system is voluntary, based on trust rather than a verifiable control. Consequently, EPA cannot accurately assess the potential risk faced by the 58.5 million people who are served by water systems with emergency facilities (that may or may not be contaminated with pollutants). In our opinion, EPA should assess the risk and determine whether it needs to take steps to mitigate it.

[2] During a sanitary survey, the State evaluates the water system in eight elements, including reviewing the major components of the source to determine reliability, quality, quantity, and vulnerability, and determining/evaluating data that define the potential for degradation of the source water quality.

[3] EPA's Public Water System Supervision Grant Program helps eligible States develop and implement a PWS supervision program adequate to enforce the requirements of SDWA and ensure water systems comply with the National Primary Drinking Water Regulations.

## Recommendations

We recommend that the Assistant Administrator for Water:

2-1 Develop standard definitions for the five facility availability codes (permanent, seasonal, emergency, interim, and other).

2-2 Develop standard operating procedures that follow EPA reporting requirements to assist the States with entering data into SDWIS/State databases.

2-3 Review the additional information included in State drinking water databases and, if appropriate, add fields to SDWIS/FED to improve the oversight of emergency facilities.

2-4 Assess the risk associated with the unauthorized use of emergency facilities and, if necessary, develop controls to mitigate that risk.

## Agency Response and OIG Evaluation

The Assistant Administrator for Water responded to our draft report on September 16, 2010 (see Appendix C). EPA's goal is to ensure that every American served by a PWS receives water that meets public health standards every day. The Agency believes its approach to protecting the nation's drinking water through the efforts of PWSs and state, local, and federal government agencies has been effective. This approach includes States (with the exception of Wyoming) providing primary oversight of PWSs, water systems taking millions of samples each year to ensure water meets health standards, States and EPA conducting sanitary surveys and other site inspections to supplement monitoring and identify potential issues of concern, and EPA conducting regular reviews of state drinking water programs.

EPA neither agreed nor disagreed with our recommendations. It acknowledged our concerns related to recommendations 2-1, 2-2, and 2-3. EPA has already begun and will continue discussions with the Association of State Drinking Water Administrators (ASDWA) on these and other data issues. For recommendation 2-3, EPA will also request that the EPA-State Data Technical Advisory Committee review the SDWIS/FED data fields to determine whether further changes would be useful in providing oversight of emergency facilities. Based on discussions with ASDWA and the EPA-State Data Technical Advisory Committee, EPA will take action as determined to be appropriate.

In response recommendation 2-4, EPA raised concerns about the challenges associated with assessing health risk from emergency wells, since risk assumes exposure to a contaminant. EPA will discuss the risk associated with unauthorized use of emergency facilities with State representatives. We

recognize these challenges and must stress that our focus has been on the risk of an occurrence similar to the situation in Crestwood, Illinois. We advocate avoiding these situations through internal controls and increased oversight.

We consider all of the recommendations to be open. We look forward to a detailed corrective actions plan in the Agency's 90-day response to this final report.

# *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 |
| 2-1 | 11 | Develop standard definitions for the five facility availability codes (permanent, seasonal, emergency, interim, and other). | O | Assistant Administrator for Water | | | |
| 2-2 | 11 | Develop standard operating procedures that follow EPA reporting requirements to assist the States with entering data into SDWIS/State databases. | O | Assistant Administrator for Water | | | |
| 2-3 | 11 | Review the additional information included in State drinking water databases and, if appropriate, add fields to SDWIS/FED to improve the oversight of emergency facilities. | O | Assistant Administrator for Water | | | |
| 2-4 | 11 | Assess the risk associated with the unauthorized use of emergency facilities and, if necessary, develop controls to mitigate that risk. | O | Assistant Administrator for Water | | | |

[1] O = recommendation is open with agreed-to corrective actions pending
C = recommendation is closed with all agreed-to actions completed
U = recommendation is undecided with resolution efforts in progress

**Appendix A**

# *Distribution of PWSs with Emergency Facilities*

**Table A-1: Distribution of public water systems with emergency facilities (wells and springs), by water system type (includes tribal systems)**

| EPA region | Community water system | Nontransient noncommunity water system | Transient noncommunity water system |
|---|---|---|---|
| 1 | 283 | 63 | 111 |
| 2 | 563 | 84 | 272 |
| 3 | 329 | 68 | 152 |
| 4 | 363 | 25 | 48 |
| 5 | 710 | 55 | 105 |
| 6 | 644 | 66 | 51 |
| 7 | 657 | 42 | 68 |
| 8 | 503 | 38 | 100 |
| 9 | 569 | 101 | 78 |
| 10 | 411 | 66 | 97 |
| Total (N = 6,722) | 5,032 | 608 | 1,082 |
| Total Percentage | 74.86 | 9.04 | 16.10 |

Source: OIG analysis of SDWIS/FED data as of June 30, 2009, provided by OGWDW.

**Table A-2: Distribution of public water systems with emergency facilities (wells and springs), by population-served classifications (includes tribal systems)**

| EPA region | Very small (≤500 people) | Small (>500 and ≤3,300 people) | Medium (>3,300 and ≤10,000 people) | Large (>10,000 and ≤100,000 people) | Very large (>100,000 people) |
|---|---|---|---|---|---|
| 1 | 319 | 83 | 20 | 32 | 3 |
| 2 | 622 | 180 | 46 | 58 | 13 |
| 3 | 364 | 124 | 27 | 28 | 6 |
| 4 | 213 | 125 | 50 | 43 | 5 |
| 5 | 384 | 258 | 100 | 121 | 7 |
| 6 | 279 | 287 | 102 | 83 | 10 |
| 7 | 394 | 273 | 64 | 32 | 4 |
| 8 | 420 | 168 | 37 | 14 | 2 |
| 9 | 411 | 120 | 67 | 117 | 33 |
| 10 | 386 | 111 | 29 | 42 | 6 |
| Total (N = 6,722) | 3,792 | 1,729 | 542 | 570 | 89 |
| Total Percentage | 56.41 | 25.72 | 8.06 | 8.48 | 1.32 |

Source: OIG analysis of SDWIS/FED data as of June 30, 2009, provided by OGWDW.

**Appendix B**

# *Site Visits to PWSs with Emergency Facilities*

**Table B-1: Number of public water systems with emergency facilities (wells and springs) and site visits (includes tribal systems)**

| EPA Region | # of PWSs with emergency wells | Population served by PWSs with emergency facilities | # of total emergency wells | # of active emergency wells | % of active emergency wells | # of total site visits | Ratio of site visits to emergency wells |
|---|---|---|---|---|---|---|---|
| **Region 1** | | | | | | | |
| Connecticut | 68 | 1,253,149 | 127 | 46 | 36.22 | 378 | 2.98 |
| Massachusetts | 80 | 689,905 | 104 | 104 | 100.00 | 1,045 | 10.05 |
| Maine | 117 | 68,496 | 136 | 28 | 20.59 | 2,167 | 15.93 |
| New Hampshire | 51 | 17,691 | 56 | 32 | 57.14 | 124 | 2.21 |
| Rhode Island | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| Vermont | 141 | 100,006 | 203 | 4 | 1.97 | 1,877 | 9.25 |
| **Region 2** | | | | | | | |
| New Jersey | 119 | 2,484,913 | 150 | 126 | 84.00 | 954 | 6.36 |
| New York | 788 | 9,411,991 | 1802 | 451 | 25.03 | 13,536 | 7.51 |
| Puerto Rico | 12 | 1,716,029 | 47 | 47 | 100.00 | 1,303 | 27.72 |
| **Region 3**[1] | | | | | | | |
| Delaware | 74 | 383,622 | 102 | 69 | 67.65 | 678 | 6.65 |
| Maryland | 8 | 11,205 | 8 | 8 | 100.00 | 111 | 13.88 |
| Pennsylvania | 339 | 586,861 | 410 | 410 | 100.00 | 995 | 2.43 |
| Virginia | 90 | 1,193,353 | 139 | 71 | 51.08 | 2,058 | 14.81 |
| West Virginia | 38 | 104,208 | 54 | 31 | 57.41 | 527 | 9.76 |
| **Region 4** | | | | | | | |
| Alabama | 10 | 70,211 | 10 | 6 | 60.00 | 291 | 29.10 |
| Florida | 0 | 0 | 0 | 0 | 0.00 | 0 | 0.00 |
| Georgia | 223 | 1,272,225 | 293 | 229 | 78.16 | 841 | 2.87 |
| Kentucky | 2 | 22,091 | 3 | 3 | 100.00 | 83 | 27.67 |
| Mississippi | 13 | 39,832 | 18 | 6 | 33.33 | 298 | 16.56 |
| North Carolina | 80 | 452,265 | 180 | 157 | 87.22 | 7,135 | 39.64 |
| South Carolina | 85 | 697,725 | 146 | 142 | 97.26 | 2,927 | 20.05 |
| Tennessee | 22 | 135,634 | 31 | 6 | 19.35 | 832 | 26.84 |
| Tribal Nations | 1 | 500 | 1 | 1 | 100.00 | 17 | 17.00 |
| **Region 5** | | | | | | | |
| Illinois | 242 | 2,459,898 | 453 | 419 | 92.49 | 7,887 | 17.41 |
| Indiana | 19 | 115,597 | 25 | 17 | 68.00 | 345 | 13.80 |
| Michigan | 44 | 317,233 | 76 | 63 | 82.89 | 186 | 2.45 |
| Minnesota | 427 | 1,397,777 | 550 | 414 | 75.27 | 6,130 | 11.15 |
| Ohio | 30 | 229,647 | 46 | 34 | 73.91 | 529 | 11.50 |
| Wisconsin | 107 | 735,302 | 152 | 93 | 61.18 | 1,945 | 12.80 |
| Tribal Nations | 1 | 1,997 | 2 | 2 | 100.00 | 4 | 2.00 |
| **Region 6** | | | | | | | |
| Arkansas | 65 | 260,577 | 86 | 45 | 52.33 | 343 | 3.99 |
| Louisiana | 70 | 383,183 | 94 | 55 | 58.51 | 379 | 4.03 |
| New Mexico | 80 | 397,850 | 98 | 24 | 24.49 | 1,210 | 12.35 |
| Oklahoma | 72 | 485,926 | 157 | 52 | 33.12 | 4,244 | 27.03 |
| Texas | 458 | 7,408,609 | 786 | 146 | 18.58 | 5,572 | 7.09 |
| Tribal Nations | 16 | 60,880 | 26 | 20 | 76.92 | 79 | 3.04 |

**Table B-1: Number of public water systems with emergency facilities (wells and springs) and site visits (includes tribal systems) – Continued**

| EPA Region | # of PWSs with emergency wells | Population Served by PWSs with emergency facilities | # of total emergency wells | # of active emergency wells | % of active emergency wells | # of total site visits | Ratio of site visits to emergency wells |
|---|---|---|---|---|---|---|---|
| **Region 7** | | | | | | | |
| Iowa | 279 | 569,297 | 337 | 6 | 1.78 | 1,956 | 5.80 |
| Kansas | 154 | 492,075 | 277 | 1 | 0.36 | 2,354 | 8.50 |
| Missouri | 164 | 627,962 | 213 | 198 | 92.96 | 2,126 | 9.98 |
| Nebraska | 170 | 803,543 | 247 | 154 | 62.35 | 2,942 | 11.91 |
| **Region 8** | | | | | | | |
| Colorado | 173 | 894,037 | 240 | 183 | 76.25 | 891 | 3.71 |
| Montana | 81 | 49,292 | 91 | 26 | 28.57 | 289 | 3.18 |
| North Dakota | 124 | 110,387 | 231 | 165 | 71.43 | 3,155 | 13.66 |
| South Dakota | 234 | 419,465 | 376 | 0 | 0.00 | 2,449 | 6.51 |
| Utah | 3 | 9,119 | 4 | 1 | 25.00 | 26 | 6.50 |
| Wyoming | 20 | 10,968 | 23 | 9 | 39.13 | 152 | 6.61 |
| Tribal Nations | 6 | 14,940 | 8 | 2 | 25.00 | 60 | 7.50 |
| **Region 9** | | | | | | | |
| Arizona | 40 | 818,503 | 62 | 46 | 74.19 | 820 | 13.23 |
| California | 689 | 14,620,139 | 1,104 | 936 | 84.78 | 9,476 | 8.58 |
| Hawaii | 6 | 743,747 | 10 | 10 | 100.00 | 89 | 8.90 |
| Navajo Nation | 4 | 2,820 | 4 | 4 | 100.00 | 14 | 3.50 |
| Nevada | 8 | 46,448 | 8 | 4 | 50.00 | 41 | 5.13 |
| Tribal Nations | 1 | 819 | 1 | 1 | 100.00 | 10 | 10.00 |
| **Region 10** | | | | | | | |
| Alaska | 17 | 279,577 | 45 | 15 | 33.33 | 323 | 7.18 |
| Idaho | 212 | 702,406 | 298 | 185 | 62.08 | 2,351 | 7.89 |
| Oregon | 302 | 1,499,658 | 433 | 14 | 3.23 | 1,091 | 2.52 |
| Washington | 29 | 848,785 | 77 | 47 | 61.04 | 77 | 1.00 |
| Tribal Nations | 14 | 16,155 | 28 | 27 | 96.43 | 38 | 1.36 |
| **Total** | | | | | | | |
| | 6,722 | 58,546,530 | 10,688 | 5,395 | 50.48 | 97,760 | 9.15 |

Source: OIG analysis of SDWIS/FED data as of June 30, 2009, provided by OGWDW.

[1]The District of Columbia is not included because water systems do not have ground water facilities.

**Appendix C**

# *Agency Response*

September 16, 2010

**MEMORANDUM**

**SUBJECT:** Comments on OIG's Draft Evaluation Report: EPA Lacks Internal Controls to Prevent Misuse of Emergency Drinking Water Facilities
Project 2010-1069

**FROM:** Peter S. Silva
Assistant Administrator

**TO:** Wade T. Najjum
Assistant Inspector General for Program Evaluation

Thank you for your draft report on emergency drinking water facilities. The Agency's goal is that every American served by a public water system receives water that meets public health standards every day. We welcome recommendations on how to ensure that this becomes a reality.

The nation's drinking water is protected by the efforts of a network of public water systems and state, local, and federal government agencies. All states except Wyoming have primacy for the drinking water program, and provide the primary oversight of water systems. Millions of samples are taken each year by water systems to ensure that the water received by consumers meets public health standards. In addition, state and EPA drinking water programs conduct sanitary surveys and other site inspections of water systems to supplement monitoring records and identify potential issues of concern. EPA regulations require states to regularly conduct these sanitary surveys at all water systems in the country, and many states visit water systems more frequently than required. These efforts provide states with a good understanding of the water system. EPA conducts regular reviews of the state programs to ensure that states are meeting their Safe Drinking Water Act requirements. We believe that this approach has been effective.

Your report recommends that EPA develop standard definitions for the five facility availability codes, develop standard operating procedures to assist the states with entering data into SDWIS-State databases, and determine whether additional fields are needed in the federal version of SDWIS to improve the oversight of emergency facilities. EPA has already begun discussions with the Association of State Drinking Water Administrators (ASDWA) on these data issues and others, and we will continue this dialogue. Additionally, we will request that the EPA-State Data Technical Advisory Committee review the SDWIS-Fed data fields to determine whether further changes would be useful in providing oversight of emergency facilities. EPA will then take action as determined to be appropriate through these discussions.

Your final recommendation is for EPA to assess the risk associated with the unauthorized use of emergency facilities and, if necessary, develop controls to mitigate that risk. While we will discuss these issues with state representatives, it will be very challenging to assess health risk from emergency wells since risk assumes exposure to a contaminant. In some states, supplies classified as "emergency" meet all SDWA requirements and are classified as "emergency" due to practical difficulties in using the source or are considered reserve source capacity. In other cases where a contaminant may be present, states may have conditional requirements (treatment, blending, etc.) associated with use of these sources. Since these sources are not used except in emergency situations and may not have contamination present or may be treated prior to use, we would have difficulty making exposure estimates even with an accurate inventory.

Again, we appreciate you sharing your draft report for our review and comment, and look forward to our continuing collaboration in the future. If you have any questions, please contact me or Cynthia Dougherty, Director of the Office of Ground Water and Drinking Water, at (202) 564-3750.

**Appendix D**

# *Distribution*

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Acting Deputy Director, Office of Ground Water and Drinking Water, Office of Water
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