STATE OF CONNECTICUT

AUDITORS' REPORT ON
The Department of Public Health's Monitoring of Public Water Systems and Enforcement of Drinking Water Laws
For the Calendar Year Ended December 31, 2017

AUDITORS OF PUBLIC ACCOUNTS
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Acronyms	Definition
APA	Auditors of Public Accounts
AO	Administrative Order
CAP	Corrective Action Plan
CO	Consent Order
CWS	Community Water System
CY	Calendar Year
DAS	Department of Administrative Services
DPH	Department of Public Health
DWSRF	Drinking Water State Revolving Fund
ECHO	Enforcement Compliance History Online
ELCP	Environmental Laboratory Certification Program
EPA	Environmental Protection Agency
ETT	Enforcement Targeting Tool
FTE	Full-Time Equivalent
FY	Fiscal Year
GPRA	Government Performance and Results Act
LIMS	Laboratory Information Management System
MCL	Maximum Contaminant Level
NCWS	Non Community Water System
MON	Monitoring
NOV	Notice of Violation
NTNC	Non Transient Non Community
PN	Public Notification
PWS	Public Water System
PWSS	Public Water System Supervision
RPT	Reporting
RTC	Return To Compliance
SAM	State Accounting Manual
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
SOP	Standard Operating Procedure
TNC	Transient Non Community
TT	Treatment Technique

Performance Audit Highlights

The Department of Public Health's Monitoring of Public Water Systems and Enforcement of Drinking Water Laws

Background

The purpose of this audit is to assess whether the Department of Public Health (DPH) effectively monitors the state's public drinking water systems for safety, and to evaluate whether DPH effectively uses enforcement procedures and tools to protect the quality of public drinking water in the state. The audit does not include an analysis of the water quality of private wells.

Federal laws and regulations standardize the nation's public drinking water requirements. The federal Environmental Protection Agency (EPA) may grant entities primacy to allow them to enforce federal drinking water laws. The EPA granted Connecticut primacy, indicating the state's public drinking water regulations are at least as stringent as the federal regulations.

A public water system is any water company supplying water to 25 or more people daily, at least 60 days of the year. Connecticut has 2,500 public water systems that vary in the number and frequency of people served.

In fiscal year 2017, the DPH Drinking Water Section had 46 employees and an operating budget of $7.2 million.

Key Findings

Since 2012, the State of Connecticut consistently met or exceeded key federal water quality performance measures. Those measures include the percent of community public water systems and the percent of the state's population served by community water systems meeting all health-based standards. At the same time, however, we identified several areas within the Department of Public Health's (DPH) monitoring of public water systems and enforcement of public drinking water laws needing improvement.

Specifically, we found:

- DPH should strengthen certain enforcement practices;
- DPH rarely assessed or collected civil penalties for drinking water violations;
- DPH did not properly record civil penalty receivables and receipts;
- The DPH sanitary survey process (i.e., onsite inspections) performance was mixed and some monitoring efforts were lacking;
- The water sampling process had limited oversight;
- Non-state-operated public water systems outperformed state-operated systems in several areas;
- DPH did not sufficiently document critical enforcement procedures; and
- DPH should improve its deficient data management practices.

Recommendations

We developed 17 specific recommendations to help strengthen DPH oversight of public drinking water in the state. We broadly recommend:

1. DPH should assess, develop, and standardize various public drinking water monitoring and enforcement policies, procedures, and management practices. This should occur within the DPH public notification, enforcement action, civil penalty, and on-site inspection processes.
2. DPH should implement strategies to improve the integrity of the drinking water sampling process.
3. DPH should review all outstanding significant deficiencies resulting from on-site inspections remaining in the department's drinking water information system to determine their status.
4. DPH should follow state accounting procedures related to the processing of civil penalties.
5. DPH should review management practices and controls over water quality violation and enforcement data to ensure their current validity and reliability.

View the full report, including management's responses, by visiting www.cga.ct.gov/apa
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STATE OF CONNECTICUT

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February 21, 2019

Auditors' Report

THE DEPARTMENT OF PUBLIC HEALTH'S MONITORING AND ENFORCEMENT OF SAFE DRINKING WATER LAWS

Audit Objectives

In accordance with the provisions of Section 2-90 of the Connecticut General Statutes and Generally Accepted Government Auditing Standards, we have conducted a performance audit of certain aspects of the Department of Public Health's (DPH) monitoring and enforcement of drinking water laws. We based this performance audit of the DPH Drinking Water Section (DWS) on the following objectives:

1. Assess whether the Drinking Water Section effectively monitors public drinking water systems in the state to ensure safe drinking water.

2. Evaluate whether the Drinking Water Section protects public health by effectively utilizing available water quality enforcement procedures and tools. In addition, DWS should ensure enforcement actions are appropriate, timely, consistent, and achieve compliance from public water systems.

Methodology

This audit relied on a variety of sources and methods to assess how well the DPH monitoring and enforcement activities ensure that public water systems provide safe drinking water to consumers. We completed the following:

1. Conducted a literature review, including information from the Connecticut Office of Legislative Research, National Conference of State Legislatures, federal Environmental Protection Agency (EPA), performance audits within other states, and various news articles and summaries related to water quality issues;

2. Reviewed relevant Connecticut and federal statutes and regulations, including specific federal rules, to learn about the legal requirements and policies pertaining to public drinking water;

3. Reviewed pertinent DPH Drinking Water Section's Standard Operating Procedures (monitoring/reporting, maximum contaminant levels and action level exceedances; formal enforcement actions; sanitary surveys; and environmental laboratory inspections) to better understand drinking water operations, procedures, and requirements; also reviewed various DPH Drinking Water Fact Sheets and public presentations;

4. Interviewed key agency DPH personnel responsible for public drinking water quality, along with other stakeholders, to gather information about state oversight of public drinking water and to collect input about water quality in the state:
    - DPH Drinking Water Section: Section Chief and supervisors of each organizational unit
    - DPH Environmental Laboratory Certification Program: supervisor and staff
    - DPH Fiscal Services staff
    - EPA (discussed sanitary survey data with Region I, and observed annual progress meeting between DWS and EPA Region I representatives)
    - Connecticut Water Works Association
    - The Metropolitan District
    - Regional Water Authority

5. Collected and analyzed public drinking water data from the following sources to identify possible performance trends along with system strengths and weaknesses:
    - DWS State Drinking Water Information System (violations, enforcement, and sanitary surveys)
    - DPH civil penalty assessments for drinking water violations
    - DPH lab certification and inspections
    - Core-CT (DWS resources)
    - Environmental Protection Agency (Enforcement and Compliance History Online information and Enforcement Tracking Tool quarterly reports)
    - Federal Government Performance and Results Act (Connecticut results);

6. Reviewed DPH Annual Public Water System Compliance Reports to better understand drinking water oversight and water system performance in the state;

7. Examined Public Water Supervision Program Performance Partnership Agreements between DPH and EPA to identify Connecticut's implementation efforts to meet select federal goals for funding purposes;

8. Accompanied sanitary survey staff on field inspections of several public water systems to observe the inspection process; and

9. Reviewed past DPH audits conducted by the state Auditors of Public Accounts, and worked with staff auditors on select analysis areas.

We obtained an understanding of internal controls that we deemed significant within the context of the audit objectives and assessed whether such controls have been properly designed and placed in operation. We tested certain of those controls to obtain evidence regarding the effectiveness of their design and operation. We conducted our audit in accordance with the standards applicable to performance audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. These standards require that we plan and perform our audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides such a basis.

The accompanying background is presented for informational purposes. The information was obtained from DPH management and was not subjected to the procedures applied to our audit of the program.

For the areas audited, we determined:

1. DPH should strengthen certain enforcement practices;

2. DPH rarely assessed or collected civil penalties for drinking water violations;

3. DPH did not properly record civil penalty receivables and receipts;

4. The DPH sanitary survey process (i.e., onsite inspections) performance was mixed and some monitoring efforts were lacking;

5. The water sampling process had limited oversight;

6. Non-state-operated public water systems outperformed state-operated systems in several areas;

7. DPH did not sufficiently document critical enforcement procedures; and

8. DPH should improve its deficient data management practices.

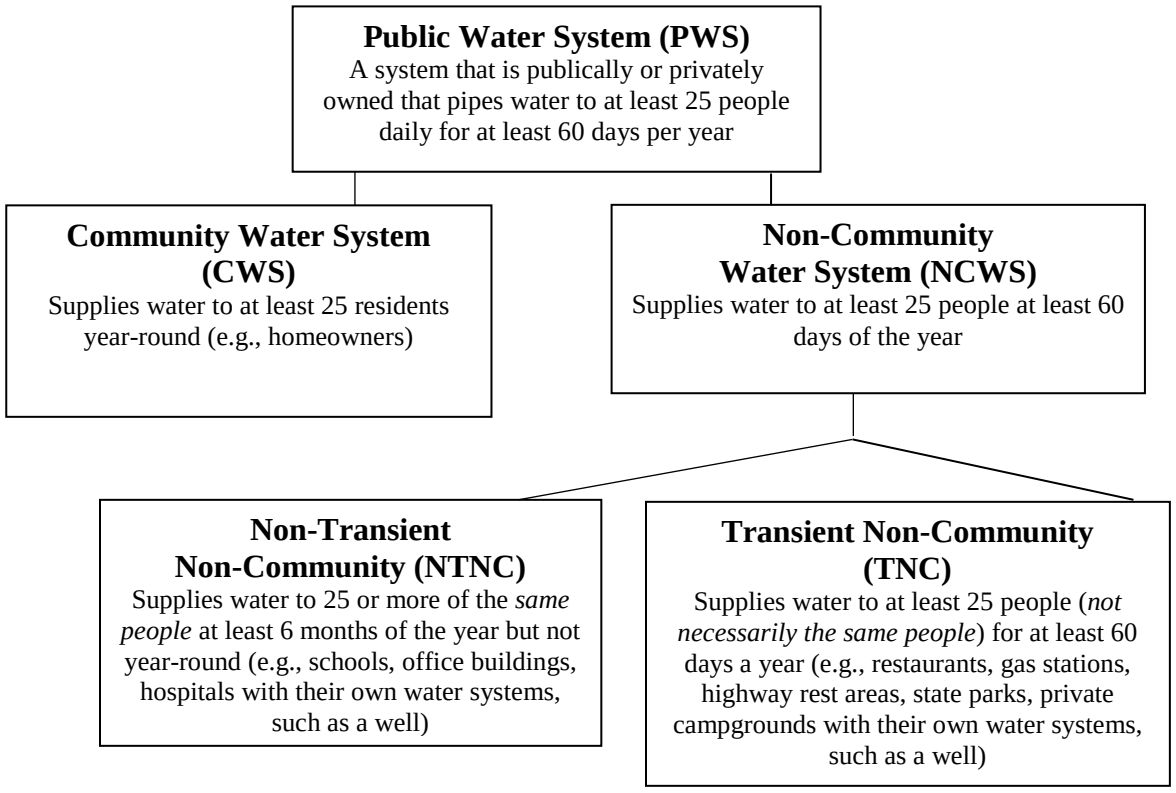
The State Auditors' Findings and Recommendations in the accompanying report presents any findings arising from our audit of DPH's monitoring and enforcement of drinking water laws.

PROGRAM BACKGROUND

The Department of Public Health Drinking Water Section is responsible for the administration and implementation of state and federal public drinking water laws and regulations, and is statutorily charged with ensuring the purity and adequacy of the state's *public* drinking water systems and sources. Private wells that supply homes for domestic use and serve less than 25 people are not currently regulated by DPH or the United States Environmental Protection Agency (EPA). Private well owners are responsible for testing the quality of their drinking water and maintaining their wells. Local health departments and districts do have some regulatory authority over private wells in their towns. Therefore, these systems were not the focus of this audit.

Specifically, Section 25-32 of the General Statutes grants DPH jurisdiction over all matters concerning the purity and adequacy of drinking water and provides regulatory oversight of public water systems throughout the state. The statutes define a public water system (PWS) as any water company or operator supplying water to 25 or more persons, daily at least 60 days of the year. There are two types of public water systems: community and non-community, and there are two subcategories of a non-community public water system (Transient and Non-Transient), as illustrated in **Figure 1**.

Figure 1. Types of Public Water Suppliers



History

Prior to the passage of the federal Safe Drinking Water Act (SDWA) of 1974, the primary responsibility for regulation of public drinking water supplies belonged to state government. According to DPH, some of the state laws have been in existence since the early 1900s.

The federal EPA established the Public Water System Supervision Grant Program (PWSS) under the authority of the Safe Drinking Water Act. In accordance with the act, EPA sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. It also requires notification to consumers that must include a clear and understandable explanation of the nature of the violation, its potential adverse health effects, steps taken for corrective action, and the possibility of using alternative water supplies while the violator addresses the issue. The Safe Drinking Water Act applies to all states, territories, and tribal nations, and allows them to seek EPA approval to administer their own PWSS programs.

Primacy

The EPA grants primacy, which is the authority to run a PWSS program and permit the state to enforce federal drinking water laws. For an entity to receive primacy, EPA must determine it meets certain requirements laid out in the Safe Drinking Water Act and relevant federal regulations, including the adoption of drinking water regulations that are at least as stringent as the federal regulations and a demonstration that it can enforce the program requirements.

The EPA granted Connecticut's primacy status in 1976, allowing DPH to implement and enforce provisions of the Safe Drinking Water Act through state statutes and regulations. Drinking water standards and monitoring requirements are not static. For example, EPA may develop new regulations for previously unregulated contaminants. In addition, EPA must periodically review and, if necessary, revise existing regulations. Each revision to federal laws and rules requires that the state also adopt new regulations. There is often a significant delay between the passage of a federal drinking water requirement and the adoption of state regulations. For example, EPA revised the federal Ground Water Rule and the Lead and Copper Rule in 2007, but the state did not adopt related regulations until 2014. When the state delays the adoption of new or revised regulations, it must work though EPA for enforcement.

Water Quality Roles and Responsibilities

The Department of Public Health Drinking Water Section serves as the link between public water systems and the implementation of federal and state standards and requirements. Although each PWS is ultimately responsible for maintaining the high level of public health protection established under the Safe Drinking Water Act, the responsibility for ensuring safe public drinking water is divided among EPA, the state, and PWS. Each entity has a role in monitoring and ensuring drinking water quality.

- EPA is responsible for establishing federal standards for drinking water quality and, with its partners, implements various technical and financial programs to ensure drinking water safety.

- DPH must maintain data for systems and report violations to EPA. DPH also has a number of other responsibilities under the Safe Drinking Water Act, including developing regulations for federally-regulated contaminants, maintaining an inventory of public water systems in Connecticut, conducting sanitary surveys of all PWSs in Connecticut, regulating public water system operators, and having adequate enforcement authority to compel PWSs to comply with regulations.

- Public water systems are responsible for complying with all regulations, including monitoring, reporting, performing treatment techniques, recordkeeping, and public notice requirements. They must also submit samples of their water for laboratory testing (monitoring) to verify that the water they provide to the public meets all federal and state standards.

Organizational Structure

The Drinking Water Section oversees the management and implementation of state and federal drinking water laws and regulations. The section is organized into 9 units that are responsible for implementing a particular function related to public water system oversight. This audit is largely focused on certain activities in 5 of the 9 units covering Technical Review and Field Assessment, Safe Drinking Water Rule Implementation, Enforcement, Capacity, and Engineering and Regulatory Compliance. The 9 units are:

- *Central Administration Unit* – The unit contains the Public Health Section Chief who oversees and directs the operation of the Drinking Water Section, and a public health services manager who assists the chief.

- *Technical Review and Field Assessment Unit* – The unit is responsible for sanitary surveys; engineering technical reviews; and technical assistance to large community systems, small community systems, and non-transient non-community systems. This unit also includes the incorporation of individual water supply plans with sanitary surveys and a focus on additional direct technical assistance customized by system type to include area-wide optimization for large systems and asset management for small systems.

- *Safe Drinking Water Rule Implementation Unit* – The unit is responsible for administration and implementation of state and federal regulations directly related to the Safe Drinking Water Act. It tracks public water system compliance with maximum contaminant levels, treatment techniques, monitoring, and reporting requirements. It also provides technical assistance when needed to help bring PWSs back into compliance with regulations. In addition, the unit provides oversight of the state's Safe Drinking Water Information System (SDWIS) and reports PWS

compliance information to the Environmental Protection Agency in accordance with primacy requirements.

- *Enforcement Unit* – The unit is responsible for informal and formal enforcement of the public health code concerning drinking water quality and quantity for all public water systems. This unit works with systems to reduce the number of regulatory violations and return PWSs to compliance when deficiencies occur. The unit has several types of enforcement actions it can use to ensure compliance with safe drinking water requirements. The unit administers actions based on the severity of the violation.

- *Capacity Unit* – The unit is responsible for public drinking water capacity reporting and training, and the coordination of ongoing internal and external capacity development efforts in Connecticut. DPH developed a baseline assessment grading system to direct priority technical assistance concerning asset management and sustainability by system type. The unit is also responsible for direct oversight of sanitary surveys for transient non-community water systems and engineering technical reviews for water system projects. Additionally, the unit focuses on ways to streamline the regulation process for such systems.

- *Engineering and Regulatory Compliance* – The unit is composed of the Health Services Water Supply Section Supervisor and is responsible for oversight and coordination of the technical review and field assessment, safe drinking water rule implementation, capacity, and enforcement units.

- *Grant and Administration Unit* – The unit is responsible for grant and fiscal management, personnel administration for Drinking Water Section, oversight of the Operator Certification Program, purchasing, and contract administration. Emphasis is on streamlining EPA grant processes, report writing, and modernization of the certification program.

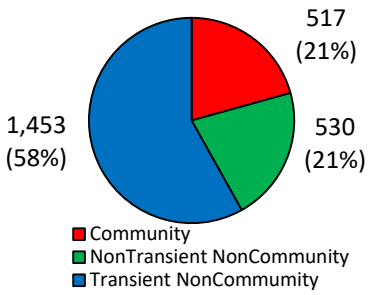
- *Source Assessment and Protection Unit* – This unit is responsible for the purity of Connecticut's approximately 4,400 surface and groundwater drinking water supply sources through regulation and guidance of activities within source water areas. These areas comprise over 18% of the land area in Connecticut. Annually, the unit reviews activities/proposals in source water areas and issues permits, including approvals for new sources of public drinking water. This unit also oversees the creation and approval of water utility coordinating committees statewide, and the administration of the Connecticut Source Water Collaborative.

- *Drinking Water State Revolving Fund (DWSRF) Unit* –The unit provides long-term low interest loans to public water systems for infrastructure improvements that address public health, regulatory compliance, or infrastructure sustainability. This unit employs engineers that work closely with the PWS, the DPH Contracts and Grants Management Section, the DPH Business Office, and the Office of the State

Treasurer to prioritize projects and process loan applications that receive the limited funding available each year.

Key Program Data

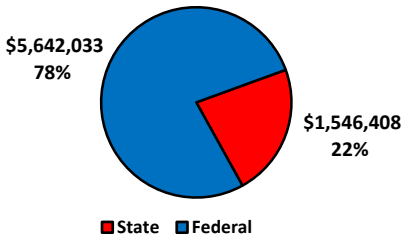
Figure 2. Number of Public Water Systems: Calendar Year 2016



Number of Public Water Systems: Connecticut regulates 2,500 systems (Figure 2). While community water systems and non-transient non-community water systems total just over 500 systems each, transient non-community systems – those that provide water to places such as restaurants and campgrounds – total 58% of all the systems in the state.

People served: On average, public water systems serve 2.7 million people in Connecticut on a daily basis. Community water systems serve approximately 77% of the state's population, and surface water (e.g., reservoir) is the primary water source for those systems. A majority of non-transient non-community systems gets their water from ground water sources (e.g., well).

Figure 3. Drinking Water Section: Total Expenditures: Fiscal Year 2017



Section resources. The Drinking Water Section receives funding from state and federal sources to support its functions (Figure 3). In FY 17, DWS expenditures totaled $7.2 million, with $5.6 million, or 78%, from federal sources and $1.6 million, or 22%, in state funding (Drinking Water State Revolving Fund bond proceeds not included).

Staffing is the section's largest expenditure. As of March 2017, the Drinking Water Section had 41 full-time equivalent (FTE) staff (plus 4 engineer interns). This includes a mix of sanitary engineers, environmental analysts, managers, and administrative staff. Drinking Water Section full-time staffing directly related to water quality by unit totaled 28: Technical Review/Field Assessment (8); Rule Implementation (5.8); Enforcement (5); Capacity (4.2); and Source Assessment/Protection (5).

Federal Water Quality Performance Measures

When considering the overall performance of any program, it is useful to examine available comparative measures. Under the federal Government Performance and Results Act (GPRA), the examination of state water quality occurs in several different ways. Within the broad measures, information is available showing states' performance against national targets set by the Environmental Protection Agency in comparison with the actual performance of states within each EPA region. Connecticut is in EPA Region I. The EPA provides GPRA results quarterly. These

measures are limited because they only include community water systems, though these systems do represent 58% of all Connecticut PWSs and serve 77% of the state's population.

National targets. We reviewed two key national comparative goals of the Government Performance and Results Act measures for 2012-2017. They were:

1) *Ninety percent of community water systems* should meet all applicable health-based standards through approaches that include effective treatment and source water protection; and

2) *Ninety-two percent of the state's population* served by community water systems that provide drinking water should meet all applicable health-based standards through approaches, including effective treatment and source water protection. In 2012, the national target was 91%.

Connecticut usually met or exceeded federal targets and regional averages. When looking at the 23 individual quarters on a yearly basis for 2012 through the first three quarters of 2017:

- Connecticut's community water systems met or exceeded all applicable health-based standards based on national targets in 21 of 23 quarters (91%). In 22 of 23 quarters (96%), Connecticut exceeded the average of other states in EPA Region I (the deficiencies all occurred in 2012).

- The percent of Connecticut's population served by community water systems that provide healthy drinking water based on federal standards met or exceeded national targets in 23 of 23 quarters (100%), and in 22 of 23 quarters (96%) when compared with the average of all other states in EPA Region I.

Compared to the nation, Connecticut's ranking recently improved on one measure and declined on another. Government Performance and Results Act information also ranks Connecticut from 1 to 66 on how the state compares with other entities with federal primacy. Using Quarter 3 from each year (the latest available for 2017), Table 1 shows Connecticut's annual ranking for the percent of community water systems meeting all federal health-based standards, which fluctuated between 30-41 for 2012-16, but improved to 17 in 2017, its highest ranking for the 6-year period.

The table also shows that Connecticut's ranking for the percent of the state's population served by community water systems meeting all health-based standards was relatively high in comparison with other entities with federal primacy. After reaching its best ranking of 3 in 2014 following 3 years of progress, the state's ranking steadily dropped to 21 in 2017, a 6-year low.

Table 1. National Ranking for GPRA Water Quality Measures: Connecticut vs. All Entities with Federal Primacy (Quarter 3, 2012-2017)		
Year (Q3)	**% of Community Water Systems Meeting All Federal Health-Based Standards**	**% of Population Served by Community Water Systems Meeting All Federal Health-Based Standards**
	CT Ranking (Annual N=66)	**CT Ranking (Annual N=66)**
2012	37	13
2013	41	7
2014	30	3
2015	32	13
2016	33	16
2017	17	21

DPH WATER QUALITY MONITORING AND ENFORCEMENT PROCESSES

As noted above, DPH oversees public water systems to ensure they comply with various monitoring, testing, and EPA and state reporting requirements. In some cases, the state established standards exceeding federal requirements. A violation occurs when there has been a breach of a requirement.

Water monitoring/reporting requirements. Public water systems are required to perform regular water testing for various contaminants. The frequency and type of water testing vary based on the type of system, size of the population served, and water source. For example, community PWSs regularly monitor and test for all regulated physical microbiological, chemical, and radionuclide contaminants. Non-transient non-community PWSs monitor and test for all regulated microbiological and chemical contaminants. Transient non-community PWSs are required to monitor and test for microbiological contaminants and two chemical contaminants (nitrate and nitrite). The Drinking Water Section provides PWSs with customized sampling schedules to assist the systems in complying with monitoring requirements.

Public water systems take samples from specific locations and send them to a state-certified laboratory for analysis. They then enter the water quality results into the Safe Drinking Water Information System (SDWIS) database. After going through a quality control check, SDWIS identifies whether the samples exceed the maximum contaminant levels (MCL) and if the PWS collected the samples as frequently as required.

Sanitary surveys. Sanitary surveys are another federal requirement intended to protect the quality of drinking water. A sanitary survey includes a physical inspection of the public water system and evaluation of the operation and maintenance of the PWS. The intent of the survey is to identify problems that may affect the safety of the water, as well as provide an opportunity to educate operators about proper water quality techniques. Failure to address significant deficiencies found during a sanitary survey results in a treatment technique violation.

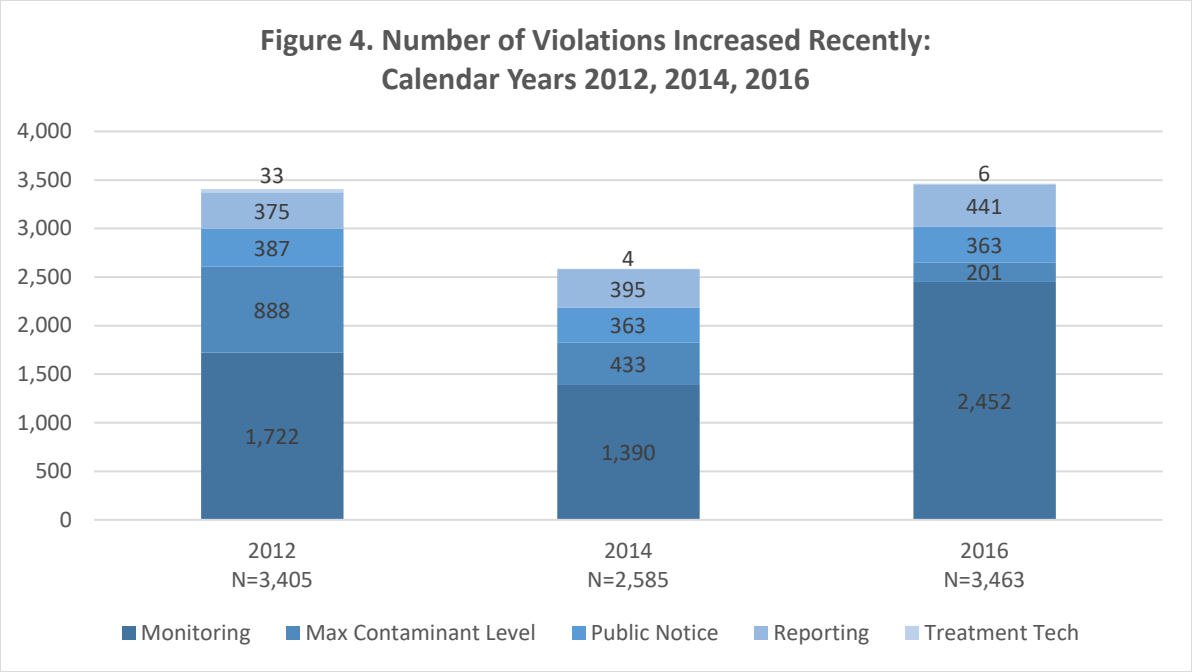
Violation types. DPH groups violations under five broad categories:

- **Monitoring (MON) –** Public water systems incur a monitoring and reporting violation (called monitoring in this audit) if they fail to sample water in accordance with the established frequency and/or fail to report the results.
- **Maximum Contaminant Level (MCL) -** EPA establishes national rules or standards for over 90 physical, chemical, radiological, and biological contaminants referred to as the maximum contaminant level for each regulated contaminant. The MCL represents the maximum permissible level of a contaminant in the water.
- **Public Notification (PN) –** Public water systems must notify their customers when they violate EPA or state drinking water regulations (including monitoring requirements) or when they provide drinking water that may pose a risk to public health. EPA has strict requirements on the form, manner, content, and frequency of public notices.
- **Reporting (RPT) –** The state and EPA established reporting requirements for public water systems. For example, EPA requires a PWS to report certain water quality information to its customers annually. In addition, following a lead and copper rule exceedance, a PWS must submit a plan to provide optimal corrosion control treatment.
- **Treatment Technique (TT) -** For some contaminants, EPA established water disinfection processes (i.e., treatment techniques) in lieu of a maximum contaminant level to control unacceptable levels of certain contaminants that laboratories cannot adequately measure. A violation of a treatment technique means a failure to meet operational standards for a specific rule. For example, EPA established treatment techniques for lead, copper, viruses, bacteria, and turbidity.

Violation Trends

We examined 5 years of violations and enforcement data (Calendar Years 2012-2016) from the Safe Drinking Water Information System (SDWIS) for all public water systems. The analysis below presents an overall picture of DPH monitoring and enforcement activity. Generally, the trend shows that the number of water violations has increased recently, while the number of systems with a violation has declined. Transient non-community systems number the most and account for the majority of the violations.

Number of violations has increased. Figure 4 displays the number of violations and the trend in violations for three periods during the last 5 years by the type of violation. In 2016, monitoring violations were the largest portion of violations at 71%, while treatment technique violations were the least at 0.2%.

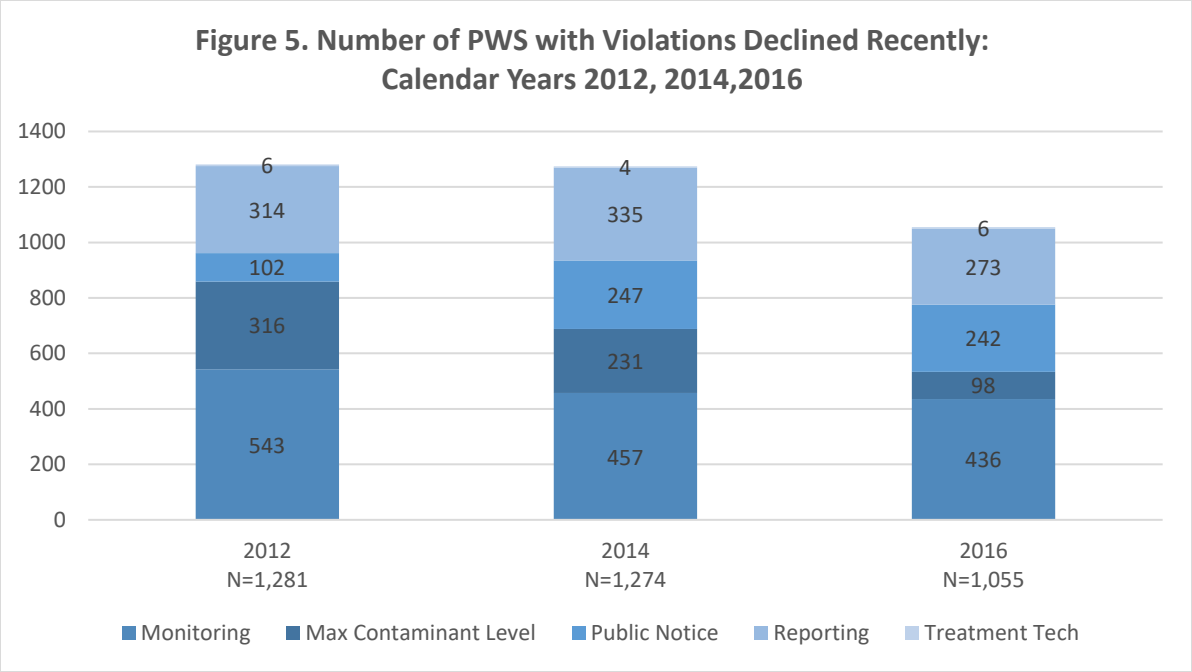


After a decline between 2012 and 2014, the total number of violations increased in 2016 by 34%. Increases in monitoring violations, which grew 41% between 2012 and 2016, largely drove the increase. DPH informed us that 2016 was the end of a 3-year compliance period when more required sampling occurred for certain public water systems. This, in turn, caused an increase in the number of monitoring violations.

Treatment technique and maximum contaminant level violations decreased over the period by 82% and 77% respectively. Treatment technique violations are generally small in number and are subject to wide swings on a percentage basis. DPH attributes the decline in MCL violations to elimination of the total coliform violation category, which represented a large portion of MCL violations. This was due to the federally mandated Revised Total Coliform Rule in 2016 and the elimination of state physical parameter violations (i.e., color, turbidity, pH), because DPH believes these are not health-related concerns.

Number of PWSs with violations has declined. Figure 5 shows the number of public water systems with violations by the type of violation. Thus, when we combined the data in the two figures, it shows, for example, there were 436 systems with 2,452 monitoring violations in 2016, compared to 2012 when there were 543 systems with 1,722 monitoring violations.

The total in Figure 5 counts a public water system more than once if it had more than one type of violation. We also calculated the total number of systems that had violations regardless of how many different types of violations it had in each year. This number also declined. In 2012, there were 945 systems, or 37% of all PWSs, that had one or more violations, and by 2016, this number declined to 749, or 30% of all PWSs, (a 21% decrease).



There are more transient non-community systems, and they have the most violations. Table 2 compares the percentage of public water systems by type to the percentage of systems with violations and percentage of total violations for calendar years 2012 through 2016. It shows that the percentage of systems with violations nearly matches the percentage of PWSs overall.

Table 2. Transient Non-Community Water Systems Have the Most Violations Overall: Calendar Years 2012-2016

Type	# PWSs	% of Total	# Systems with Violations	% of Total	# Violations	% of Total
Community	517	21%	425	21%	4,142	29%
Transient Non-Community	1,453	58%	1,206	59%	6,450	46%
Non-Transient Non-Community	530	21%	421	21%	3,513	25%
Total	2,500	100%	2,052	100%	14,105	100%

Although transient non-community systems had the most violations, community and non-transient non-community systems had a higher percentage of total violations compared to their percentage of systems. One reason for this may be that those systems are highly regulated and are required to test for more types of contaminants.

Enforcement Action Trends

DPH uses informal and formal enforcement tools to achieve compliance by violators. DPH uses 2 informal enforcement mechanisms. The main informal enforcement tool is the notice of violation (NOV); it is an administrative mechanism, not found in statute. By practice, DPH issues an informal NOV for most violations and notifies a public water system to comply or face a formal enforcement action. For maximum contaminant levels, monitoring, and treatment technique violations, informal NOVs include the requirement that a PWS must issue/post a public notice to its customers about the violation. Failing to do so can result in a public notification violation and the issuance of another informal NOV.

A second type of informal action is an exceedance letter. DPH issues this letter when the concentration of copper in water exceeds a certain amount specified in regulations. The letter also specifies that the public water system perform certain actions to mitigate the exceedance. Informal enforcement actions are usually the first DPH enforcement step but, depending on the circumstance, DPH may issue a formal enforcement action if the situation warrants immediate corrective measures.

General authority to issue formal enforcement actions is set out in statute. DPH uses four types of formal actions: notice of violation with a penalty (formal NOV); consent order (CO); administrative order (AO); and referral for civil action.

- A formal notice of violation is a type of DPH order that stipulates that failure to comply with requirements in the order will result in the imposition of a civil penalty. Certain violations related to sanitary surveys are not subject civil penalties.
- A consent order is a signed agreement between DPH and the public water system stipulating that the violation has occurred and including a mutually agreed-upon schedule for corrective action. A CO has the force of a DPH order and is enforceable through a civil action filed with the court.
- DPH uses an administrative order when the severity of the violation warrants immediate corrective action, the historical record of the system justifies such action, or DPH determines such action is necessary. DPH does not have the authority to levy civil penalties within AO. The public water system may appeal the formal NOV or AO to the commissioner.
- The final type of formal action is a referral to the Office the Attorney General for further enforcement action by the court. This action would occur after DPH has exhausted other formal enforcement actions.

Formal actions have declined. Table 3 shows the number of formal actions issued by DPH for violations determined between calendar years 2012-2016. Formal actions increased from 2012 to 2014, but then declined in the following years. Overall, for the 14,105 total violations determined by DPH between 2012 and 2016, there were 1,332 (9.4%) addressed within 356 formal actions. Seventy-three percent of the violations leading to a formal action concerned monitoring violations and 47%involved community water systems.

Table 3. Number of Formal Actions have Declined For Violations Determined Between Calendar Years 2012-2016					
Calendar Year Issued	**Formal Notice of Violation (w penalty)**	**Administrative Order**	**Consent Order**	**Referral**	**Total**
2012	53	1	13	0	67
2013	53	11	0	0	64
2014	93	42	2	0	137
2015	26	11	0	1	38
2016	6	40	0	0	46
2017	1	3	0	0	4
Total	232	108	15	1	356

The use of formal actions had generally declined, even though the number of violations increased. Most of the 356 formal actions (65%) involved the use of formal notices of violation. The least-used action was the referral for civil case filing, which only occurred in one case. A principal reason for the decline in formal actions is that DPH offers technical assistance to repeat offenders with monitoring violations instead of issuing a formal NOV. If repeated technical assistance efforts fail, then DPH issues a formal NOV.

STATE AUDITORS' FINDINGS AND RECOMMENDATIONS

DPH should Improve its Enforcement Practices

Criteria

We examined violations issued in calendar years 2012, 2014, and 2016 to assess the effectiveness of the DPH monitoring and enforcement efforts. Specifically, we examined drinking water enforcement data for compliance with state statutes, regulations, and DPH standard operating procedures (SOP). In addition, we compared current practices to sound management methods that would assist in the achievement of program objectives and serve as an internal control on any undesired actions. Issuing appropriate enforcement actions and ensuring timely compliance with enforcement orders are essential components of the enforcement process. The goal of enforcement is not only to establish liability for noncompliance, but also to correct and prevent further violations.

We discuss our findings related to specific enforcement areas in which we had concerns below. These areas include the issuance of enforcement actions, the appropriate escalation of certain violations per the DPH standard operating procedures, compliance with public notification requirements, the length of time it took violators to return to compliance (RTC), and compliance with formal DPH enforcement actions.

Condition

Many older violations are still open. We reviewed the enforcement data for calendar years 2012, 2014, and 2016 to determine whether public water systems addressed violations, and found many are still open. As presented in Table 4, we found that 2,013 violations of 9,453 (21%) remained open as of October 2017. While not presented in the table, over 600 of the open violations were for maximum contaminant level exceedances. DPH informed us that many of these MCL violations are for physical parameters and "would become non-enforceable" under the new federal Revised Total Coliform Rule changes in 2016.

Table 4. About 20 Percent of All Violations are Still Open, Some with No Enforcement Actions or Have Not Been Escalated: Calendar Years 2012, 2014, 2016

CY	Total Violations	Number of Open Violations	% of Violations Still Open	Number of Open Violations with No Escalation to Formal Action	Number of Open Violations with No Enforcement Actions
2012	3,405	768	23%	376	36
2014	2,585	542	21%	526	15
2016	3,463	703	20%	633	100
Total	9,453	2,013	21%	1,535	151

Of the 2,013 total open violations, we also found that over 400 public notification violations were still open. DPH could not readily justify why so many were still open and stated that it would have to conduct a much more detailed review of those public notification records.

Many violations have been open for an extended period. There were 768 (23%)of the 3,405 violations identified in 2012 that were still open as of October 2017. In addition, we found that DPH had not escalated 76% of all open violations to any type of formal enforcement action.

Several violations had no enforcement actions. Although not contained in any statute, regulation, or standard operating procedure, DPH typically issues at least an informal enforcement action for every violation it finds. Table 4 shows that 151 of 9,453(2%) of the total violations identified in the 3years analyzed were not issued any enforcement actions. DPH informed us that it did not record a few of the enforcement actions in SDWIS, some were "most-likely" issued but not documented, and "many" are on hold pending further investigation.

No enforcement escalation where required. DPH considers certain chemical maximum contaminant level violations as acute health hazards, the effects of which could be so serious that the violator must quickly address them. Two of those chemicals are nitrates and nitrites. DPH changed its standard operating procedure in June 2015. DPH informed us that if a public water system fails to monitor for nitrates/nitrites 60 days after it issues an informal notice of violation, then DPH would issue a formal notice of violation with penalties. We found 100 violations of failure to monitor for nitrates/nitrites in which the systems exceeded the 60-day requirement but did not receive a formal NOV over the five-year period (22 of those cases were post-June 2015).

Public notifications not issued in a timely manner or at all. As noted above, maximum contaminant level, monitoring, and treatment technique violations require that systems send or post public notifications to notify customers of the violation. DPH tracks the number of violations that require a notification, the date that the system posted or sent the notification to a customer, and the date DPH received certification from the offending public water system documenting that it completed the notification requirements.

We examined the 6,647 violations that required a public notification in the DPH database for calendar years 2012-2016 and found:

- Sixty-six percent of the notifications were completed and included a completion date and a certification of completion;
- Seven percent of the notifications were missing a completion date, but had a certification date. We did not determine whether these notifications were also completed;
- Twenty-seven percent were missing a completion and a certification date, meaning these notifications were not posted or sent to customers as required;
- Fifteen percent of the notifications exceeded the time allowed by DPH. The average exceedance was 200 days over; and

- Twenty-nine violations that required a one-day public notification, for the most serious of violations, exceeded the immediate (one-day) requirement for notification to customers by an average of 148 days.

Some violators did not receive a public notification violation. The public water systems that do not issue a public notification or issue a public notification within the required timeframe could receive a public notification violation. DPH notes that it usually does not pursue violations for late public notification, even for public notification requirements involving the most serious substances. Thus, DPH did not issue a violation to 15% of the late notifications noted.

We also examined 251 maximum contaminant level violations that *did not* have a public notification completion date that were associated with active public water systems. We found that at least 12 of those violations did not receive a required public notification violation. Due to limitations of the database information, we could not test other violations that did not have a public notification completion date.

Public notification and water testing performed by DPH is uncommon. We also noted that DPH rarely performs sample testing or provides public notification to water customers when their public water system fails to do so. As noted above, PWSs did not issue over 25% of the required public notifications over the last 5 years.

DPH estimates that it has performed sampling or provided public notification in lieu of a noncompliant public water system less than 5 times in the last 5 years. Sample testing and public notifications are important to protecting public health and safety.

No timeliness standard for compliance. DPH does not have standardized timeframes for violators to return to compliance (RTC). DPH informed us that it prioritizes acute violations for formal actions. When DPH initiates formal actions, it will determine individual timeframes for the system to return to compliance within certain DPH orders, on a case-by-case basis. We further analyzed compliance with DPH orders below. DPH also has few guidelines for the escalation of a violation if the public water system does not comply within a particular timeframe.

We compared the number of days it took water systems to return to compliance between calendar years 2012 and 2016 by violation category. Table 5 shows that the median number of days it took for public water systems to return to compliance increased for 3 categories of violations (Maximum Contaminant Level, Reporting, and Treatment Technique) and decreased for 2 (Monitoring and Public Notice).

Table 5. Median Number of Days it Took for Violators to Return to Compliance Has Increased in Three Categories: Calendar Years 2012 & 2016			
Violation Category	**Median # of Days 2012**	**Median # of Days 2016**	**% Change**
MCL	52	81	56%
Monitoring	63	41	-35%
Public Notification	172	8	-95%
Reporting	61	72	18%
Treatment Technique	58	279	380%

We examined the maximum number of days it took for 2012 closed violations to return to compliance and the percent of violations that took over 400 days to comply for all violations between calendar years 2012 and 2016. As presented in Table 6, some violators in 2012 took multiple years to return to compliance.

Table 6. Some Violators Take Years to Comply; 5% Percent of All Violations Took Over 400 Days to Return to Compliance		
Violation Category	**2012**	**% of Violations That Took Over 400 Days to RTC (CYs 2012-2016)**
MCL	1,653	6%
Monitoring	1,796	5%
Public Notification	1,575	7%
Reporting	1,806	4%
Treatment Technique	158	n/a

The table also presents the percentage of violations, by violation type, that took over 400 days to return to compliance. The percentage ranged from 4% to 7% for all violations with an average of 5% overall. The Drinking Water Section noted that 400 days to close a violation might be too long in some cases and not long enough in other cases. While some maximum contaminant level violations may require the installation of filters or other treatment equipment necessitating an extended period, it is unclear why monitoring, public notification, and reporting violations should take that long. It does not appear that DPH has a system to sufficiently monitor and track these overages.

Compliance with DPH orders is not timely. To understand how well DPH orders (i.e., formal notices of violation, consent orders, and administrative orders) are complied with, we analyzed a DPH database of orders issued for violations identified between calendar years 2012 and 2016. The database contained 272 separate orders with 30,866 items that public water systems had to complete.

As Table 7 shows, we found that public water systems corrected about half of the order items. In addition, we found that PWSs completed 18% of the items past their due date.

Table 7. About Half of the Items Required in Orders Have Not Been Achieved for Violations Determined in Calendar Years 2012-2016		
Number of Items to be Achieved	30,366	100%
Number of Items Achieved	15,654	51%
Number of Items Achieved Past Due Date	2,873	18%
Number of Items Not Achieved	15,212	49%

We arrayed the 15,212 items that PWC did not complete by their due date, as summarized in Table 8. As we would expect, some items are due in a future year (2018), while the overwhelming majority are well past due.

Table 8. 80 Percent of Items in Orders Still Not Achieved Were Due Prior to 2016		
Year to Be Completed	**Number Not Achieved**	**% of Total Not Achieved**
2012	398	2.6%
2013	7,248	47.6%
2014	2,226	14.6%
2015	2,161	14.2%
2016	56	0.4%
2017	3,100	20.4%
2018	11	0.1%
Missing	21	0.1%
Total	15,212	100.0%

Effect

Ineffective oversight of enforcement efforts results in inconsistencies in enforcement; provides an unfair advantage to systems that remain noncompliant with no penalty; and can negatively affect the health and well-being of Connecticut's citizens.

Cause

DPH has recently shifted its enforcement focus to returning violators to compliance using cooperative measures rather than perceived punitive measures, such as escalating enforcement actions and imposing penalties. This may be affecting timeliness of actions. It is unclear why DPH does not issue or escalate enforcement actions per existing procedures.

Recommendation

The Department of Public Health should assess its enforcement processes and develop better management practices and tracking systems to ensure that it issues appropriate enforcement actions for all violations and closes violations in a timely manner. The department should also escalate enforcement action, if needed, to ensure violators comply with orders. (See Recommendation 1.)

Agency Response: "The Department agrees with this recommendation. Over the period of time covered by this audit, DWS staffing resources were limited. New management practices will be developed to better ensure that: 1) appropriate enforcement actions are issued for all violations; 2) violations are closed in a timely manner; 3) enforcement actions are escalated as required; and 4) DPH departmental orders are complied with as required."

The Department of Public Health should develop written guidelines to prescribe when it should provide public notification and test water samples in the event a public water system fails to do so, especially for acute public health violations or when the system is noncompliant for an extended period. (See Recommendation 2.)

Agency Response: "The Department prioritizes and dedicates well trained, experienced engineering and management staffing resources to directly address all acute risk violations and conducts comprehensive in person technical assistance and sampling as necessary. The Department agrees that a formal policy should exist to assure public health is protected for acute public health violations or when the system is noncompliant for an extended period of time. This Policy will consider when the DPH would move forward with provision of the public notice and testing. There is no specific Safe Drinking Water Act requirement for the Department to provide public notification and test water quality when a public water system fails to do so."

The Department of Public Health should develop specific written guidelines for the escalation of enforcement actions from informal to formal, including the imposition of civil penalties. The department should clearly define appropriate enforcement timeframes, particularly for health-based violations. It should also monitor and report the performance of its enforcement actions in its annual compliance report, including the median number of days it takes for violations to return to compliance by violation type and number of remaining open violations at year-end. (See Recommendation 3.)

Agency Response: "The Department agrees with this recommendation and will continue to refine existing SOPs and develop new ones as necessary as it concerns escalation of enforcement actions from informal to formal including the imposition of civil penalties. The Department will consider including these measures to the Annual Compliance Report as staffing resources are available."

The Department of Public Health Rarely Assessed or Collected Civil Penalties for Drinking Water Violations

Background

Civil penalties are one of the enforcement tools that DPH can use to hold public water systems accountable and can be a factor in enhancing the efficiency and effectiveness of enforcement

efforts. Generally, DPH has wide latitude in how and when it may impose a civil penalty on any public water system that violates certain laws or regulations related to the purity of drinking water.

According to Section 25-32e(c) of the General Statutes, if a violation has occurred, "the commissioner *may* impose a penalty if compliance is not achieved by a specified date" (emphasis added). Regulations establish that water companies serving 10,000 or more persons that DPH finds in violation of water quality laws may be subject to a penalty of $5,000 per day per violation. Water companies that serve fewer than 10,000 persons can be subject to a range of penalties from $30 to $5,000 per day per violation, depending on the type of violation. After DPH assesses a penalty, the department's collection procedures require at least three attempts to collect on any delinquent account. When those attempts are exhausted, DPH may refer the case to the Department of Administrative Services (DAS) for further collection efforts.

Criteria

Civil monetary penalties act as incentives for water companies to come into compliance and deter future violations of drinking water statutes and regulations. Ideally, DPH should calculate penalties to recover any economic benefit of noncompliance, including the cost of enforcement, and to compensate for the seriousness of the violation.

Section 25-32e (b) of the General Statutes outlines the minimum factors that DPH must consider when establishing a penalty *for a particular case*. This includes the amount necessary to ensure immediate and continued compliance; degree of impact on water quality; whether the company is taking all steps necessary to correct the violation; extent of prior violations; degree of harm to public health, safety and welfare; and whether the public water system notified its consumers of the violation.

Condition

Limited use and collection of civil penalties. We found that in practice, DPH narrowed the range of violations subject to a civil assessment to a single type of violation. The department does not collect the amount due on most penalties assessed, and adjusts penalties without standard written procedures. We examined five years (Calendar Years 2012-2016) of violation data to determine the trends in the use of civil penalties by DPH. This included the extent to which DPH assessed civil penalties, the types of violations likely to get assessed a penalty, any differences in the types of public water systems assessed a penalty, and how much of the penalties were actually collected. Based on this analysis, we found that:

- DPH rarely assessed a penalty. Of the 14,105 violations we examined over the 5-year period, we found that DPH only assessed a penalty on 617 (4%);

- DPH only assessed a penalty for monitoring violations. Although DPH can assess penalties for various types of violations, including those relating to the level of contaminants in water, public notifications, and treatment techniques, it only

assessed penalties for monitoring violations;

- DPH assessed fewer penalties in recent years. The trend in assessing penalties increased from calendar years 2012 to 2014 and declined to below 2012 levels by 2016. For example, the percent of violations with a penalty assessed was 3% in 2012, rose to 9% in 2014, and declined to 2% in 2016. A similar reduction is evident when we compared monitoring violations with a penalty as a percent of all monitoring violations;

- DPH assessed penalties against some types of public water systems at a higher rate. Although community systems have a somewhat higher percent of total monitoring violations versus non-transient non-community systems (31% vs 25%), community systems have a much higher percent of monitoring violations that resulted in a penalty (43% vs. 8%);

- DPH only collected a small portion of penalties it originally assessed. We found that DPH did not collect for more than half of the violations that were assessed a penalty. In addition, between 2013 and 2017, receivables were as high as $20 million in a single year. However, total collections for the entire 5-year period were $6,880. This occurred because, between 2014 and 2017, one public water system was responsible for more than 90% of the yearly receivable amount. This system was referred to the Office of Attorney General for enforcement; and

- DPH did not comply with its own procedures to send collection letters on delinquent accounts. DPH requires that collection letters be sent to delinquent accounts at 60, 90, and 120 day intervals. We found that for outstanding penalties, only 42% received the 60-day letter, 15% the 90-day, and 8% the 120-day. DPH did not forward any of these to DAS for collection assistance.

No documentation to support the reduction of penalties. We found that DPH either partially or fully cancelled at least 14% of all violations with a penalty. After the issuance of an order, public water systems often claim they cannot pay the penalty due to its daily compounding effect. DPH usually tries to negotiate a consent order with the public water system to bring it into compliance. In some cases, DPH will try to obtain at least a one-day penalty and waive the balance. In other cases, DPH waives the entire penalty. It is unclear why DPH waives the entire amount in some cases and not in others.

DPH did not document the reasons it waived or reduced penalties specific to the factors required by statute, nor does it have a formal written civil penalty policy for the Drinking Water Section to provide guidance to staff when a penalty reduction or elimination would be appropriate. The DPH Fiscal Services occasionally maintains a record of receivables and notes when it has changed an administrative order to a consent order (usually with a reduction or elimination of the penalty). However, DPH does not always explain the reasons for the change.

One of the factors that DPH should weigh, according to the statute cited above, is whether the public water systems have notified consumers about violations. Our analysis noted that public notification violations might linger for years. It is unclear how or if DPH weighs this factor in its decision-making.

Other violations eligible for civil sanction. As we have noted, DPH appears reluctant to impose penalties for violations other than monitoring violations, even if the violation could have a health impact. In the previous analysis, we found violations that did not return to compliance in a timely manner with 20% remaining open. Civil penalties could provide incentives for compliance in some of these cases.

Sanction authority limited in certain cases. DPH does not currently have the authority in state statute or regulation to levy a penalty for recently passed federal rules (e.g., Groundwater Rule and Revised Total Coliform Rule) or for certain violations cited during sanitary surveys.

No analysis of civil penalty use. Finally, DPH does not perform or provide any periodic analysis of its use of civil penalties. It does report the number of orders with assessed civil penalties in the Public Water Systems Annual Compliance Report, but it does not report the amount assessed or the total collected. A basic analysis of current practices, outcomes, and optional approaches may provide for a more effective use of civil penalties.

Effect

Civil penalty practices at DPH for water quality violations raise concerns. By only assessing penalties for one type of violation, DPH risks diminishing the efficacy of its enforcement efforts for other types of violations. It sends a signal, even if inadvertent, to public water systems that the correction of other types of violations is not as important. Without the assessment of penalties, the noncompliant violator only risks having to do what the law already requires. DPH also reduces or eliminates a significant number of penalties. These practices may diminish the likelihood of prompt compliance and may unnecessarily expose consumers to extended public health risks.

The goal of any civil penalty policy or adjustment procedure should be to assist staff in administering and calculating appropriate, fair, and consistent monetary penalties for violators. Without that guidance, inconsistent application of penalties can occur and the regulated community ultimately receives different messages about violations.

Cause

DPH currently chooses to emphasize the provision of technical assistance (e.g., site visits, one-on-one counseling, workshops, and resource referrals) to public water systems with regulatory violations rather than impose penalties as the best way to bring violators back into compliance. DPH staff view the assessment of civil penalties as inflexible and of limited enforcement value. They believe that multi-day compounding of penalties raises the total penalty to unrealistically high amounts. Small systems, in particular, claim they cannot afford such high penalties and have

limited management and financial resources to address regulatory requirements. Furthermore, the staff believes the DPH process to record and track the assessment of penalties within Core-CT is cumbersome and may discourage its use.

There may always be some question whether the best way to achieve compliance is through cooperative mechanisms or traditional enforcement approaches (e.g., orders and penalties). The debate is not necessarily about the usefulness of either approach, but about how best to achieve an appropriate balance between the two. It is difficult to determine whether DPH has met this balance without clear policies and documentation of its efforts and a continued analysis of those enforcement efforts. Although the regulations establish some stringent penalties, DPH has the exclusive ability to reduce those penalties. However, the current process for repeat violators can be an extensive and unwieldly process. It involves the issuance of a formal order, civil assessment calculation, subsequent negotiation of a consent order, and the ultimate dismissal of any penalties.

Recommendation

The Department of Public Health should assess its current civil penalty regulations, civil assessment calculation method, and the actual use of civil penalties. The purpose of this assessment is to ensure that those regulations and practices remain consistent with current water purity objectives, include all regulatory violations, consider the seriousness of violations, and determine whether DPH can realistically collect the final penalties. (See Recommendation 4.)

Agency Response: "The Department agrees with this recommendation and has worked over the past three years to move forward with a statutory change regarding civil penalties for public water systems which reflects items identified in this recommendation. As previously stated, the Department will refine existing SOPs and develop new SOPs that address the DWS civil penalty enforcement methodology and collection practices and any deficiencies and will allow for sufficient flexibility in the administration of civil penalty assessments to ensure compliance without excessive penalty. Once the proposed statute has passed, all civil penalty SOPs will reflect any modifications as required."

The Department of Public Health should develop comprehensive civil penalty policies and procedures that:

a. **Provide adequate guidance to staff in calculating, adjusting, and recording penalties to ensure practices are appropriate, fair, and consistent with statutory requirements;**

b. **Consider the use of penalties for a broader range of violations or articulate explicit strategies for violators that do not receive a civil penalty to follow to achieve compliance in an expeditious manner; and**

c. **Outline specific escalation procedures to ensure timely enforcement of water**

quality violations. (See Recommendation 5.)

Agency Response: "The Department agrees with this recommendation and as noted above will refine existing SOPs and develop a new civil penalty SOP. The Department will evaluate the effectiveness of the use of civil penalties and consent orders for public water systems with a primary focus toward returning the system to compliance and the protection of public health."

The Department of Public Health should develop and implement a standardized penalty calculation worksheet to use in every case that imposes a penalty. The worksheet should show the evolution of the final penalty calculation, including any adjustments to the penalty amount, the rationale for those adjustments, a listing of the various orders issued for the same violations, and the final amount collected. (See Recommendation 6.)

Agency Response: "The Department agrees with this recommendation that a standardized penalty calculation worksheet will be developed and used for imposing a civil penalty in every case which will be included as part of the civil penalty SOP."

The Department of Public Health should ensure compliance with collection procedures for delinquent accounts to confirm that the department made all reasonable efforts to collect penalties. (See Recommendation 7.)

Agency Response: "The Department agrees and will assure compliance with department collection procedures."

The Department of Public Health should annually report the amount of civil penalties it assessed and collected in its Public Water Systems Annual Compliance Report. (See Recommendation 8.)

Agency Response: "The Department agrees with this recommendation to annually report the amount of civil penalties assessed and collected in the Public Water Systems Annual Compliance Report and will include this information in the next annual report due this year in June 2018."

Civil Penalties Receivables and Receipts Were Not Properly Recorded

Criteria

The DPH Fiscal Services unit has a Civil Penalty Receivables Procedure Manual, approved April 1, 2014, which establishes the responsibilities of the Drinking Water Program and the Fiscal Services unit in administering civil penalties. The manual specifies that the program is responsible for entering the civil penalty amount in Core-CT to establish an invoice for each citation. DPH should complete this process at the time it issues the citation. The Civil Penalty Receivables Procedure Manual also specifies that Fiscal Services is responsible for preparing year-end reconciliations based on receivables established in Core-CT, maintaining monthly reports, and sending copies to the program. In addition, according to the State Accounting Manual (SAM), the person opening the mail should record the receipt information on the appropriate form.

Condition

Since January 2014, DPH entered 126 unique invoices into Core-CT as civil penalty receivables of the Drinking Water Section. DPH did not reconcile the program's internal citation tracking system to Core-CT. As presented in Table 9, we were only able to verify that DPH entered 2 of the 126 citations into Core-CT on the same day it issued a citation. DPH could not reconcile many records between the two systems due to the inconsistent use of unique identifiers in the systems, such as invoices. In the Drinking Water Section, one employee receives checks and another employee records them on the form.

Table 9. Days Until Recorded in Core-CT	
Same Day	2
15 Days or Less	11
16 to 30 Days	5
31 to 90 Days	11
Greater than 90 Days	8
Unable to Reconcile	89
Total	**126**

Effect

The Drinking Water Section does not include penalty amounts in Core-CT in a timely manner. DPH cannot reconcile information between Core-CT and the Drinking Water Section's system. In addition, DPH may not be safeguarding the receipts properly.

Cause

The DPH Fiscal Services and Drinking Water Sections are not meeting their responsibilities as defined within the DPH Fiscal Services' Civil Penalty Receivables Procedure Manual. DPH is not following the State Accounting Manual procedures for receipts.

Recommendation

The Department of Public Health's Fiscal Services and Drinking Water Sections should ensure that they reflect collection information and receipts related to civil penalties in Core-CT. (See Recommendation 9.)

Agency Response: "The Department agrees with this recommendation. The Drinking Water Section will work with Fiscal Services to ensure that procedures are followed effectively to assure that information related to civil penalty accounts receivable are fiscally sound and are reflected in Core-CT, the State of Connecticut's official book of record. The procedures for receiving and processing incoming mailed receipts will be included in the civil penalty SOP."

Sanitary Survey Process Performance was Mixed and Lacked Certain Monitoring Efforts

Criteria

The federal Ground Water Rule requires states to identify public water systems at risk of increased microbial contamination. Sanitary surveys are a critical component for states to evaluate eight different factors related to PWSs to help ensure they offer quality water to the public. Sanitary surveys are on-site inspections conducted by trained DPH inspectors to examine the adequacy of a system's sources, operations, and distribution of safe drinking water.

Section 19-13-B102(e)(7)(E)(ii)(I) of the Regulations of Connecticut State Agencies and the DPH separate standard operating procedures for Ground Water Rule enforcement and sanitary surveys require the frequency of sanitary survey inspections and specific reporting standards for certain types of regulatory violations. Community water systems must undergo a sanitary survey at least once every three years, and inspections of non-community systems must occur at least once every five years.

Sections 19-13B102(e)(7)(E)(iv)(II-IV) of the Regulations of Connecticut State Agencies outline timeframes for when certain parts of the sanitary survey process must occur, including the resolution of significant deficiencies (i.e., those posing imminent health risks). If DPH finds one or more significant deficiencies during an inspection, the public water system is required to correct the deficiency or comply with a DPH-approved corrective action plan and schedule. Either of those actions must occur within 120 days of the sanitary survey report or by an extended deadline approved by DPH. If not, the system incurs a treatment technique violation under the federal Ground Water Rule.

Condition

The number of completed annual sanitary survey inspections has decreased recently, but still exceeds requirements. We examined sanitary survey workload data for calendar years

2012 through 2016 to determine the number of inspections required by public water system type and the number actually completed. Overall, we found that DPH consistently exceeded its required number of annual inspections, but there has been a steady decline in the ratio of completed surveys to required surveys since 2014.

As presented in Table 10, DPH surpassed its required number of inspections by 12% for the five-year period, with the annual number of completed inspections ranging from 3% to 26% over the required number. However, since 2014, the percentage of completed inspections decreased to a five-year low of 3% in 2016. While DPH continues to exceed its required number of annual inspections, the recent decline in completed surveys could continue, a condition DPH should monitor.

Table 10. Trend In Completed Sanitary Survey Inspections Has Decreased In Recent Years, But Annual Goals Still Exceeded: CYs 12-16

Calendar Year	Required	Completed	Percent Completed
12	466	539	116%
13	599	663	111%
14	486	614	126%
15	590	625	106%
16	568	585	103%

The time between sanitary survey inspections has remained relatively stable, either at or slightly above the required levels. We examined the number of completed sanitary surveys to determine the average time between the last and current inspections by type of public water system. Table 11 shows that the length of time between inspections was either at or slightly above the required times for each type of public water system. While the table shows no appreciable anomalies based on the average time between inspections, there were individual cases in which DPH exceeded the required time between inspections by relatively long periods.

Table 11. Average Time (in Years) Between Sanitary Surveys Has Been Consistent Calendar Years 12-16

Calendar Year	Community (≤ 3 years)	Non-Community (≤ 5 years)	Non-Transient Non-Community (≤ 5 years)
12	3.2	5.1	5.0
13	3.0	5.2	5.3
14	3.0	5.3	5.1
15	3.0	5.1	5.0
16	3.0	5.2	5.1

Overall, process timeliness could improve. DPH uses several key reporting milestones within the sanitary survey process for violations resulting from a sanitary survey inspection. We examined sanitary survey data for calendar years 2012 through 2016 for overall process timeliness. DPH provided us data for all violations incurred during sanitary surveys conducted within a

specific year, and the findings are below.

Inspection to report. The DPH standard operating procedure for sanitary surveys states that reports identifying significant deficiencies must be sent within 30 days "of the identification and verification of such violation," and 60 days for all other violations. DPH, however, has inspectors use the 30-day standard for all violation types.

- In all but one of the last five years, over half of all inspection reports exceeded the 30-day period, and ranged from a high of 83% of reports in 2013, to a low of just under 33% in 2016.

Report to response due. By regulation, public water systems have no later than 30 days from receipt of the report to "consult" with DPH about correcting any cited deficiency. They have up to 45 days to request DPH approval of their action and proposed schedule to correct any deficiency through a corrective action plan (CAP). In practice, DPH uses a 30-day standard for both requirements and uses the date it sent the report as the start date. Moreover, not all inspection reports require a formal response. For significant deficiencies at this stage, it is DPH practice to require the public water system to indicate that it either corrected any deficiency cited in the inspection report or submitted a CAP for approval.

- There was a high degree of missing information in the public water system data concerning when DPH received responses from PWSs. Inspectors are not consistently entering the required information into the drinking water database or public water systems are not responding to DPH on time. Based on other information (e.g., CAP received or deficiency resolution date) provided for violations for missing their response receipt dates, we believe it is likely due to inconsistently entering information into the system.

- Relevant information available in the database shows public water systems did not respond to inspection reports on time. Systems exceeded the 30-day standard in 14% to 26% of all violations, with no identifiable yearly trend.

Inspection report to 120 days. Public water systems with significant deficiencies must correct the deficiency or have a plan of correction approved by DPH in place within 120 days from the date of the inspection report. (We did not use approved CAP requiring longer than 120 days for correction of a significant deficiency for this analysis). We found:

- The public water systems in compliance with the 120-day requirement averaged 98 days, and a median of 58 days;

- On an annual basis, systems not in compliance with the standard steadily decreased from 37% in 2012 to a five-year low of 8% in 2016; and

- The average number of days that public water systems exceeded the 120-day

threshold gradually decreased from 433 to 59 over the five years, and the median number of days declined from 245 to 48. While this trend generally indicates that public water systems improved at meeting the standard, it also shows there have been systems with significant deficiencies that did not fully comply with the requirement in the last five years.

A percentage of significant deficiencies remains unresolved. An indicator of water quality that has potential public health ramifications is the frequency of unresolved significant deficiency violations. Significant deficiencies can result from any of the eight categories evaluated during a sanitary survey. DPH indicated it places a high priority on addressing significant deficiencies stemming from sanitary surveys.

As presented in Table 12, 9% of significant deficiencies, identified during annual sanitary surveys conducted from 2012 through 2016 for active public water systems, lacked dates indicating when the deficiencies had been resolved (as of November 2017). The yearly rates of unresolved significant deficiencies ranged from a low of 2% in 2016, to a high of 24% in 2013. We are more concerned that 14% of the significant deficiencies found during inspections conducted in 2012 (5 years ago) remain unresolved at the time of this analysis.

Table 12. Unresolved Significant Deficiencies Have Decreased in Recent Years, But Some Remain In Drinking Water Database

Calendar Year	Significant Deficiencies	Resolved/Other*	Not Resolved
12	213	183	30 (14%)
13	260	197	63 (24%)
14	337	328	9 (3%)
15	270	260	10 (4%)
16	164	160	4 (2%)
Totals	1,244	1,128	116 (9%)

*Includes deficiencies with resolved dates, inactive PWSs, and systems with CAP resolution dates of November 2017 or beyond.

Effect

While DPH consistently exceeded the number of required sanitary survey inspections, it reached a 5-year low in 2016. If the number of on-site public water system inspections does not meet the minimum annual standard, there is an increased risk of water quality problems occurring within such systems. Regular monitoring of the sanitary survey process, designed to anticipate any potential shortfall in the number of annual inspections conducted in relation to required inspections, should help alleviate any discrepancy.

Delays in public water systems properly reporting their progress on addressing deficiencies found during sanitary surveys could mean problems go uncorrected. This can adversely affect the safety of public drinking water and, ultimately, public health. In addition, information gaps in the

DPH automated drinking water database undermine the usefulness of information gathering on vital public water system operations. The lack of sanitary survey data for DPH to analyze may result in decreased oversight of the inspection process. This could possibly lead to undetected problems that could compromise the integrity of public drinking water.

Cause

Sanitary surveys play a vital role in assessing public water system operations and help DPH enforce standards to safeguard water quality. The ability to conduct on-site inspections provides regulators with essential information about conditions that could affect drinking water safety. The sanitary survey process works best when the systems adhere to the requirements of the process and when DPH properly manages program performance through the sufficient collection and analysis of sanitary survey information. PWS deviation from any process standards or a lack of proper oversight by DPH undoubtedly increases the risk of water quality issues.

DPH created an important database containing critical water quality information (SDWIS), including sanitary survey information. SDWIS is essential to the state's overall regulation of public drinking water quality. The degree of missing sanitary survey information discovered during our review, however, suggests either PWSs have not fully complied with the sanitary survey requirements or DPH has not entered the appropriate information into the drinking water database.

DPH noted that calendar years 2012 and 2013 were transition years for sanitary survey inspectors to enter information into SDWIS. As such, some data may not be reliable and could account for the higher number of unresolved significant deficiencies in those two years. At that time, DPH did not require supervisors to check the sanitary survey information that individual inspectors entered into SDWIS to ensure its quality. In addition, DPH did not offer appropriate training to inspectors on data entry procedures, despite the department having a formal standard operating procedures manual since early 2011. While the automated data system for sanitary surveys has become more refined and inspectors are more adept at using it, there are still unresolved significant deficiencies for active public water systems in SDWIS, because they have not been formally closed out or have not fully complied with DPH requirements.

Recommendation

The Department of Public Health should examine whether significant deficiencies resulting from public water system sanitary survey inspections conducted in past years remain unresolved beyond their required resolution dates. DPH should prioritize cases and take any necessary formal enforcement to ensure deficiencies are resolved, and should update the drinking water database as necessary. (See Recommendation 10.)

Agency Response: "The Department agrees with this recommendation. The Department has recognized this issue and has developed a significant deficiency tracking report for public water systems in 2016 that staff, supervisors and management track on a weekly basis to assure compliance, including any necessary formal enforcement. Unresolved significant deficiencies

since 2014 have been prioritized for staff follow-up and closure or referral to the Enforcement Unit for formal enforcement."

The Department of Public Health should continue to monitor sanitary survey unit resources, training, and procedures to ensure the number of completed yearly inspections continues to meet or exceed the number required under state regulation. If the department anticipates a shortfall in any given year, it should take the necessary steps to boost the number of inspections to ensure that it meets regulatory requirements. (See Recommendation 11.)

Agency Response: "The Department agrees with this recommendation and will continue to closely monitor sanitary survey unit resources, training, and procedures to ensure that all required sanitary surveys each calendar year are completed. As you noted the Department has continually met or exceeded the regulatory requirements for conducting sanitary surveys which is a core element of our program."

The Department of Public Health should ensure that its sanitary survey staff enters timely, complete, and accurate data into the department's automated system for drinking water. DPH management should have appropriate monitoring in place to ensure the database contains the necessary sanitary survey information for proper oversight. (See Recommendation 12.)

Agency Response: "The Department agrees with this recommendation. The existing Sanitary Survey SOP is currently being updated with increased emphasis on timely and accurate data entry and incorporates the use of field based technology known as SWIFT, which will assist in implementing consistent approaches for data entry. SWIFT has been a five year investment for the DPH DWS staff, transforming our survey process based on a 2013 LEAN/Quality Improvement project into a paperless, consistent process to streamline compliance with field identified violations. Sanitary Survey staff will be fully trained on the updated SOP once it is finalized. The Department further agrees that quarterly supervisory and management reviews would be beneficial and will develop additional tools to implement this action by the end of 2018."

The Water Sampling Process had Limited Oversight

Criteria

Accurate water sampling and testing are necessary to ensure that drinking water meets required quality standards. DPH should consider the entire sample collection and testing process to ensure the integrity of water samples. Public water systems must test their water supply for various contaminants on a regular basis and report the results to DPH. Generally, the systems that serve a larger population on a continuous basis are required to test their water more often. The type of PWS (community or non-community) and the water source (surface or groundwater) determine which contaminants DPH must monitor.

Most public water systems contract with an independent certified laboratory to analyze water samples from their systems using complex tests. Some large PWSs, like the Metropolitan District Commission, operate in-house certified labs. PWS are required to report results to DPH no later than 9 days after the close of the monitoring period (usually, a monthly, quarterly, or annual basis).

Condition

It is in the best interest of public water systems to provide safe, reliable, and high quality drinking water to their customers and for water testing laboratories to provide the systems with accurate results. Nonetheless, our review of the water sampling process raised integrity concerns involving the possibility of fraud or inappropriate practices that could misrepresent water quality. Specifically, we focused on certain areas in which DPH has regulatory responsibilities. Those responsibilities include reviewing sampling plans, regulating personnel who collect water samples, and certifying testing laboratories.

Sampling plan. Section 19-13-B102(e)(7)(D) of the Regulations of Connecticut State Agencies requires public water systems to submit written sampling site plans to DPH for certain types of substances (i.e., total coliform, physical parameters, lead and copper, asbestos, and disinfectants). The plans include a sampling point inventory form and a map of the system that provides a layout of the treatment facilities and the distribution system. These plans are subject to DPH review, revision, and approval.

Sampling personnel. Regulations related to who may collect water samples are specific in certain areas and silent in others. The regulations specifically state that persons allowed to collect water samples include technical personnel employed by an environmental laboratory, a certified distribution operator, a certified treatment plant operator, a sanitarian, or a DPH employee. In some cases, a person under the direct supervision of either a certified system or treatment plant operator or a certified laboratory may collect water samples.

Regulations also require that public water systems collect samples from single-family structures to test for lead and copper and permit residents to collect those samples after the water company has provided them instructions.

Laboratories. DPH regulates laboratories that test drinking water through the Environmental Laboratory Certification Program (ELCP). This program registers and approves all environmental laboratories (private, municipal, and industrial non-commercial) granting certification for testing of drinking water, wastewater, sewage, solid waste, soils, and other environmental samples for microbiologicals, inorganics, organics, and radiochemicals. DPH bases certification of these labs on the labs generating acceptable quality control data, periodically demonstrating the ability to successfully test for specific chemical components, and passing audit requirements every 3 years. In September 2017, there were 73 certified environmental labs in Connecticut (26 tested drinking water) and 107 certified out-of-state labs. DPH bases out-of-state lab certification on a reciprocity agreement between the department and the lab's home accrediting authority.

DPH laboratory audit. The Environmental Laboratory Certification Program staff conduct a technical audit of how laboratories analyze water samples. There are several elements to this audit, including a review of water sample collection and tracking records maintained by the laboratories. ELCP staff: 1) review the standard operating procedures for sampling 2) review records associated with sample collection, receipt, and storage, including chain-of-custody documents, and 3) interview laboratory staff responsible for sample receipt to corroborate with documentation.

Each analytical method specifies how a laboratory needs to collect a sample to accommodate the testing procedure. If a sample collector deviates from the specified collection procedure, it could compromise the results. Sampling procedures dictate that laboratories use certain types of bottles, require the use of preservatives, have temperature restrictions, and establish sample expiration dates.

APA file review. To determine the prevalence of sampling issues in the laboratory audit process, we reviewed all the water laboratory inspection reports for 2016 and interviewed Environmental Laboratory Certification Program inspection staff regarding specific cases over the last seven years in which ELCP found fraudulent actions. We noted that ELCP found water-sampling deficiencies in the last year regularly through lab inspections, though most were not serious. We found 3 instances in which ELCP suspected fraudulent sampling activities in the last 7 years.

Table 13. Summary of ELCP Inspections of Drinking Water Laboratories: Findings Related to Water Sampling, 2016	
Number of Labs	
Labs reviewed by ELCP in 2016	22
Labs that analyze Drinking Water	9
Drinking Water labs with findings related to sampling	8
Significance of Findings	
Number of findings related to sampling	15 (11% of total number of findings)
Findings classified as deviations (more serious)	6 (40% of findings)
Findings classified as recommendations	9 (60% of findings)
Type of Findings	
Related to Sample Collection (e.g., sample instructions not complete, sample volume incorrect)	9 (60% of findings)
Related to Sample Handling (e.g. sterility check)	3 (20% of findings)
Related to Sample Preservation (e.g., sample temperature not taken)	3 (20% of findings)

Table 13 presents the results of our review of laboratory audit reports for 2016, the most recent year for which there was complete data. Eight of 9 (89%) of the drinking water laboratories reviewed in that year had at least one deficiency related to water sampling. Six of 15 (40%) of the total deficiencies were classified as deviations and are considered more serious. Most of the overall deficiencies related to sample collection, while most of the serious deficiencies related to sample handling. These inappropriate sampling practices include collecting samples in non-specified containers, using non-sterile containers, leaving an air space in the sample container when not specified in the procedures, and collecting the sample without the specified preservative. We reviewed public water system responses to these findings and noted that systems described their corrective actions in the responses.

The Environmental Laboratory Certification Program personnel informed us that the sample findings suggest that "sloppiness or incompetence on the part of the sample collector" caused these issues. Inadequate training or poor supervision could also be a cause.

Fraud cases. The Environmental Laboratory Certification Program office took action in 3 cases in which it suspected fraudulent sampling or handling in the last 7 years. One lab provided water quality results without actually doing any sampling; another lab purposely did not use appropriate sampling techniques; and the third lab tested samples for certain contaminants for which it was not certified, though it claimed that it referred the samples to another certified lab. ELCP referred the labs to the Office of the Attorney General. ELCP also referred the first lab to the Office of the Chief State's Attorney. ELCP also rescinded their laboratory registrations.

Risk areas. While the DPH regulatory oversight exercised has detected fraud in some instances and other inappropriate sampling practices, it does not include a comprehensive risk analysis of inappropriate practices that could occur and possibly go undetected. Listed below are risks in the sample collection and data reporting process that, taken together, would tend to increase the potential for invalid or falsified data.

- DPH does not inspect the actual sample collection process. The department approves a sampling site plan for certain chemicals, but does not check that any individual sample actually came from the designated location on the plan. The lab audit process includes a review of selected sample chain-of-custody documentation but it does not cross-reference to the site plan. In addition, any deviation from sampling requirements may go undocumented and, therefore, may go undiscovered during an audit. Specific vulnerabilities could include water samples collected from sources outside the actual water supply, taken from the same location, or altered to remove impurities.

- DPH utilizes its own testing laboratory, but does not perform an independent systematic sampling of public water systems as a check on the entire system. DPH may test drinking water when it receives a complaint, but that is rare.

- Not all sample collectors are certified. DPH certifies various system operators. The

exam includes a sample collection component they must pass to demonstrate knowledge about collection procedures. However, the operators may delegate anyone under their supervision to collect samples. It is unclear the extent to which this occurs and whether these personnel receive, training.

- The sample collection process for lead and copper relies on the public water system's customers. PWS or laboratories may provide written instructions to residents on how to perform the sampling procedures. The Environmental Laboratory Certification Program staff check the adequacy of those instructions during an audit. No one knows how well customers implement the instructions.

- Some testing laboratories have separate sample collection facilities. However, they are not inspected. These facilities are not part of the regularly scheduled lab audit. The Environmental Laboratory Certification Program inspectors report that they do not have the authority to inspect these facilities and are not able to observe their operations.

- Some certified labs are in-house and are part of a large public water system. Therefore, the in-house lab conducts sample collection, recording, testing, and reporting. Because the lab is part of the system, it has a vested interest in the testing outcome.

- Modern laboratories use software-based and information management systems, called laboratory information management systems (LIMS), to support operations. DPH staff need to be proficient in LIMS and other data processing software to understand how laboratories record, track, generate, and store data. The Environmental Laboratory Certification Program staff need additional and on-going information technology training to keep up with technological advances and to better assess fraudulent activities.

Effect

The quality of the data generated by the testing laboratory begins with the quality of the sample data collected in the field. If labs or public water systems report invalid or falsified test results, serious health threats could go undetected. Moreover, if a state does not detect and investigate questionable test data, the state's ability to take proactive measures to prevent contamination of the water supply is seriously compromised.

Cause

DPH management has not implemented the necessary procedures to oversee the integrity of the sampling process.

Recommendation

The Department of Public Health should strengthen and add to existing strategies and procedures to maintain or improve the integrity of the water sampling process. Examples of additional improvements follow (in bold and responded to individually). (See Recommendation 13.)

a. Require Environmental Laboratory Certification Program personnel to check samples used for analysis to ensure systems took samples from locations on their sampling plan.

Agency Response: "EPA through the Safe Drinking Water Act regulates the frequency of water testing schedules and methods used for nearly 90 drinking-water primary and secondary analytes and analyte groups. The Environmental Laboratory Certification Program (ELCP) responsibility with regard to the Safe Drinking Water Act is to ensure that laboratories are analyzing samples appropriately. The ELCP audit process is comprised of specific audit procedures and approved methods that are mandated and outlined in the EPA certification manual. The EPA grants primacy authority to the State of Connecticut to register and grant certification to laboratories performing environmental testing. EPA provides the training to teach the critical elements of evaluating a drinking water laboratory performing compliance methods. ELCP personnel are certified as state Certification Officers upon completion of the EPA training."

b. Require Environmental Laboratory Certification Program personnel to inspect sampling facilities that are associated with but physically separate from the laboratories they serve.

Agency Response: **"**This would necessitate a change in statute and regulations. CGS §19a-29a defines an "Environmental laboratory" as any facility…where testing occurs. CGA §19a-29a grants the authority to the Department to establish and enforce standards for environmental laboratory testing. At present the ELCP does not have regulatory authority over sample collection or sample receipt facilities and sample collectors are not licensed or certified."

c. Provide additional information technology training to Environmental Laboratory Certification Program personnel, when necessary, to enhance fraud detection.

Agency Response: **"**EPA, which has federal authority with regard to environmental fraud enforcement, at present does not currently provide this type of technical training. If such training is made available, the ELCP staff would attend the course."

d. Consider random water sample checks by the Department of Public Health personnel as an overall check on public water systems. To implement this procedure, DPH staff could take samples from a small selected group of public water systems while performing sanitary surveys.

Agency Response: "The Department will incorporate random sample water testing while conducting sanitary surveys on public water systems into the sanitary survey SOP. The DPH DWS will move forward with random sampling for a small percentage of systems in 2018 and as staffing resources allow."

e. Ensure that subordinates of any certified operator, who perform sampling, receive appropriate sample collection training. DPH can verify this by requiring a periodic sign-off affirmation by the certified operator.

Agency Response: "There is currently no regulatory requirement for certified operator training in water sample collection. The Department will explore, along with stakeholders, training opportunities for certified water operators utilizing current technology and web-based resources."

Non-State-Operated Public Water Systems Outperformed State-Operated Systems in Several Areas

Background

As presented in Table 14, private and non-state governmental entities ran 2,420 of 2,488 (97%) of Connecticut's active public water systems as of September 2017. State government operated 68 of 2,488 (3%) systems. State-operated systems provide water to facilities such as state parks, prisons, and universities, while non-state systems primarily serve private homes and businesses.

Table 14. State-Operated and Non-State-Operated Active PWSs in Connecticut (September 2017)

System Operator	Number of Systems	Percent of All Systems
Private	2,072	83.3
Local government	333	13.4
State government	68	2.7
Other (e.g., federal, Native American)	15	0.6
Total	2,488	100

The federal Environmental Protection Agency maintains a comprehensive database using quarterly data uploaded from states' safe drinking water information systems to the federal system. The Enforcement and Compliance History Online (ECHO) database collects information pertaining to public water systems obtained from the State Drinking Water Information System (SDWIS). One advantage of the ECHO database is that it allows easier differentiation and analysis of information between state-operated and non-state operated PWSs.

In 2010, the Environmental Protection Agency implemented a new enforcement methodology under its Safe Drinking Water Enforcement Response Policy. EPA developed the Enforcement

Targeting Tool (ETT) for primacy agencies to use when enforcing public water system violations. The tool is based on assigning points to public water systems in relation to the severity of their violations (e.g., acute maximum contaminant level and certain treatment technique violations are assigned the most points because they are considered serious health-based public drinking water violations). Points are assigned to violations based on 1, 5, and 10-point levels, with the goal of identifying PWSs with a level of significant violations warranting particular attention from their regulatory agency to return to full compliance. The Environmental Protection Agency bases the ETT calculations on violation data provided by states. EPA makes public water system ETT scores available to states through quarterly reports.

We analyzed ECHO information on rates of violations in relation to total number of active public water systems, types of violations, severity of violations, and level of enforcement to correct serious violations for state- and non-state-operated PWSs.

Criteria

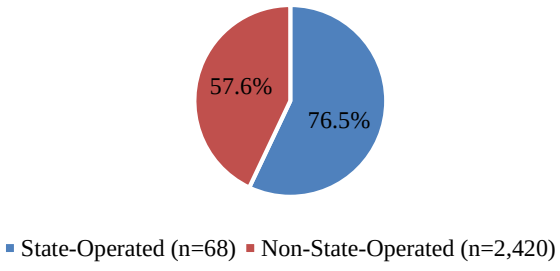
The consistent application of appropriate enforcement for public water system violations and the ultimate return of those systems to full compliance is a key function of DPH. While there are no state statutory or regulatory distinctions between the two types of public water operators, DPH should apply the same performance standards to state and non-state-operated PWSs.

Despite differences in the number of systems and the populations served by state- and non-state-operated systems, the overall rates of violations and enforcement outcomes to the total number of systems should be relatively comparable. Public water systems with violations, especially health-based violations, should comply with applicable safe drinking water requirements as quickly as possible to ensure public health and safety. This should occur regardless of the type of entity that operates the systems.

Condition

State-operated public water systems experienced violations at higher rates than non-state-operated systems. State-operated public water systems incurred several key safe drinking water requirement violations at higher rates than non-state-operated systems in relation to the overall number of systems. This is especially true for health-based violations, which are crucial to drinking water safety and public health.

Figure 6. Over Three-Quarters of Public Water Systems had Safe Drinking Water Violations (July 2014-June 2017)



We examined whether state-operated and non-state-operated public water systems had at least one federal safe drinking water violation in any given quarter during the last three years. Figure 6 shows that 58% of non-state systems had at least one violation, compared to 77% of state-

operated systems. In other words, state-operated systems experienced safe drinking water violations at a rate of almost 33% higher than non-state systems.

Table 15 provides the number of public water systems with health-based violations as a percent of all state-operated and non-state-operated PWS, which was noticeably higher for state-operated systems. Health-based violations are the most serious drinking water violations, and include maximum containment levels, maximum residual disinfectant levels, and treatment technique rules. Overall, 21% of state-operated systems were cited for at least 1 health-based violation, compared to 8% for non-state systems, a rate of 2½ times greater for state systems. In addition, a higher percentage of state-operated systems (19%) had public notification violations than non-state-operated systems (13%). Almost 81% of state-operated systems had at least 1 violation pertaining to the proper filing of consumer confidence reports or other required records, while 17% of non-state systems had a similar violation. Conversely, non-state-operated systems had a higher percentage of monitoring and reporting violations (22%) than state-operated systems (8%).

Table 15. Non-State-Operated Public Water Systems Outperformed State-Operated Systems In Several Areas
(July 2014 through June 2017)

Violation Type (occurring in at least 1 quarter)	**State-Operated Systems** (N=68)	**Non-State-Operated Systems** (N=2,420)
Health-Based	14 (20.6%)	193 (8.0%)
Monitoring/Reporting	6 (8.0%)	542 (22.4%)
Public Notification	13 (19.1%)	324 (13.4%)
Other	55 (80.9%)	407 (16.8%)

No state-operated public water systems were repeat priority systems based on federal standards. Using Enforcement Targeting Tool (ETT) scores, we analyzed Enforcement and Compliance History Online (ECHO) data to understand whether differences existed between state-operated and non-state-operated public water systems. However, through our analysis we discovered discrepancies between violation data maintained by the state's SDWIS system and the federal ECHO database. For example, ECHO contains ETT points for violations that SDWIS shows are now in compliance; interface issues between the state and federal data systems can affect ETT point totals in ECHO. While DPH and EPA have worked to identify possible solutions to the data issues, the agencies typically deal with discrepancies on a case-by-case basis. We believe the data issues were significant enough to exclude the ETT point information from the automated ECHO database when comparing state-operated and non-state-operated PWS. Instead, we reviewed quarterly reports detailing ETT information developed by EPA for state use.

Federal policy stipulates that states consider public water systems with 11 or more combined ETT points as priority systems for enforcement. Once designated a priority system, the primacy agency has two quarters to either ensure the public water system returns to full compliance or issue a formal enforcement action to expedite compliance. When either of those two actions occurs, EPA considers the system to be on the path to compliance, and removes the corresponding ETT points from the accrued total in the system.

We analyzed the EPA quarterly reports sent to DPH for priority public water systems for January and July 2017. EPA includes the information in the reports separated by two quarters, which is the time systems either must return to compliance or receive a formal enforcement action under EPA policy. Coordination between EPA Region 1 and DPH allows DPH to comment about quarterly report data to EPA. The comments typically include information about the violations that the state SDWIS shows have returned to compliance, but EPA has not reflected in its quarterly reports. The comments also address any formal enforcement actions.

The premise of our analysis was to use the quarterly reports as a proxy for the ECHO ETT data to identify the number of public water systems initially considered priority for enforcement and possible differences between state-operated and non-state-operated systems. The EPA reports show systems as new priority systems, on the path to compliance, or repeat priority systems. Since primacy agencies must take some type of action for new priority systems within two quarters, comparing the January and July quarterly reports should show one of the following results:

1) A system identified as a new priority system on the January report that returned to full compliance with no ETT points should not be included on the July report;

2) A system identified as a new priority system on the January report that returned to partial compliance and had fewer than 11 ETT points should not be included on the July report;

3) A system identified as a new priority system on the January report that did not return to full compliance, but was issued a formal enforcement action putting the system on the path to compliance, should not be included on the July report (ETT points reverted to 0); or

4) A system identified as a new priority system on the January report did not return to compliance/continued to have 11 or more ETT points/or was not issued a formal action and was included on the July report as a repeat priority system.

While EPA identified one state-operated public water system as a priority system on the July quarterly report, DPH reported it was a public water system within a state park that did not open for the season and, therefore, should not have been designated a priority system. Since there were no state-operated systems considered repeat priority systems between the January and July quarterly reports, we could not conduct a comparative analysis with non-state-operated systems. As such, Table 16 highlights analysis of the non-state-operated systems, and shows 11 of 14 (78%) of the new priority systems on the January report were off the July list. This occurred because they returned to full compliance or were no longer a priority system because they returned to partial compliance and had fewer than 11 EET points. Of the 3 remaining systems on the July list, 2 were repeat systems and considered as priority systems for enforcement by EPA, and 1 was classified again as new. Of the 2 repeat systems, DPH did not indicate that either system was issued a formal action in its comments in the July report. Instead, DPH indicated it would work with the system to bring it back to compliance for any remaining violations, which technically is in violation of EPA policy.

Table 16. State-Operated PWS Had No Repeat Priority Systems Compared to 14% of Non-State-Operated Systems Based on Federal Standards (January – July 2017)		
Outcome	**State-Operated (N=0)**	**Non-State-Operated (N=14)**
January: "new" priority system July: off list – returned to full compliance (no ETT points)	0	3 (21%)
January: "new" priority system July: off list – 1-10 ETT points remained; no longer considered a priority system		8 (57%)
January: "new" priority system July: off list – did not return to compliance and was issued formal enforcement action	0	0 (0%)
January: "new" priority system July: on list with ≥ 11 ETT points; not issued a formal action; considered "not on the path" to compliance and repeat priority system	0	2 (14%)
January: "new" priority system July: on list again as "new" priority system	0	1 (7%)

As noted above, the federal and state SDWIS do not agree, because the current state data do not always appear in the federal database. EPA and DPH data staff continue to work on finding solutions to these problems, and DPH anticipates that the upcoming revised version of SDWIS (SDWIS/Prime) should alleviate recurring data interface issues between the systems.

Effect

Inconsistent efforts of state- and non-state-operated public water systems to comply with drinking water requirements increases risk of the public being exposed to unsafe drinking water. In addition, if DPH does not apply enforcement practices in a timely and uniform manner, the threat of unsafe drinking water could unnecessarily increase.

Cause

DPH management has not closely monitored trends in public water system violations, including state-operated systems, and has not ensured that all regulated systems resolve violations in a timely and thorough manner.

Recommendation

The Department of Public Health should closely monitor state-operated public water systems for violations of safe drinking water requirements. DPH should prioritize its monitoring with an emphasis on health-based violations having the most impact on drinking water safety. (See Recommendation 14.)

Agency Response: "The Department has always closely monitored all public water systems for violations of safe drinking water requirements and will continue to do so. Due to the sheer numbers of public water systems statewide it has become increasingly important to assure sufficient well trained DPH staffing resources for this significant responsibility and work effort for the over 2,550 public water systems in CT. The majority of state-owned and operated PWS consist of transient non-community systems which historically have a higher rate of non-compliance."

The Department of Public Health should give specific attention to any public water system that the Environmental Protection Agency identified as a priority system under its Drinking Water Enforcement Response Policy. DPH should work to bring the system into full compliance with the federal requirements. (See Recommendation 15.)

Agency Response "The Department agrees with this recommendation and will continue to ensure priority public water systems are addressed. The Department currently reviews all systems that have greater than 11 points on the Enforcement Targeting Tool and provides a status report to EPA. A significant amount of technical assistance is provided to these systems to ensure that open violations are addressed."

Critical Enforcement Procedures Were Insufficiently Documented

Criteria

Procedures assist an organization in achieving its goals and objectives. Standard operating procedures detail regular recurring work processes that an organization conducts or follows. The procedures should convey information clearly and explicitly to clarify requirements. Prudent management practices include DPH making its Drinking Water Section staff aware of the section's enforcement policies and procedures. DPH should communicate and document these requirements in a formal manner to minimize any possibility of miscommunication.

Condition

Certain DPH standard operating procedures related to enforcement functions are vague, incomplete, or missing. DPH has standard operating procedures for the enforcement of maximum contaminant level and treatment technique violations, action level exceedances, and monitoring and reporting requirements.

DPH has written each procedure to a different level of detail and often falls short of what is necessary. For example, we found that:

- The maximum contaminant level enforcement procedures do not specify what initial enforcement actions DPH would take; typically, it is the issuance of a violation letter. The procedures do not provide timeframes for completion of any requirements. Some MCL violations, under law, require the public water system to issue a public notice within 24 hours, while other types of violations permit longer

timeframes. In addition, these procedures do not provide guidance as to when and under what circumstances DPH should escalate an initial enforcement action (e.g., notice of violation) to a formal enforcement action (e.g., notice of violation with penalty). The document leaves any enforcement escalation decision to the discretion of a supervisor "as necessary" without defining or providing examples of what the necessary conditions would include.

- Enforcement strategies for both action level exceedances for lead and total coliform violations (a type of maximum contaminant level violation) are out-of-date and do not depict current practice. For example, the action level exceedance procedure requires DPH to issue a letter to the public water system that outlines any requirements to mitigate the exceedance. If the public water system remains out of compliance, DPH must issue a violation letter, and for any continued noncompliance, DPH must issue a consent or administrative order. The current practice is to issue an administrative order for any lead exceedances. The total coliform regulations have changed significantly and DPH has not reflected those changes in the procedures.

- The procedures for treatment technique violations, maximum contaminant levels, and action level exceedances fail to outline the escalation procedures for continued noncompliance with DWS orders, which typically would be a referral to the Office of the Attorney General for further enforcement.

- There are no written enforcement procedures for violations related to public notifications and consumer confidence reports. Public water systems must issue health notifications to people who drink their water if the level of a contaminant in the water exceeds standards, a public water system fails to test its water, or any other situation that may pose a public health risk. The annual water quality report (called the consumer confidence report) tells consumers what is in their water, where it comes from, and where they can obtain additional information.

- The Drinking Water Section reports that it sometimes uses consent agreements or memorandums of understanding as enforcement tools that appear to be variations of current enforcement tools. DPH has not formally defined these alternatives, and they are not contained in any standard operating procedure. It is unclear what enforcement benefits these alternatives have over other enforcement options.

Effect

If not written correctly, standard operating procedures are of little value and may lead to ambiguity among staff when implementing program requirements. Standardized procedures help to ensure a mutual understanding about operations and responsibilities between staff and management. In addition, they minimize training time for new staff, and assist with continuity of

operations over time. Ultimately, the benefits of a valid SOP are reduced workload and improved comparability, credibility, and legal defensibility.

Cause

DPH management has not made it a priority to update the procedures.

Recommendation

The Department of Public Health should develop or amend all procedures related to enforcement activities and responsibilities to ensure that it documents and sufficiently details all activities to ensure compliance with laws and regulations. In addition, DPH should provide adequate direction to staff and conform to current practices, as appropriate. (See Recommendation 16.)

Agency Response: "The Department agrees with this recommendation and will work to develop and/or refine existing SOPs, which implement appropriate staff training and oversight to ensure consistency and standardization including proper documentation of enforcement activities."

Deficient Data Management Practices Need to Be Improved

Criteria

The purpose of a management information system is to produce essential information about organizational accomplishments in a readily useable format. Accurate reports from departmental information systems should allow management to monitor the performance of programs, evaluate any deviations from expected or desired results, identify any necessary improvements, and implement corrective actions in a timely manner.

Condition

While we did not perform an information technology audit, we did note a number of deficiencies related to the Drinking Water Section's information systems during the course of our review. A few of the examples include the following:

- DPH did not enter certain information into SDWIS that it should have. For example, there were at least 32 departmental orders, or 10% of the total, that DPH did not enter into SDWIS, indicating that the department issued an order for specific violations.

- The recording of dates presented a number of issues in SDWIS. Some dates DPH entered into SDWIS appear wrong based on the time-elapsed analysis that we performed. In addition, certain dates that should have been present were missing.

For example, nearly 500 violations had public notification certification dates but lacked public notification completion dates.

- We found several discrepancies between the number of formal actions DPH recorded in the SDWIS database and the number reported in the Public Systems Annual Compliance Report. The compliance report is a public document that annually provides information on Drinking Water Section enforcement activities. We found 355 formal actions in SDWIS for 2012-2017, but the number disclosed in the annual compliance report was 940.

- We examined documentation for various violations involving two public water systems to compare the actions and dates in the case file to the information recorded in SDWIS. We found that DPH sent an informal notice of violation for a monitoring violation 4 months after the discovery of the violation and after the next sample result was due. Drinking Water System management stated that they try to get the initial notices out within 60 days of the discovery of a violation, but that is only an unwritten goal. The DPH delivery of an enforcement 4 months after discovery would undermine the intended goal of returning the violator to timely compliance. In addition, a public water system submitted a corrective action plan for a significant deficiency found during a sanitary survey after the 120-day due date, but DPH did not issue a treatment technique violation. It appears that DPH staff manually overrode the due date in SDWIS. In addition, the inspector permitted an additional 30-day extension for the submittal of documentation. According to DWS management, this case should have been referred to enforcement after the system did not meet the initial 120-day deadline; and

- Certain information relating to sanitary surveys was missing in SDWIS. For example, in calendar year 2016, DPH required public water systems incurring 180 significant deficiencies to respond to the Drinking Water Section formally following receipt of the inspection report. Each significant deficiency should have included a corresponding date for when the public water system responded to the inspection report, yet our examination of the SDWIS data showed response dates for only 2% of the significant deficiencies. In addition, of 751 total violations resulting from sanitary surveys requiring a minor violation or significant deficiency designation in 2016, 12% did not indicate the severity of the violation, because the designation of a violation is not required in SDWIS when public water systems are not required to submit a formal response to an inspection report.

Effect

An ineffective and incomplete management information system inhibits decision makers and the public from gaining an accurate understanding of program operations. It also makes it difficult to determine whether the program is attaining its goals.

Cause

DPH has not implemented the necessary management controls over its violation and enforcement data to ensure the accuracy of the information.

Recommendation

The Department of Public Health should assess its data management practices and management controls over water quality violation and enforcement data to ensure that it is valid and reliable. (See Recommendation 17.)

Agency Response "The Department agrees with this recommendation and will continue to develop tools and procedures for use in the assessment of data management practices and controls and will consider the use of an independent auditor to conduct biennial audits of DPH DWS data."

RECOMMENDATIONS

Status of Prior Audit Recommendations:

None

Current Audit Recommendations:

1. **The Department of Public Health should assess its enforcement processes and develop better management practices and tracking systems to ensure that it issues appropriate enforcement actions for all violations and closes violations in a timely manner. The department should also escalate enforcement action, if needed, to ensure violators comply with orders.**

   Comment:

   Our review disclosed various deficiencies in DPH enforcement practices.

2. **The Department of Public Health should develop written guidelines to prescribe when it should provide public notification and test water samples in the event a public water system fails to do so, especially for acute public health violations or when the system is noncompliant for an extended period.**

   Comment:

   The Department of Public Health did not have written guidelines specifying when it was appropriate and necessary for DPH to provide public notification and perform testing of water samples when water systems fail to do so.

3. **The Department of Public Health should develop specific written guidelines for the escalation of enforcement actions from informal to formal, including the imposition of civil penalties. The department should clearly define appropriate enforcement timeframes, particularly for health-based violations. It should also monitor and report the performance of its enforcement actions in its annual compliance report, including the median number of days it takes for violations to return to compliance by violation type and the number of remaining open violations at year-end.**

   Comment:

   Our review disclosed a lack of written guidelines for the escalation of enforcement actions and reporting on certain enforcement efforts.

4. **The Department of Public Health should assess its current civil penalty regulations, civil assessment calculation method, and its actual use of civil penalties. The purpose of this assessment is to ensure that those regulations and practices remain consistent with current water purity objectives, include all regulatory violations, consider the seriousness of violations, and determine whether DPH can realistically collect the final penalties.**

   Comment:

   The Department of Public Health rarely used civil penalties, in part, because of the way in which penalties are currently calculated. In addition, DPH lacks the authorization to levy a penalty for all violations and it usually does not collect all penalties owed.

5. **The Department of Public Health should develop comprehensive civil penalty policies and procedures that:**

   a. **Provide adequate guidance to staff in calculating, adjusting, and recording penalties to ensure practices are appropriate, fair, and consistent with statutory requirements;**

   b. **Consider the use of penalties for a broader range of violations or articulate explicit strategies for violators that do not receive a civil penalty to follow to achieve compliance in an expeditious manner; and**

   c. **Outline specific escalation procedures to ensure timely enforcement of water quality violations.**

   Comment:

   DPH lacked comprehensive civil penalty policies and procedures to guide staff.

6. **The Department of Public Health should develop and implement a standardized penalty calculation worksheet to use in every case that imposes a penalty. The worksheet should show the evolution of the final penalty calculation, including any adjustments to the penalty amount, the rationale for those adjustments, a listing of the various orders issued for the same violations, and the final amount collected.**

   Comment:

   DPH did not have a practice for tracking civil penalty reductions or documentation of the rationale for penalty reductions.

7. **The Department of Public Health should ensure compliance with collection procedures for delinquent accounts to confirm that the department made all reasonable efforts to collect penalties.**

   Comment:

   DPH did not follow its collection procedures for civil penalties.

8. **The Department of Public Health should annually report the amount of civil penalties it assessed and collected in its Public Water Systems Annual Compliance Report.**

   Comment:

   DPH does not include information on its civil penalty collection efforts in its annual report.

9. **The Department of Public Health's Fiscal Services and Drinking Water Sections should ensure that they reflect collection information and receipts related to civil penalties in Core-CT.**

   Comment:

   DPH does not properly record civil penalty receivables and receipts.

10. **The Department of Public Health should examine whether significant deficiencies from public water system sanitary survey inspections conducted in past years remain unresolved beyond their required resolution dates. DPH should prioritize cases and take any necessary formal enforcement to ensure deficiencies are resolved, and should update the drinking water database as necessary.**

    Comment:

    Our review disclosed that the DPH centralized drinking water information system lacked critical deficiency resolution dates for an average of 9% of significant deficiencies (i.e., most severe drinking water violations) between 2012 and 2016. Fourteen percent of the significant deficiencies found during inspections conducted in 2012 (5 years ago), remained unresolved at the time of our analysis.

11. **The Department of Public Health should continue to monitor sanitary survey unit resources, training, and procedures to ensure the number of completed yearly inspections continues to meet or exceed the number required under state regulation. If the department anticipates a shortfall in any given year, it should take the necessary steps to boost the number of inspections to ensure that it meets regulatory requirements.**

    Comment:

    Since calendar year 2014, there has been a steady decline in the ratio of completed surveys to required surveys.

12. **The Department of Public Health should ensure that its sanitary survey staff enters timely, complete, and accurate data into the department's automated system for drinking water. DPH management should have appropriate monitoring in place to ensure the database contains the necessary sanitary survey information for proper oversight.**

    Comment:

    The overall degree of missing sanitary survey information in the department's automated drinking water information system suggests public water systems did not comply with the sanitary survey requirements, or DPH inspectors did not enter the appropriate information into the system.

13. **The Department of Public Health should strengthen and add to existing strategies and procedures to maintain or improve the integrity of the water sampling process. Examples of additional improvements follow.**

    a. **Require Environmental Laboratory Certification Program personnel to check samples used for analysis to ensure systems took samples from locations on their sampling plan.**

    b. **Require Environmental Laboratory Certification Program personnel to inspect sampling facilities that are associated with but physically separate from the laboratories they serve.**

    c. **Provide additional information technology training to Environmental Laboratory Certification Program personnel, when necessary, to enhance fraud detection.**

    d. **Consider random water sample checks by the Department of Public Health personnel as an overall check on public water systems. To implement this**

procedure, DPH staff could take samples from a small selected group of public water systems while performing sanitary surveys.

e. Ensure that subordinates of any certified operator, who perform sampling, receive appropriate sample collection training. DPH can verify this by requiring a periodic sign-off affirmation by the certified operator.

Comment:

We found several deficiencies in the department's oversight of the sample collection and data reporting process that, taken together, would increase the potential for invalid or falsified data

14. The Department of Public Health should closely monitor state-operated public water systems for violations of safe drinking water requirements. DPH should prioritize its monitoring with an emphasis on health-based violations having the most impact on drinking water safety.

Comment:

State-operated public water systems incurred violations of several key safe drinking water requirements at higher rates than non-state-operated systems in relation to the overall number of systems. This is especially true for health-based violations.

15. The Department of Public Health should give specific attention to any public water system that the Environmental Protection Agency identified as a priority system under its Drinking Water Enforcement Response Policy. DPH should work to bring the system into full compliance with federal requirements.

Comment:

EPA considers several non-state-operated public water systems priority water systems for formal enforcement action under federal standards due to the severity and repeat nature of their drinking water violations However, DPH took no action.

16. The Department of Public Health should develop or amend all procedures related to enforcement activities and responsibilities to ensure that it documents and sufficiently details all activities to ensure compliance with laws and regulations. In addition, DPH should provide adequate direction to staff and conform to current practices, as appropriate.

Comment:

Certain DPH standard operating procedures related to enforcement functions are vague, incomplete, or missing.

17. The Department of Public Health should assess its data management practices and management controls over water quality violation and enforcement data to ensure that it is valid and reliable.

Comment:

Our review disclosed a number of deficiencies related to the Drinking Water Section's information systems that would impact its ability to report accurate program accomplishments.

CONCLUSION

In conclusion, we wish to express our appreciation for the cooperation and courtesies extended to our representatives by personnel of the State Department of Health during the course of our examination.

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Principal Auditor

Brian Beisel
Associate Auditor

Approved:

John C. Geragosian
State Auditor

Robert J. Kane
State Auditor