



New York State Office of the State Comptroller
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Division of State Government Accountability

Oversight of Public Water Systems

Department of Health



Report 2017-S-45

September 2018

Executive Summary

Purpose

To determine whether the Department of Health (Department) is providing effective oversight of the State's public water systems to ensure water is suitable for people to drink. Our audit covered the period January 1, 2014 to March 26, 2018.

Background

The U.S. Environmental Protection Agency (EPA) established the public water system (PWS) supervision program under the authority of the 1974 Safe Drinking Water Act (SDWA). Under SDWA, the EPA sets national limits on contaminant levels – referred to as Maximum Contaminant Levels, or MCLs – in drinking water in an effort to ensure that it is safe for human consumption, and has established regulations for more than 90 contaminants. SDWA allows states to establish and enforce their own standards, provided they are at least as stringent as the EPA's. In New York, the Department oversees the delivery of drinking water to ensure it is suitable for consumption. This oversight includes efforts to ensure that PWSs comply with State Public Health Law and State Sanitary Code (Code) requirements as well as EPA requirements. The Department sets MCL limits and requires that PWSs monitor the water for them. MCL violations require a PWS to notify the public and take any corrective actions necessary to return to compliance. Whether a given contaminant in water poses a health risk depends on its type, concentration level, and amount of exposure. Department district offices and local health departments (for purposes of this report, we refer to the Department district offices and local departments collectively as "Offices") conduct the day-to-day oversight of PWSs. Nearly 95 percent of State residents receive their drinking water from one of the 9,155 PWSs in operation in the State. From January 1, 2014 through September 19, 2017, there were 768 MCL violations involving 201 of these PWSs located in 47 counties across the State.

Key Findings

- While the Department takes various actions to safeguard the quality of drinking water delivered to PWS customers, we identified opportunities for improved oversight, particularly regarding PWS compliance as well as system and procedural controls.
- When MCL violations occurred, the Offices we visited did not always take appropriate and/or timely action to hold PWSs accountable for required follow-up, such as notifying the public. As a result, the Department has less assurance that PWSs are appropriately addressing these occurrences.
- The Department continues to study emerging contaminants in drinking water in an effort to determine whether maximum limits and regulations are appropriate.

Key Recommendations

- Ensure that safe drinking water is distributed to the public through a robust monitoring program that, at a minimum:
 - Directs Offices to follow Department procedures for initiating appropriate corrective action and to maintain adequate records;
 - Requires Offices to verify that PWSs have issued timely public notifications of MCL violations

- to consumers; and
- Ensures Offices account for the status of all active MCL violations and associated compliance activities and take any necessary actions to bring them into compliance.
- Prioritize actions to regulate emerging contaminants with known adverse health effects.

State of New York
Office of the State Comptroller

Division of State Government Accountability

September 24, 2018

Howard A. Zucker, M.D., J.D.
Commissioner
Department of Health
Empire State Plaza, Corning Tower
Albany, NY 12237

Dear Dr. Zucker:

The Office of the State Comptroller is committed to helping State agencies, public authorities, and local government agencies manage government resources efficiently and effectively and, by so doing, providing accountability for tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of State agencies, public authorities, and local government agencies, as well as their compliance with relevant statutes and their observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations. Audits can also identify strategies for reducing costs and strengthening controls that are intended to safeguard assets.

Following is a report of our audit entitled *Oversight of Public Water Systems*. The audit was performed pursuant to the State Comptroller's authority under Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law.

This audit's results and recommendations are resources for you to use in effectively managing your operations and in meeting the expectations of taxpayers. If you have any questions about this report, please feel free to contact us.

Respectfully submitted,

Office of the State Comptroller
Division of State Government Accountability

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Background

The U.S. Environmental Protection Agency (EPA) established the public water system (PWS) supervision program under the authority of the 1974 Safe Drinking Water Act (SDWA). Under SDWA, the EPA sets national limits on contaminant levels in drinking water (known as Maximum Contaminant Levels, or MCLs; see Exhibit A for definitions of this and other key terms used in this report) in an effort to ensure that it is safe for human consumption, and has established regulations for more than 90 contaminants. The EPA also regulates how often PWSs monitor water for contaminants and report testing results. The type and frequency of testing depend on the population served, source water type, and/or PWS type.

SDWA allows states to adopt and enforce their own standards, provided they're at least as stringent as the EPA's. In New York, the Department of Health (Department) oversees the delivery of drinking water to ensure it is suitable for consumption. This oversight includes efforts to ensure that PWSs comply with State Public Health Law and State Sanitary Code (Code) requirements as well as EPA requirements. Toward this end, the Department makes policy and provides technical assistance and training, as needed, for staff in its four regional offices (Capital District, Central, Metropolitan, and Western) and local water staff. Regional offices directly oversee 46 local health departments (Locals), which comprise 36 county health departments, nine Department district offices that are responsible for the remaining 21 "small" upstate counties, and the New York City Department of Health and Mental Hygiene, which is responsible for the five boroughs.

The Locals and district offices (for purposes of this report, we refer to the Department district offices and local health departments collectively as "Offices") conduct the day-to-day oversight of PWSs, including but not limited to: reviewing and approving water treatment and infrastructure designs and alterations, receiving and reviewing the results of routine water sampling, verifying the correction of violations, and taking appropriate enforcement action. Additionally, the Offices perform on-site sanitary surveys to evaluate whether PWS facilities, equipment, treatment, storage, operation, maintenance, and management are effective in producing safe, satisfactory drinking water and if they comply with the federal, State, and local drinking water regulations. They also enter data into the EPA's Safe Drinking Water Information System (SDWIS), which the Department and EPA use to monitor PWS compliance with drinking water safety requirements. The Department's Environmental Health Manual (Manual) contains policies and procedures related to the oversight of PWSs, which are intended to ensure consistent implementation of regulatory requirements across staff, programs, and Offices.

The presence of contaminants in drinking water does not necessarily indicate that the water poses a health risk. Rather, the risk depends on the type of contaminant, its concentration level, and amount of exposure. (Exhibit B presents some of the regulated contaminants and their known health effects.) The Department sets MCL limits and requires that PWSs monitor the water for them. According to the Code, determining whether there is a violation is specific to the contaminant in terms of its level, where it is measured, and how it is calculated. An MCL violation requires a broad range of actions by the PWS, including public notification, additional monitoring, and corrective actions, as necessary, to reduce or mitigate the contaminant level in

the drinking water and return to compliance. Notification requirements for contaminant violations are categorized into three tiers that signify levels of risk and specify the timing and manner of notification. Tier 1 contaminants present an immediate hazard to health, while Tier 2 and Tier 3 contaminants pose a threat after prolonged exposure.

As of September 2017, there were 9,155 PWSs in New York (2,859 community PWSs and 6,296 non-community PWSs). The Department reports that nearly 95 percent of all New Yorkers receive their drinking water from PWSs operating in the State. Of those who receive drinking water from PWSs, about 85 percent get their water from community PWSs, which are systems that serve the same people year-round – generally those in residences such as houses, apartments, and condominiums in cities, towns, and mobile home parks. Department records also reveal that, from January 1, 2014 through September 19, 2017, there were 768 MCL violations involving 201 of these PWSs located in 47 counties across the State.

Audit Findings and Recommendations

Ensuring the safety of drinking water is critical to the health and well-being of all New Yorkers. As administrator of the State's drinking water program, the Department is responsible for overseeing PWSs to ensure that, through their compliance with the Code, the water they deliver to customers meets required safety standards for consumption. Furthermore, when an MCL violation does occur, the Department must ensure that PWSs take required action, including prompt public notification, corrective measures, and a return to compliance.

Our audit found the Department takes various actions to safeguard the quality of drinking water delivered to PWS customers. It has generally established adequate controls to ensure that PWSs conduct all required water testing and have certified operators. It also maintains an inventory of State PWSs, and Offices conduct sanitary surveys timely, as required. Furthermore, the Department has controls that allow it to track and monitor PWS emergencies that pose imminent public health hazards.

Despite these strengths, we identified opportunities for the Department to improve its oversight of Offices to ensure that PWSs issue timely public notifications when there are MCL violations. We also found systemic issues with data entry in SDWIS (e.g., required violation data was not recorded or not updated timely) that limit the reliability of SDWIS data, which both the Department and EPA use to track PWS compliance. Finally, there are emerging contaminants in New York's drinking water that are unregulated and for which health-based standards have not been set. Given the impact of emerging contaminants on drinking water in both the Village of Hoosick Falls and the City of Newburgh, the Department must take prompt and concerted action to appropriately address – and, where necessary, regulate – these contaminants before their effects escalate to hazardous levels.

In response to our preliminary findings, Department officials emphasized that most of our findings did not involve Tier 1 public health hazards. They also stated that State PWSs achieve a high level of compliance when testing for MCL violations, with 98 percent of the systems reporting no violations in 2016 compared to the national average of 92.1 percent. We commend State PWSs for their high compliance rate. However, certain improvements to the Department's oversight, as recommended in this report, will serve to better support PWSs' efforts and strengthen the integrity of the State's safe drinking water program.

Monitoring MCL Violations

When water sample test results – which are sent to the PWS but not always to the respective Office – identify an MCL violation, the Code requires PWSs to promptly report it to their Office, including the date of violation, corrective actions planned or already underway, and expected time frame for remediation. When an Office becomes aware of an MCL violation, either through notification from the PWS or from a lab report, Department procedures require that the Office issue a Notice of Violation (Notice) to the PWS. The Notice formally records the violation and specifies the PWS' required follow-up actions and their timing. Depending on the violation's severity, in addition to

notifying the public, the PWS may be required to conduct continued or enhanced monitoring (e.g., sampling); make minor alterations to treatment and operations; or make major changes such as installing new treatment techniques or developing new sources of drinking water. If the PWS fails to comply with Notice requirements, the Office may initiate further action, including formal enforcement. Office staff enter all testing data into SDWIS.

The PWSs must also take prompt steps to better ensure the public's health is protected, and in most cases, this is accomplished through public notification. Department procedures state that Offices are responsible for appropriate follow-up (i.e., letters and/or telephone contacts) of any MCL violations to ensure the PWS has complied with notification requirements. Given this responsibility, Office records should reflect all PWS follow-up activities. In some cases, such as when there are significant deficiencies involving a Tier 1 violation, PWSs must submit a formal corrective action plan to the Office. However, the Code does not require PWSs to submit physical documents to the Department, nor does it define the format of the submission, and they can submit required information in various forms, including laboratory reports, monthly operational reports, and electronic and verbal communications. With a few exceptions (e.g., significant deficiencies), the Code also does not specify time frames for when MCL violations must be brought back into compliance.

To determine whether PWSs were following Code reporting and remediation requirements, and to assess the Offices' oversight, we visited five Offices and reviewed available records, including lab reports, for 126 MCL violations, including 9 Tier 1, 93 Tier 2, and 24 Tier 3 violations. We found that Offices could improve their monitoring to better ensure that PWSs comply with requirements when addressing water testing violations. Among our observations:

- Of the 126 sampled MCL violations, 124 required a Notice, and the Offices issued a Notice for 117 of these (94 percent).
- Given that there are public notification time frame requirements, and the Notice documents this and other compliance requirements, Notices should be issued as soon as possible. While in most cases Offices issued them within a month from when they reported the MCL violation in SDWIS, for eight Tier 2 violations, the time it took for Offices to issue the Notice ranged from more than a month to almost 11 months after the violation was reported.
- Based on our review of supporting documents, as of September 19, 2017, 78 of the sampled 126 violations had been brought back into compliance (i.e., were closed) and 48 were still active.
 - Of the 78 closed violations, there was evidence that 69 (88 percent) were brought back into compliance. For the remaining 9 (8 Tier 2s and 1 Tier 3) violations, involving haloacetic acids (4), total trihalomethanes (4), and chloride (1), the Offices did not maintain evidence supporting that compliance had actually been achieved.
 - Of the 69 closed violations with evidence of compliance, it took PWSs between 5 days and 27 months to restore compliance. The 48 open violations had been active for periods ranging from 4 days to more than 6 years.

Table 1 presents the results of our testing at the five Offices.

Table 1 – Compliance Summary for Sample of 126 MCL Violations

Office	Notice Issued?			Evidence of Compliance?			Evidence of Public Notification?		
	Yes	No	N/A	Yes	No	N/A	Yes	No	N/A
Orange	25	0	0	8	0	17	16	9	0
Oneonta	21	4	0	12	2	11	20	4	1
Glens Falls	21	1	2	16	1	7	20	4	0
Erie	26	1	0	14	6	7	9	18	0
Watertown	24	1	0	19	0	6	2	23	0
Totals	117	7	2	69	9	48	67	58	1
% Compliance	94%	6%		88%	12%		54%	46%	

Although Department officials indicated that Notices describe the required actions and timeline that a PWS must adhere to, none of the Notices we reviewed included the expected date for return to compliance. In most cases, they only included the contaminant type and the testing period during which the violation occurred. A few included the deadline for making the public notification. In addition, for some of the sampled MCL violations, the Offices produced no evidence whatsoever that plans were in place to bring the violations back into compliance.

In response to our results, Department officials indicated that PWSs, regardless of whether they receive a Notice, are responsible for complying with all Code requirements, including notifying the public and taking any action necessary to meet acceptable contaminant levels. They emphasized that most of the violations we tested were Tier 2 and 3 violations and were not considered acute public health hazards.

Although Public Health Law authorizes the Department to issue penalties for Code violations, Department officials said that they assess penalties only when other administrative actions are unsuccessful over time. They stated that MCL violations are based on long-term exposures – and are best remedied with efforts that bring about compliance in the shortest amount of time, which is best achieved through cooperation with the PWS as opposed to penalties. Therefore, the Offices take a broad range of other actions to address violations and guide PWSs toward compliance, such as working with the PWS to inform the public of the violation; directing and conducting follow-up sampling of the water supply and, in some cases, of the distribution system; and requesting, reviewing, and approving treatment enhancements to address the violation and reduce exposures.

While the overarching priority is to bring a system into compliance as soon as possible, unless Offices follow established procedures for initiating appropriate corrective action whenever a PWS has an MCL violation, the Department has less assurance that PWSs are fully aware of their regulatory obligations; that MCL exceedances are being addressed appropriately and timely; and

that risk to consumers is mitigated. Officials indicated the Department will review the Manual to ensure it adequately addresses the issues we identified during our audit.

Public Notification Requirements

The Code requires PWSs to provide public notification for all MCL violations. In general, public notification should include the following:

- A description of the violation, including the contaminants of concern and their detected levels;
- The date the violation occurred;
- Mandatory health effects language;
- The population at risk, including subpopulations that may be particularly susceptible;
- Instruction on whether alternate water supplies should be used;
- Actions consumers should take, including when they should seek medical help, if known; and
- What the PWS is doing to correct the violation and when it expects a return to compliance.

The Code also establishes requirements regarding the timing, frequency, and delivery method of public notifications. The requirements depend on the violation's severity (tier level) and when it was identified, as described in Table 2. Because the records we reviewed did not indicate a date that the violation was first identified, we used the Notice date. When there was no Notice, we were not able to determine whether the PWS notified the public timely.

Table 2 – Public Notification Requirements for Community PWSs

Tier Violation	Deadline for Notice	Repeat Notice Frequency	Notification Delivery Methods
1	Within 24 hours of learning about the violation	As directed by the State	Broadcast media (e.g., radio, television); posting of notice in conspicuous locations throughout PWS service area; hand delivery to persons served by the PWS; or another delivery method approved in writing by the State
2	Within 30 days of learning about the violation	Every 3 months	Mail or hand delivery; additional methods as necessary to reach all consumers
3	Within 1 year of learning about the violation	Annually	Mail or hand delivery; may be included in annual report to consumers; additional methods as necessary to reach all consumers

Violations with the potential to result in acute or serious adverse health effects as a result of short-term exposure are classified as Tier 1 (e.g., the presence of *E. coli* bacteria). Tier 1 violations require the PWS to make public announcements – within 24 hours of learning of the violation – about the potential adverse effects on human health, the steps it is taking to correct the violation,

and the need to use alternative water supplies (e.g., boiled or bottled water) until the problem is corrected. Any violation or situation with the potential to have serious, but not immediate, adverse health effects is classified as Tier 2, and requires public notice within 30 days of the PWS learning about the violation. Finally, violations that are not directly related to adverse health consequences (e.g., failure to monitor at the required frequency or location or to comply with established testing procedures) are classified as Tier 3, and require public notification within one year. Within 10 days of an initial public notification and any repeat notices, a PWS must submit a certification to the appropriate Office that it has issued the required public notification, and include a representative copy of each notice distributed, published, posted, and made available to consumers and to the media.

Despite these requirements, our review of MCL violation records identified a range of compliance issues. For example:

- Offices could not provide evidence that public notifications had been issued for 58 (46 percent) of the 126 sampled MCL violations (see Table 1), including:
 - 6 Tier 1 violations involving nitrate;
 - 45 Tier 2 violations involving nine different contaminants; and
 - 7 Tier 3 violations involving two different contaminants.
- Of the 68 sampled violations in which public notifications had been issued or were pending (notification for one violation was pending release), 14 of the 67 notifications that had been issued (21 percent) were late, as follows:
 - 2 Tier 1 nitrate violations, which were 7 and 10 days late, respectively; and
 - 12 Tier 2 violations, including one involving arsenic that was 397 days late and two involving total trihalomethanes that were 154 and 336 days late, respectively.

Generally, Offices do not focus resources on verifying public notifications. Officials at three of the Offices we visited told us they do not document proof of public notification by PWSs. Officials at one Office indicated they used to compel PWSs to provide evidence, but have since abandoned that requirement due to increased workloads. In response to our findings, Department officials indicated that documentation of public notification is important and consistent with the regulatory requirements, but is not the only means of confirming that public notices have been issued. Offices may, at times, confirm that notices were issued through media, municipal websites, and other avenues.

Unless PWSs provide timely public notifications about MCL exceedances as required, customers may not receive important information about possible related public health concerns. By ensuring that PWSs submit evidence of public notification, the Department can verify that customers are receiving the required information, including details of the MCL violation and actions the PWS is taking to correct it.

MCL Violations Open in SDWIS for Extended Periods

The Department Manual requires Offices to ensure that all MCL violations and enforcement actions are promptly reported in SDWIS and closed out after the PWS has returned to compliance.

According to the Manual, MCL violations in any contaminant category that remain open for at least 12 consecutive months indicate more in-depth Office follow-up is appropriate, such as a field visit or informal hearing. In these cases, the Manual states that follow-up should be initiated within 30 days of a violation to ensure the PWS complies with public notification requirements and to help prevent violation recurrence.

Based on data provided by the Department, 536 MCL violations that were initially identified before January 1, 2014 were still open in SDWIS as of September 19, 2017, more than 2½ years later. Of these “old active” violations, 123 (23 percent) involved PWSs that are overseen by one of the five Offices we visited. Office personnel could not definitively identify the reason(s) why the violations were still open. For example, personnel at one Office said that the open violations were most likely an oversight, while at another, computer application migration issues were cited as a possible factor. Department officials indicated that coliform – a common, chronically recurring bacteria – may account for several of the open Tier 1 violations, but that the EPA’s “Implicit Return to Compliance” process may result in many of these being considered closed. They explained that under this process, when there are no other violations within six months of the original violation, a return to compliance is assumed. They also explained that violations from 1993 to 1999 were migrated in 1999 to SDWIS from its predecessor system for reference purposes, but could not be modified or closed, and may account for some of the open violations.

Following our inquiries about the old active violations, Department officials said they randomly sampled and evaluated old active MCL violations in four counties to assess whether they were accurately reported, and found multiple instances in which the open status was attributable to coliform or to the 1999 migration to SDWIS. In one county, they determined that none of the sampled 25 violations were Tier 1 and most – 23 – were Tier 3. Of the remaining two (Tier 2) violations, officials determined that one should have been closed out because the PWS had returned to compliance, and the other is still active because the PWS continues to deal with the violation issue. In another county, 17 open Tier 2 violations involved arsenic violations from 2000 through 2013, which were closed in January 2018 when the PWS installed a new treatment system. Similarly, they indicated six old active MCL violations at another county had been brought into compliance in 2016.

Based on their sample review results, Department officials stated that the status data in SDWIS is not reliable and, furthermore, that the old active MCL violations “represent an administrative record issue (some of which are artifacts of pre-SDWIS reporting) and do not represent long-standing water quality issues.” This explanation, however, fails to acknowledge the Department’s breach of its own policy: that Offices promptly report all violations and enforcement actions and close out violations in SDWIS when PWSs return to compliance. It bears emphasizing that the Department and EPA rely on SDWIS to monitor PWSs’ compliance with drinking water safety requirements, including tracking the required public notifications, and that accurate data is therefore essential. While the 1999 system migration and coliform situations may explain certain violations’ old active status in SDWIS, we determined that 178 of the 536 pre-2014 active MCL violations do not fall into either of these two categories. The 178 violations (115 Tier 2 and 63 Tier 3) involve 54 PWSs.

Department officials provided explanations for some of the 178 violations, which were included in their sample (i.e., 24 violations were brought into compliance and 3 are still active). However, given the length of time these violations have been reported as open in SDWIS (125 of 178 violations – 70 percent – were first identified more than five years ago), Offices should have engaged a more in-depth follow-up of these violations far sooner. Moreover, as required by Department procedures, the Offices should have also ensured that SDWIS was updated.

We queried SDWIS for 139 of the 178 MCL violations, including 99 Tier 2 and 40 Tier 3 violations. For 41 of the 99 Tier 2 violations (41 percent), SDWIS lacked an entry indicating that a public notification had been issued. The 41 violations included one turbidity violation and 40 MCL exceedances involving the following contaminants: arsenic (28), haloacetic acids (4), total trihalomethanes (6), and radium 226 and radium 228 combined (2). (See Exhibit B for potential risks to health associated with these contaminants.) Unless the Offices routinely track the status of all active MCL violations and take follow-up action when appropriate, the Department lacks adequate assurance that PWSs are complying with safe drinking water testing and public notification requirements.

SDWIS Reliability

Office staff enter all testing data into SDWIS to enable both the Department and EPA to track whether PWSs are properly monitoring their water for contaminants. This information includes the results of PWSs' water monitoring conducted according to contaminant-specific schedules, the State's determination of whether the PWS has committed violations, a record of compliance and enforcement actions taken, and the State's determination that the PWS has returned to compliance.

We found that while the Offices provided evidence of PWS public notifications for 67 of the 126 MCL violations in our sample, SDWIS reflected this information for just 29 notifications (involving 4 Tier 1, 17 Tier 2, and 8 Tier 3 violations). This discrepancy illustrates the lag in Offices updating SDWIS to reflect the current notification status. Furthermore, the MCL violation data isn't entered consistently among the Offices we visited. In some cases, there was no entry in the violation "determination date" field, resulting in it defaulting to the data entry date. In addition, no formal definition exists for the "determination date" field, and Office personnel could not explain what information the field is intended to capture. There were also inconsistencies in how the Offices we visited close out MCL violations in SDWIS. While some close a violation when the PWS returns to compliance, another closes it only when a subsequent violation occurs. These variations can impair the data's accuracy and comparability and make it less useful for the Department and the EPA, both of which rely on SDWIS in their monitoring efforts.

Both Department and Office personnel described limitations of SDWIS, including that it lacks capabilities to produce user-friendly reports and is cumbersome to use. Some Offices we visited enter only basic required data into SDWIS, and each uses its own separate tracking systems, outside of SDWIS, to monitor PWSs. The Department's Manual, which contains policies and procedures related to oversight of PWSs, should address the need for consistent implementation of regulatory requirements across staff, programs, and Offices; however, we found it contains little

guidance about using SDWIS and updating data in the system – a determination corroborated by our discussions with Office officials. As such, each Office develops its own unwritten internal policies for coping with SDWIS challenges.

According to Department officials, SDWIS is an EPA-provided application, and while the EPA has committed to modernizing it to address State concerns, there have been repeated delays with launching module updates. In the future, SDWIS modules may offer the ability to input data electronically, particularly lab results. While this would be a vast undertaking, it would limit the need for manual data entry, and allow Office personnel to focus more on PWS monitoring responsibilities. Without better data input methods, and a more concerted effort by Offices to input data timely, SDWIS will continue to contain unreliable MCL violation status information. Given the documentation concerns mentioned previously, coupled with Offices' varying practices for recording MCL violation milestone dates and compliance activity in SDWIS, there is a high risk the Department will have difficulty accounting for PWSs' compliance with State requirements, including timely corrective actions and public notifications.

Recommendation

1. Ensure that safe drinking water is distributed to the public through a robust monitoring program that, at a minimum:
 - Directs Offices to both follow Department procedures for initiating appropriate corrective action and maintain adequate documentation whenever a PWS has an MCL violation;
 - Requires Offices to verify that PWSs have issued timely public notifications of MCL violations to consumers;
 - Promptly reports MCL violations in SDWIS and closes them out after the PWS has returned to compliance;
 - Ensures Offices account for the status and compliance actions taken to address old active MCL violations and take any necessary actions to return the PWS to compliance; and
 - Establishes and communicates procedures that reinforce consistent practices for appropriately and timely updating SDWIS MCL violation information.

Unregulated Contaminants

To meet SDWA requirements, the EPA established the Unregulated Contaminant Monitoring Rule (UCMR) program – a mechanism to collect occurrence data for emerging contaminants that are suspected to be present in drinking water and for which the EPA has not set health-based standards. Participation was required only by systems serving 10,000 people or more, plus a limited sample of smaller systems.¹ The EPA uses UCMR data to inform its decisions about whether the contaminants should have a safety standard for consumption, along with required testing. If health risks for a given substance are present in limited areas, the EPA may opt not to

¹ Currently, only 196 of the State's 9,155 PWSs are mandated to conduct UCMR 3 testing. Most community PWSs with fewer than 10,000 people – about 2,700 PWSs that serve approximately 2.5 million New Yorkers – are not required to conduct UCMR testing. Also, the 6,296 non-community PWSs, including businesses and schools, are not required to test. UCMRs are numbered to reflect the different surveys done over time; we referred to the most recent completed version – UCMR 3, adopted in 2012 – for purposes of our audit.

establish national limits and testing requirements; in these cases, the EPA encourages states to consider taking action on their own.

Under UCMR 3, the EPA directed certain PWSs to monitor for 28 chemical contaminants, such as strontium, and two viruses. Perfluorinated compounds – such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), the two toxic contaminants found in the drinking water in the Village of Hoosick Falls and the City of Newburgh, respectively, that have been linked to cancer and other serious health effects – are among the chemical contaminants covered under UCMR 3. (See Exhibit C for potential health risks associated with these contaminants.) For each covered contaminant, the EPA cites a minimum reporting level (MRL) at which a contaminant may be detected by current analytical methods (e.g., the MRL for PFOA is 20 parts per trillion). It also cites a reference concentration, at which current information indicates adverse health effects may result; the EPA does not require any action by PWS operators.

Until recently, New York did not have a formal program to monitor emerging contaminants. The Emerging Contaminant Monitoring Act (Act) took effect in 2017, giving the Department authority to create a new regulatory program to identify and address emerging contaminants and to establish requirements for PWSs. The Act empowers the Department to require that PWSs “take such actions as may be appropriate to reduce exposure to emerging contaminants.” The Act also established the Drinking Water Quality Council (DWQC) as an advisory board to the Department charged with identifying emerging contaminants for monitoring; recommending notification levels; and, when appropriate, recommending MCLs. The Act required the Department to develop a list of emerging contaminants for which all State PWSs, regardless of size, are required to test at least once every three years and that must include PFOA, PFOS, and 1,4-dioxane. The PWSs must report to the Department within 24 hours if any test results exceed the notification level and issue follow-up public notifications to their customers. In identifying other contaminants to add to the list, the Department must consider unregulated contaminants monitored pursuant to SDWA as well as other factors, including DWQC recommendations.

The DWQC met three times in the period October 2017 through February 2018 and has discussed MCLs for PFOA, PFOS, and 1,4-dioxane. After MCLs are established, these contaminants will no longer be considered “emerging” and will be regulated and listed in the Code, and the Department will focus on additional emerging contaminants. Department officials said that the DWQC plans to provide its first list of recommended emerging contaminants, including required testing information, no later than October 2018 and to update the list annually thereafter.

According to EPA data covering the period 2013 through 2015, State PWSs that participated in UCMR 3 collected 48,451 samples. Because the sampling only covered larger PWSs and a few smaller water systems, only 196 of the State’s 2,859 community PWSs participated. Among the notable results:

- 175 of the 196 PWSs – nearly 90 percent, encompassing 45 counties – detected contaminants in concentrations equaling or exceeding the MRL in at least one sample.
- 10,305 of the samples (21 percent) exceeded the MRL for 20 contaminants, including 541 involving PFOA, PFOS, and/or 1,4-dioxane.
- 9,764 samples (20 percent) equaled or exceeded the MRL for 17 distinct contaminants

In response to our analysis, Department officials indicated they will continue to take aggressive actions to identify and address emerging contaminants and to inform the public of the contaminants' presence. They cited public meetings and information sessions, as well as their availability to speak with concerned residents, among their outreach efforts. In addition, the DWQC is providing recommendations to the Department regarding monitoring, regulation, and standards for emerging contaminants in drinking water. Given the inconvenience to and concern of residents, as well as the ongoing repercussions, from drinking water that was tainted by emerging contaminants in both the Village of Hoosick Falls and the City of Newburgh, it is imperative that the Department take prompt and concerted action to appropriately address – and, where necessary, regulate – contaminants that pose a public health risk.

Recommendation

2. Prioritize actions to regulate emerging contaminants with known adverse health effects.

Audit Scope, Objective, and Methodology

Our audit determined whether the Department is providing effective oversight of the State's PWSs to ensure water is suitable for people to drink. Our audit scope covered the period January 1, 2014 to March 26, 2018.

To accomplish our audit objective, we reviewed applicable laws, rules, and regulations, as well as the Department's policies and procedures for inspection, violation, and enforcement activities relevant to drinking water provided by PWSs. We interviewed Department and Office officials to understand their respective roles in overseeing PWSs and delivery of drinking water. We also became familiar with, and assessed the adequacy of, the Department's internal controls as they related to its performance and our audit objective. Additionally, we reviewed Department and Office records to determine whether Office staff inspected facilities as required; analyzed water sampling reports; and identified and took appropriate corrective action where warranted. We also reviewed Department and EPA websites for information relevant to our audit objective.

To test monitoring of PWSs, we judgmentally selected a sample of five Offices that oversee ten counties (Delaware, Erie, Greene, Jefferson, Lewis, Orange, Otsego, Saratoga, Warren, and Washington) whose PWSs served a combined total of 143,015 persons as of September 2017. We considered two factors in selecting these Offices: their high numbers of total MCL violations and geographic distribution across the State. At these Offices, we judgmentally selected a total sample of 126 MCL violations for 44 community PWSs based upon the nature of the violations. We focused our review on all MCL violations reported in SDWIS for these PWSs, including contaminants covered under EPA National Drinking Water Regulations. We reviewed Office records and available lab reports to determine whether the PWSs followed Code requirements for both addressing identified violations and timely reporting. In addition, we analyzed SDWIS data as of September 19, 2017 for all State community PWSs to identify any MCL violations that were indicated before January 1, 2014 and were still active. We followed up with Department and Office officials to determine whether there was appropriate justification for these violations

remaining open. We also queried SDWIS to determine whether proper compliance actions (i.e., public notifications) had been taken for the open MCL violations.

We conducted our performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

In addition to being the State Auditor, the Comptroller performs certain other constitutionally and statutorily mandated duties as the chief fiscal officer of New York State. These include operating the State's accounting system; preparing the State's financial statements; and approving State contracts, refunds, and other payments. In addition, the Comptroller appoints members to certain boards, commissions, and public authorities, some of whom have minority voting rights. These duties may be considered management functions for purposes of evaluating threats to organizational independence under generally accepted government auditing standards. In our opinion, these functions do not affect our ability to conduct independent audits of program performance.

Authority

The audit was done according to the State Comptroller's authority under Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law.

Reporting Requirements

We provided a draft copy of this report to Department officials for their review and formal written comment. We considered their comments in preparing this final report and have included them in their entirety at the end of the report. The Department generally agreed with the report's recommendations and stated that it is either implementing the suggestions or that its practices already consistently address them.

Within 90 days after final release of this report, as required by Section 170 of the Executive Law, the Commissioner of the Department of Health shall report to the Governor, the State Comptroller, and the leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons why.

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Vision

A team of accountability experts respected for providing information that decision makers value.

Mission

To improve government operations by conducting independent audits, reviews, and evaluations of New York State and New York City taxpayer-financed programs.

Exhibit A

Key Terms

Contaminant: Any physical, chemical, biological, or radiological substance or matter in water.

Maximum Contaminant Level (MCL): Maximum permissible level of a contaminant in water delivered to users of a PWS, as established under federal and State law.

Minimum Reporting Level (MRL): The smallest measured concentration of a substance that can be reliably measured by current analytical methods (e.g., the MRL for PFOA is 20 parts per trillion). MRLs are generally established as low as is reasonable (and are typically lower than the current health reference levels and health advisories), so that the occurrence data reported to EPA will support sound decision making, including those cases where new information might lead to lower health reference levels.

Notice of Violation (Notice): The first type of legal enforcement action issued to a PWS when an MCL violation occurs. Issued by the Department, the Notice formally codifies the violation and outlines the required actions and timeline that the PWS must adhere to in order to restore compliance.

Public Notification: In New York State, each PWS must provide public notification for public health hazards; for all MCL, maximum residual disinfectant level, treatment technique, monitoring, and testing procedure violations; and for other situations posing a risk to public health. Public notification requirements are divided into three tiers based on the seriousness of the violation or situation and any potential adverse health effects that may be involved, as follows:

- Tier 1 - relates to contaminants and situations that may represent a public health hazard following acute or short-term exposure; requires immediate corrective or remedial action; requires public notifications within 24 hours of learning of a public health hazard;
- Tier 2 - relates to contaminants and situations that potentially have adverse effects on human health after long-term (i.e., years) exposure; does not represent imminent exposure concerns; requires public notification within 30 days of learning of the violation or situation; and
- Tier 3 - relates to elements in drinking water (e.g., iron, manganese) that present aesthetic issues; requires public notification within one year of learning of the less serious violation or situation.

Public Water System (PWS): A system that provides piped water to the public for drinking or other domestic purposes. In New York State, the system must have at least five service connections or regularly serve a daily average of at least 25 people for at least 60 days a year. The EPA has defined two main types, as follows:

- Community - supplies water to the same population year-round.

- Non-Community
 - Non-Transient Non-Community - regularly supplies water to at least 25 of the same people at least six months per year (e.g., schools, factories, office buildings).
 - Transient Non-Community - provides water to places where people do not remain for long periods of time (e.g., gas stations, campgrounds).

Turbidity: A measure of the cloudiness of water; used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms, such as viruses, parasites, and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Exhibit B

Potential Health Risks of Selected Regulated Contaminants

Contaminant	Potential Health Effects From Long-Term Exposure Above MCL per EPA (unless specified as short term)	Sources of Contaminant in Drinking Water
Arsenic	Skin damage or problems with circulatory systems; increased risk of cancer	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Total coliforms (including fecal coliform and <i>E. coli</i>)*	Not a health threat in itself; is used to indicate whether other potentially harmful bacteria may be present	Coliforms are naturally present in the environment and in feces; fecal coliforms and <i>E. coli</i> only come from human and animal fecal waste
Haloacetic acids	Increased risk of cancer	Byproduct of drinking water disinfection
Nitrate (measured as nitrogen)	In infants younger than six months, could result in serious illness and, if untreated, death; symptoms include shortness of breath and blue-baby syndrome	Runoff from fertilizer use; leakage from septic tanks, sewage; erosion of natural deposits
Radium 226 and radium 228 (combined)	Increased risk of cancer	Erosion of natural deposits
Total trihalomethanes	Liver, kidney, or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection

* Fecal coliform and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.

Exhibit C

Potential Health Risks of Unregulated Contaminants

Click on each contaminant name below to view a map of New York State showing the distribution of that contaminant at the county level. These maps are also available for download on the Comptroller's [website](#).

Contaminant	Critical Effect	Use or Environmental Source
1,1-Dichloroethane	Determined by EPA to be a possible human carcinogen	Halogenated alkane; used as a solvent
1,2,3-Trichloropropane	Classified by EPA as "likely to be carcinogenic to humans" based on the formation of multiple tumors in animals	Halogenated alkane; used as an ingredient in paint, varnish remover, solvents, degreasing agents
4-Androstene-3,17-dione	Further research is being conducted	Steroidal hormone naturally produced in the human body; used as anabolic steroid and dietary supplement
Bromomethane	Acute and chronic (long-term) inhalation can lead to neurological effects in humans. Neurological effects have also been reported in animals. Chronic inhalation exposure in male animals has resulted in effects on the testes. EPA classified methyl bromide as Group D - Not Classifiable as to Human Carcinogenicity.	Halogenated alkane; occurs as a gas; is used as a fumigant on soil before planting, on crops after harvest, on vehicles and buildings, and for other specialized purposes
Chloromethane (methyl chloride)	Associated with mild neurological effects in humans	Halogenated alkane; used as foaming agent, in production of other substances, and byproduct that can form when chlorine used to disinfect drinking water
Chlorate	Consumption by infants and young children in high concentrations can cause problems to the nervous system and anemia based on studies at high test doses in animals. The same effects could occur in the human fetus at sufficiently high doses. ¹ Per EPA, it is also associated with enlarged thyroid.	Agricultural defoliant or desiccant; disinfection byproduct; used in production of chlorine dioxide

Contaminant	Critical Effect	Use or Environmental Source
Chlorofluorocarbon (HCFC-22)	Exposure to high levels of HCFC may affect nervous system, heart, liver, kidney, reproductive system. ² It is associated with degenerative effects on the brain and coverings, changes in the blood cell count (unspecified), and nutritional and metabolic effects, such as weight loss or decreased weight gain per EPA.	Used as a refrigerant, as a low-temperature solvent, and in fluorocarbon resins, especially in tetrafluoroethylene polymers
Chromium (Cr) and Cr (VI)	Cr (III) is considered to be a micronutrient; dietary guidelines have been established by National Institutes of Health. Cr (VI), on the other hand, is considered a carcinogen. Also, ingestion of high amounts of chromium (VI) causes gastrointestinal effects in humans and animals, including abdominal pain, vomiting, hemorrhage, intestinal lesions.	Cr is a naturally occurring element in the environment; used in making steel and other alloys; chromium (III) or (VI) forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation.
Cobalt	Cardiac effects, congestion of the liver, kidneys, and conjunctiva, and immunological effects have been noted in chronically exposed humans. EPA has not classified cobalt for carcinogenicity, but indicates it is associated with effects on blood (increased hemoglobin, polycythemia) and lung function.	This is a naturally occurring element found in the earth's crust and at low concentrations in seawater, and in some surface and ground water; cobaltous chloride was formerly used in medicine and as a germicide.
Molybdenum	Long-term, chronic exposure to excessive amounts can pose health risks, including joint pain and gout-like effects. It is associated with increased uric acid levels per EPA.	A naturally occurring element found in ores and present in plants, animals, and bacteria; molybdenum trioxide commonly used as a chemical reagent
Perfluoroheptanoic acid (PFHpA)	Possible human carcinogen ³	Man-made chemical; used in products to make them stain, grease, heat, and water resistant

Contaminant	Critical Effect	Use or Environmental Source
Perfluorononanoic acid (PFNA) Perfluorohexane sulfonate (PFHxS)	Both animal and some human studies have found an association between perfluorochemical (PFC) exposure and cholesterol and/or triglyceride levels. Some human studies show an increase in blood lipid levels with increased presence of PFCs, including PFHxS, and PFNA. Animal studies have found an association between PFOS and PFNA exposure (in utero and in adulthood) and immune suppression, including alterations in function and production of immune cells and decreased lymphoid organ weights.	Man-made chemical; used in products to make them stain, grease, heat, and water resistant
Strontium	Structural changes in growing bones, impaired calcification, and rachitic bone (rickets)	A naturally occurring element; has been used commercially in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Testosterone	Further research is being conducted.	Androgenic steroid naturally produced in the human body; used in pharmaceuticals
Vanadium	The International Agency for Research on Cancer has determined that vanadium is possibly carcinogenic to humans. It is associated with altered kidney function indicated by increased blood urea and mild tissue changes per EPA.	A naturally occurring elemental metal; used as vanadium pentoxide, which is a chemical intermediate and catalyst

Note: Unless otherwise noted, all information is from <https://www.epa.gov> or <https://www.cdc.gov>

¹ <https://www.watertechnology.com/contaminant-of-the-month-chlorate/>

² <http://apps.sepa.org.uk/spria/Pages/SubstanceInformation.aspx?pid=120>

³ <https://www.ewg.org/tapwater/contaminant.php?contamcode=E267#.W1c-CNVKipo>

Agency Comments



Department of Health

ANDREW M. CUOMO
Governor

HOWARD A. ZUCKER, M.D., J.D.
Commissioner

SALLY DRESLIN, M.S., R.N.
Executive Deputy Commissioner

July 20, 2018

Mr. Brian Reilly, Audit Director
Office of the State Comptroller
Division of State Government Accountability
110 State Street – 11th Floor
Albany, NY 12236-0001

Dear Mr. Reilly:

Enclosed are the Department of Health's comments on the Office of the State Comptroller's Draft Audit Report 2017-S-45 entitled, "DOH Oversight of Municipal Water Systems."

Thank you for the opportunity to comment.

Sincerely,

Sally Dreslin, M.S., R.N.
Executive Deputy Commissioner

Enclosure

cc: Marybeth Hefner
Brad Hutton
Adrienne Mazeau
Gary Ginsburg
Michael Cambridge
Roger Sokol
Diane Christensen
Lori Conway

Department of Health
Comments on the State Comptroller's
2017-S-45 Draft Audit Report entitled,
"Oversight of Public Water Systems"

The following are the NYS Department of Health's (the Department) comments in response to the Office of the State Comptroller's (OSC) Draft Audit Report 2017-S-45 entitled, "Oversight of Public Water Systems."

Background: The Department maintains a robust and progressive drinking water protection program to protect the over 95% of New York residents who are served water by regulated Public Water Systems (PWSs), and also has regulations and/or programs in place to further protect those using private wells or drinking bottled water. New York State has several rules and regulations that go above and beyond the United States Environmental Protection Agency (US EPA) federal regulations and standards for the protection of drinking water.

As stated in the OSC Audit Report, New York State PWSs achieve a high level of compliance with drinking water MCLs, with 98 percent of the systems having no violations in 2016 compared to the national average of 92.1 percent. In fact, from 2013 through 2015, 97 percent of New York State PWSs had no violations and from 2016 through 2017, 98 percent of systems had no violations. The Department attributes this to rigorous activities to protect sources of drinking water and actions taken by the PWSs under the guidance and oversight of the Department, its District Offices and local health departments.

Many other states and national organizations look to the Department for guidance and/or technical expertise because of the leadership role it plays. The Department works with professional organizations to assist drinking water regulators, public drinking water operators, engineers, and scientists with drinking water issues including regulations, reducing contaminants, water system design, and protection of watersheds.

With respect to emerging contaminants, New York State is a national leader in investigating their presence in drinking water and taking actions to address exposures. In 2016, Governor Andrew M. Cuomo established a Statewide Interagency Water Quality Rapid Response Team (WQRRT) charged with identifying and developing plans to swiftly address drinking water contamination concerns, as well as related groundwater and surface water contamination problems. Since the WQRRT was established, the Department, in collaboration, with other state agencies has provided extensive assessment of source water vulnerabilities and conducted targeted sampling at over 100 PWSs and countless private wells for emerging contaminants, including PFOA and PFOS. When contamination was identified in drinking water, the Department provided guidance and assistance to support follow-up actions by the PWSs and other relevant entities to protect the public. The Department, with the assistance of the WQRRT, continues to examine PWSs for vulnerabilities and initiates actions to investigate and address contamination concerns.

In addition, the Department convened the Drinking Water Quality Council established by New York State Public Health Law §1113 to provide recommendations to the Department on emerging contaminants in drinking water. The Council met for three full day meetings to examine the occurrence, toxicology, and treatment costs for 1,4 Dioxane, PFOA, and PFOS and to develop recommendations for maximum contaminant levels (MCLs). Additionally, the Department has

been working with the Stony Brook Center for Clean Water Technology to promote pilot projects for the treatment of 1,4-dioxane. The Department has also initiated actions to address Harmful Algal Blooms (HABs), another emerging contaminant, through monitoring at vulnerable PWSs. The Department continues to work with the NYS Department of Environmental Conservation to develop and disseminate action plans, as part of the Governor's 2018 initiative to combat HABs at 12 target waterbodies and statewide.

OSC Recommendation #1:

Ensure that safe drinking water is distributed to the public through a robust monitoring program that, at a minimum:

- *Directs Offices to both follow Department procedures for initiating appropriate corrective action and maintain adequate documentation whenever a PWS has an MCL violation;*
- *Requires Offices to verify that PWSs have issued timely public notifications of MCL violations to consumers;*
- *Promptly reports MCL violations in SDWIS and closes them out after the PWS has returned to compliance;*
- *Ensures Offices account for the status and compliance actions taken to address old active MCL violations and take any necessary actions to return the PWS to compliance; and*
- *Establishes and communicates procedures that reinforce consistent practices for appropriately and timely updating SDWIS MCL violation information.*

Department Response: The Department agrees in principle with this very broad recommendation, and notes that it is already implementing many of these suggestions as part of its regulatory enforcement regime. The standardization, monitoring, assessment, and oversight of the drinking water program statewide is a high priority of the Department. Many of the recommendations suggested in the OSC Audit Report are either in the process of or will be addressed through minor enhancements to existing procedures. The recommendations fall into two general categories: Procedures and Documentation and SDWIS reporting. The Department is addressing, and will continue to address, these issues as described below.

Procedures and Documentation: The Department maintains guidance for its District Offices and the local health departments through over 70 Environmental Health Manual (EHM) items outlining policies and procedures related to water supply oversight. They help ensure consistent program implementation across staff, programs, and offices. The Department's regulations under 10 NYCRR Subpart 5-1 and the EHM items provide detailed instructions concerning the issuing of notice of violations, corrective actions (including sampling), public notification, and data reporting. The Department recently amended Subpart 5-1 to conform with specific requirements in the US EPA federal regulations. The Department is revising applicable EHM items for consistency and will expand this effort to enhance specificity and clarity. The revised EHM items will detail the type and scope of documentation and retention related to MCL violations. As part of this process, the Department may also determine whether new or improved forms are needed to standardize documentation.

Along with the recent revisions to regulations in Subpart 5-1, the Department already has begun to develop additional training and education opportunities for staff and water system operators. For example, the Department offers training to its District Office and local health department environmental health staff through the Basic Environmental Health Course, and it recently amended the water supply protection module for the Fall of 2018. The trainings will include

updates to EHM items and/or new or improved forms as they become available. The Department has also committed to enhancing its partnership with American Water Works Association by presenting periodic topical webinars to their members. The first of these topical webinars was conducted on June 5, 2018 where Department staff provided information on when, why and how public water systems can test for the algal toxin microcystin. The goal of this webinar was to help public water systems be ready to respond if HABs are found in their source water.

The above efforts will achieve consistency between staff, programs, and offices, and will improve documentation to ensure all applicable requirements of Subpart 5-1 are standardized across State and county offices.

SDWIS/State Reporting: The Department uses the Safe Drinking Water Information System (SDWIS) data platform which was developed by US EPA to monitor PWS compliance with drinking water regulations. The US EPA's SDWIS is a legacy application in use since 1999 that is minimally supported by US EPA. This presents numerous challenges for the District Office and local health department staff who use it to report PWS data. With funding from the \$2.5 billion water quality investment as part of the FY 2017 Enacted Budget, the Department, with the assistance of the NYS Office of Information Technology Services (ITS), is updating SDWIS to the most current version. These upgrades will improve efficiency of reporting and identification of violations. The Department is also in the process of implementing electronic data reporting from the laboratories directly into SDWIS. This will increase data accuracy and reduce manual data entry by staff.

As upgrades to the SDWIS/ data platform are made, the Department will develop guidance through an EHM item, instructions, tutorials, and other documentation to clarify the reporting procedures for entering data into SDWIS. Such documentation will address the concerns identified in the OSC Audit report, including close out procedures, reporting of public notification, violation dates, and other data reporting issues. The Department will assess training needs upon release of these materials and provide training, as necessary.

OSC Recommendation #2:

Prioritize actions to regulate emerging contaminants with known adverse health effects.

Department Response: The Department agrees that prioritizing actions to address emerging contaminants is important and, contrary to the suggestion by OSC, has consistently done so and will continue to be a national leader on this front. The Department aggressively champions efforts to address emerging contaminants in drinking water that pose a potential health risk.

- The Department, in conjunction with the newly formed Drinking Water Quality Council, will continue to review data and information related to emerging contaminants. As recommendations from the Council are made, the Department will review and take the appropriate action to protect public health. As part of the WQRRT, the Department, in collaboration with other state agencies, has provided extensive assessment, sampling, and follow-up actions at PWSs and private wells to address emerging contaminants.
- The Department, also reviewed, existing Source Water Assessments, developed for all PWSs in the state under the Source Water Assessment Program, and based on this review, prioritized and sampled one hundred PWSs that had the potential to be vulnerable to man-made contamination.
- The Department has also proactively offered laboratories the ability to become certified to test for three emerging contaminants, 1,4 Dioxane, PFOA, and PFOS, through the

Department's Environmental Laboratory Program.

- After extensive technical review, the Department recently approved an Advanced Oxidation Process drinking water treatment system to remove 1,4-dioxane. This is the first treatment system of its kind in New York State.
- Additionally, the Department continues to work with the Stony Brook Center for Clean Water Technology to promote pilot projects to develop additional treatment technologies for 1,4-dioxane.
- The Department also continues to initiate actions to address HABs, at and near public water systems. The Department continues to work with the NYS Department of Environmental Conservation to develop and disseminate action plans, as part of the Governor's 2018 initiative to combat HABs at 12 target waterbodies and statewide.

The Department will continue its actions to address emerging contaminants in drinking water to protect the public.