

# Department of Health

## Division of Homeland Security and Emergency Services

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### Oversight of Water Supply Emergency Plans

Report 2021-S-39 | June 2023

OFFICE OF THE NEW YORK STATE COMPTROLLER  
Thomas P. DiNapoli, State Comptroller

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Division of State Government Accountability



# Audit Highlights

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## Objectives

To determine if the Department of Health (Department) is providing sufficient guidance and oversight to ensure that water system operators have completed and submitted updated emergency response plans timely, including vulnerability assessments, to the Department as required. An additional objective was to determine whether the Department and the Division of Homeland Security and Emergency Services (DHSES) are effectively collaborating to share relevant information regarding the vulnerability assessments and to ensure that any recommended follow-up actions occur. The audit covered the period January 2017 to January 2023 for the Department and April 2019 to November 2022 for DHSES.

## About the Program

The Department is responsible for overseeing the delivery of drinking water to ensure that it is suitable for people to drink. Its Bureau of Water Supply Protection (Bureau) is responsible for providing regulatory oversight of the operation, design, and quality of public drinking water supplies. The Bureau also assists with water system security, emergency preparedness and response, and the protection of critical drinking water system infrastructure. Department officials explained that, although they cannot ensure water resources are protected from threats – and that not all threats can be mitigated – they work with water systems, through a multitude of programs, to identify potential threats to their water resources. Nearly 95% of all New Yorkers receive water from public water supply systems in New York State.

State Public Health Law §1125 (Law) requires community water systems that supply drinking water to more than 3,300 people (Water Systems) to prepare and submit a Water Supply Emergency Plan (Plan) to the Department for review at least once every 5 years. Plans must include both an Emergency Response Plan (ERP) and a Vulnerability Assessment (VA). In the VA, Water Systems identify any vulnerabilities that could be caused by non-intentional events, such as floods and power outages, as well as vulnerabilities to intentional events, such as vandalism and terrorism, along with an anticipated corrective action in place for any identified vulnerabilities. According to Department officials, the ERP is one of many tools that may be useful in responding to emergencies. The first ERPs were to be submitted to the Department by December 31, 1990. Prior to submission of its Plan, each Water System is required under the Law to publish a notice in the area it serves, stating that the proposed Plan is available for review and comment by the public. Information that a Water System determines could pose a security risk to its operation if publicly disclosed, such as the content of the VA, is exempt from this requirement.

DHSES' Critical Infrastructure Protection Unit (Unit) works with government agencies and private entities to conduct assessments of the vulnerability of critical infrastructure to terrorist attack and other natural and man-made disasters and to develop strategies that may be used to protect the infrastructure from these threats. According to its website, the Unit defines critical infrastructure as physical and information technology systems vital to communities and whose incapacity or destruction would have a debilitating impact on physical or economic security, public health, or safety. Water and wastewater systems are among the 16 identified critical infrastructure sectors.

Subsequent amendments to the Law added a requirement that Water Systems include a Cybersecurity Vulnerability Assessment (CVA), identifying vulnerabilities to terrorist attack and cyberattack, in their VA, to be submitted to the Department by January 1, 2018. Pursuant to a 2016 Executive Law amendment, the Department must make a copy of the VA and CVA sections of each Plan (collectively

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referred to as an Assessment) available for DHSES' review. Based on its review, DHSES may issue recommendations or general guidance to Water Systems to enhance protections against terrorist attack and cyberattack.

In recent years, Water Systems have become increasingly vulnerable to attack, including contamination with deadly agents, physical attacks with toxic chemicals, and cyberattacks. Results of such attacks could potentially cause large numbers of illnesses or casualties as well as denial of service, impacting public health and economic vitality. Several states – such as Florida, Nevada, Maine, and California – have been the target of hackers who attempted to gain access to controls over certain water treatment plants and, in some cases, succeeded.

There are nearly 9,000 public water systems in New York State, including more than 2,800 community water systems. As of December 2022, 318 of those systems were required to submit a Plan. (We did not include the New York City Water System in our audit work; the audit focuses on the remaining 317 Water Systems.)

## Key Findings

- The Plans for most of the 317 Water Systems that were required to submit them were current and available at the Department. However, there were several instances where it had been more than 10 years since the last ERP or VA submission, and some Water Systems had never submitted a CVA. Further, the Department did little to follow up when Water Systems were late in submitting or didn't submit the revisions to the Plan that Bureau and/or Local Health Department (LHD) staff requested.
- There has been limited participation by LHD staff in the calls and site visits where DHSES communicates recommendations to Water Systems. Further, there is little collaboration between the Department and DHSES to follow up on risks identified by DHSES' reviews and the related recommendations communicated to Water Systems. This lack of collaboration represents a gap in Water System oversight.
- The Bureau does not verify whether Water Systems issue the required public notice of Plan availability, which provides a venue for public comment.

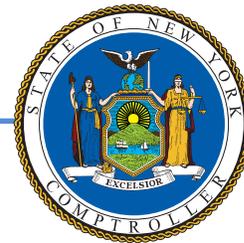
## Key Recommendations

### To the Department:

- Develop and implement a method to monitor the timeliness of Water Systems' Plan submissions and to follow up on revisions that Bureau and/or LHD staff requested.
- Develop and communicate guidance regarding LHD participation at site visits and calls with Water Systems that incorporates consideration of the nature and extent of the risks identified.
- Take action to determine, on a sample basis, whether Water Systems issue the required public notice of Plan availability for review and comment.

### To the Department and DHSES:

- Establish a method to strengthen the follow-up on recommendations that DHSES communicates to Water Systems.



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

June 27, 2023

James V. McDonald M.D., M.P.H.  
Commissioner  
Department of Health  
Corning Tower Building  
Empire State Plaza  
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Jackie Bray  
Commissioner  
Division of Homeland Security and Emergency Services  
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Dear Dr. McDonald and Commissioner Bray:

The Office of the State Comptroller is committed to helping State agencies, public authorities, and local government agencies manage their resources efficiently and effectively. By doing so, it provides accountability for the 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 Water Supply Emergency Plans*. This audit was performed pursuant to the State Comptroller's authority as set forth in 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,

*Division of State Government Accountability*

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# Glossary of Terms

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Term	Description	Identifier
Department	Department of Health	<i>Auditee</i>
DHSES	Division of Homeland Security and Emergency Services	<i>Auditee</i>
Assessment	Collectively refers to the two required assessments (Vulnerability and Cybersecurity Vulnerability) for the Water Supply Emergency Plan	<i>Key Term</i>
Bureau	Department of Health's Bureau of Water Supply Protection	<i>Bureau</i>
County Office	County health department	<i>Local Entity</i>
CVA	Cybersecurity Vulnerability Assessment	<i>Key Term</i>
District Office	Department of Health District Office	<i>Local Entity</i>
ERP	Emergency Response Plan	<i>Key Term</i>
Law	State Public Health Law §1125	<i>Law</i>
LHD	Local Health Department – a collective term referring to both a County Office and District Office	<i>Key Term</i>
NOV	Notice of Violation	<i>Key Term</i>
Plan	Water Supply Emergency Plan	<i>Key Term</i>
SDWIS	The federal Safe Drinking Water Information System	<i>System</i>
Unit	DHSES' Critical Infrastructure Protection Unit	<i>Unit</i>
VA	Vulnerability Assessment	<i>Key Term</i>
Water System	Community water system that supplies drinking water to more than 3,300 people	<i>Key Term</i>

# Background

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The Department of Health (Department) is responsible for overseeing the delivery of drinking water to ensure that it is suitable for people to drink. Its Bureau of Water Supply Protection (Bureau) is responsible for providing regulatory oversight of the operation, design, and quality of public drinking water supplies. The Bureau also assists with water system security, emergency preparedness and response, and the protection of critical drinking water system infrastructure. Department officials explained that, although they cannot ensure water resources are protected from threats – and that not all threats can be mitigated – they work with water systems, through a multitude of programs, to identify potential threats to their water resources. Nearly 95% of all New Yorkers receive water from public water supply systems in New York State.

State Public Health Law §1125 (Law) includes provisions related to protecting water supplies against attack. The Law requires community water systems that supply drinking water to more than 3,300 people (Water Systems) to prepare and submit a Water Supply Emergency Plan (Plan) to the Department for approval at least once every 5 years. Plans must include both an Emergency Response Plan (ERP) and a Vulnerability Assessment (VA). ERPs should include, for example, contact information for key Water System personnel and first responders, and should identify where technical support, repair, and replacement equipment are available for all critical system components. In the VA, Water Systems identify any vulnerabilities that could be caused by non-intentional events, such as floods and power outages, as well as vulnerabilities to intentional events, such as vandalism and terrorism, along with an anticipated corrective action in place for any identified vulnerabilities. According to Department officials, the ERP is one of many tools that may be useful in responding to emergencies. The first ERPs were to be submitted to the Department by December 31, 1990. Department guidance states that Water Systems should review their Plan annually to ensure the contact and other information is accurate, and should revise their VA as needed to reflect vulnerabilities that have been identified or corrected since the VA was last approved. The Department uses the U.S. Environmental Protection Agency's State Drinking Water Information System (SDWIS) to monitor Plan status.

DHSES' Critical Infrastructure Protection Unit (Unit) works with government agencies and private entities to conduct assessments of the vulnerability of critical infrastructure to terrorist attack and other natural and man-made disasters and to develop strategies to protect the infrastructure from these threats. According to its website, the Unit defines critical infrastructure as physical and information technology systems vital to communities and whose incapacity or destruction would have a debilitating impact on physical or economic security, public health, or safety. Water and wastewater systems are among the 16 identified critical infrastructure sectors.

Amendments to the Law, together with a change to the corresponding regulations, added a requirement that Water Systems include an analysis of vulnerability to terrorist attack, cyberattack, and natural hazards (Cybersecurity Vulnerability Assessment or CVA) in their VA and submit it to the Department by January 1, 2018. In addition, a 2016 amendment to the Executive Law requires the Department to

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provide DHSES with a copy of the VA and CVA sections (collectively referred to as Assessment) of each Water System's Plan and for DHSES to review them. Based on its review, DHSES may issue recommendations or general guidance to Water Systems to enhance protections against terrorist attack or cyberattack. In April 2019, the Department entered into a Memorandum of Understanding with DHSES that establishes document sharing and protection policies regarding the Assessments.

The Department oversees 36 county health departments (County Offices) and one city health department (New York City's Department of Health and Mental Hygiene), and nine District Offices that are responsible for 21 counties. For purposes of our audit, we focused on the activities of the 36 County Offices and nine District Offices, which we collectively refer to in this report as Local Health Departments (LHDs). LHDs provide regulatory oversight of the Water Systems in their jurisdictions. LHD staff correspond with Water Systems in their jurisdictions, prepare comments as needed, and work with Water Systems to ensure they submit Plans timely.

Prior to final submission of its Plan, each Water System is required under the Law to publish a notice in the area it serves, stating that the ERP portion of the Plan is available for review and comment by the public. The notice should be published for 2 consecutive weeks and allow for public comment at least 2 weeks after the initial publication. The Water System should submit any comments it receives to the Bureau with its Plan. Water Systems are exempt from issuing any information to the public if it is determined that its release poses a security risk to their operations.

As part of its publicly available 2018-2023 Strategic Plan, the Department identified aging information technology systems and equipment and cyberattacks as some of the top external threats to its mission. Cyberattacks are a growing threat to critical infrastructure sectors, including water and wastewater systems. A 2019 report by the American Water Works Association listed cyber risks as the number one threat facing the U.S. water sector. In recent years, water systems have become increasingly vulnerable to attack, including contamination with deadly agents, physical attacks with toxic chemicals, and cyberattacks. These attacks have the potential to cause illnesses or casualties as well as denial of service, which prevents legitimate users from accessing critical information systems. These attacks can impact public health and economic vitality, and can also erode consumer confidence and result in financial and legal liability.

As cited in the 2023 State of the State book, which describes the Governor's proposals prior to release of the Executive Budget,

Ransomware attacks, in which hackers hold data and systems hostage, rose 13 percent in 2021, and since 2017, more than 3,600 state, local, and tribal governments across the country have been hit.<sup>1</sup>

Several states have been the target of hackers who attempted to gain access to controls over certain water treatment plants and, in some cases, succeeded. For example:

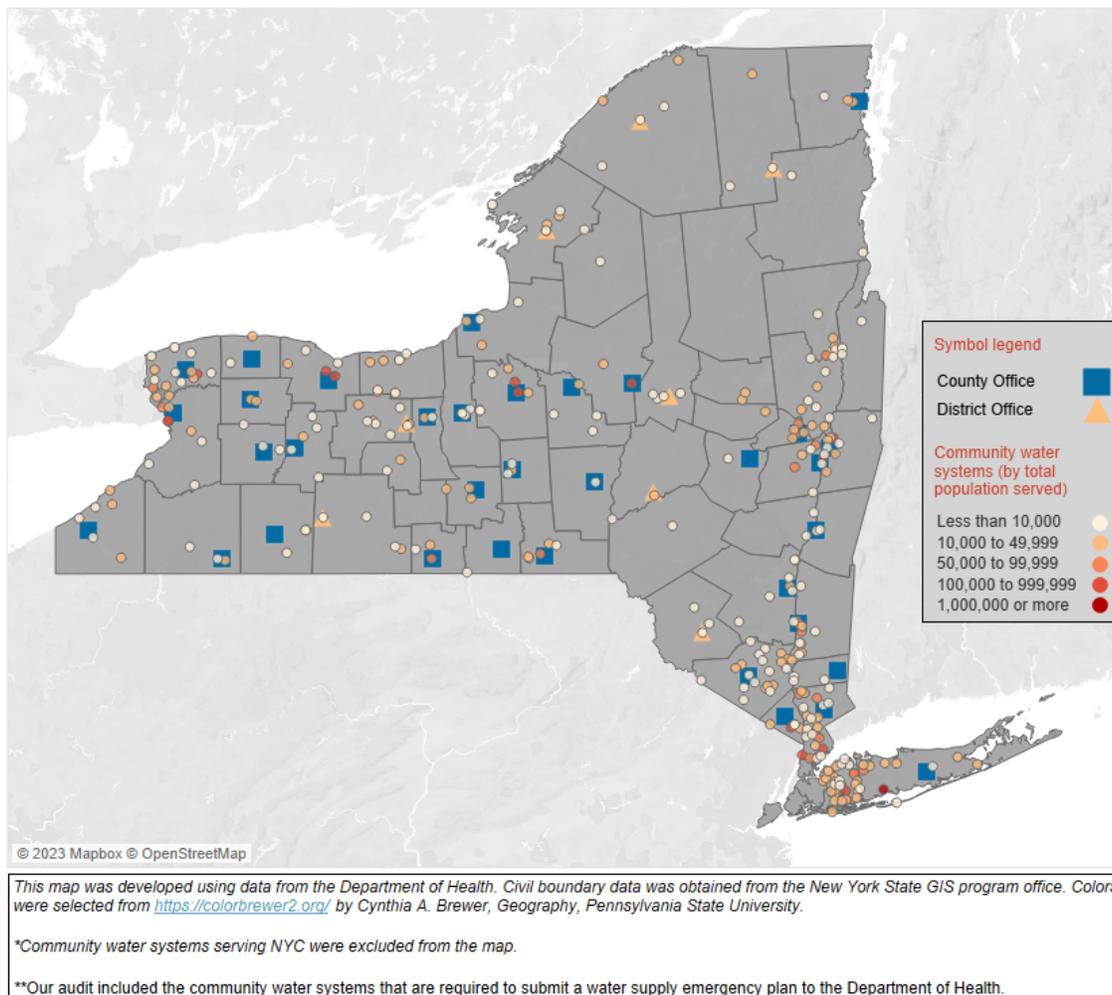
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<sup>1</sup> <https://www.governor.ny.gov/sites/default/files/2023-01/2023SOTSBook.pdf>, page 88

- Foreign attackers targeted a Rye, New York water dam in 2013 by accessing the supervisory controls and data acquisition system through a cellular modem that connected the dam to the Internet.
- In February 2021, a group of unknown hackers gained access to the operations technology system of a Florida water treatment plant, attempting to poison the water supply by increasing the amount of sodium hydroxide (lye) released into the water.
- Water treatment plants in Nevada, Maine, and California were victims of ransomware attacks in 2021. In all three cases, attackers gained control of the plants' supervisory control and data acquisition systems, allowing them to remotely monitor the facilities.

There are nearly 9,000 public water systems in the State, including more than 2,800 community water systems. As of December 2022, 318 such systems were required to submit a Plan. Figure 1 shows the location and population served by community water systems in the State and the location of each County and District Office.

**Figure 1 – Community Water Systems That Serve More Than 3,300 Residents**



# Audit Findings and Recommendations

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We found that the Plans for most of the Water Systems that were required to submit them were current and available at the Department. However, there were several instances where it had been more than 10 years since the last ERP or VA submission, and some Water Systems had never submitted a CVA. In addition, the Department did little to follow up when Water Systems were late in submitting or didn't submit the revisions to the Plan that Bureau and/or LHD staff requested. We also found there has been limited participation by LHD staff in the calls and site visits where DHSES communicates recommendations to Water Systems. In fact, as of our testing in November 2022, LHD staff had attended just 35 of the 113 calls/site visits, or 31% of the time. Further, the Department and DHSES could better collaborate to follow up on recommendations communicated to Water Systems. Finally, we found that the Department doesn't verify whether Water Systems issue the required public notice of Plan availability, which provides a venue for public comment.

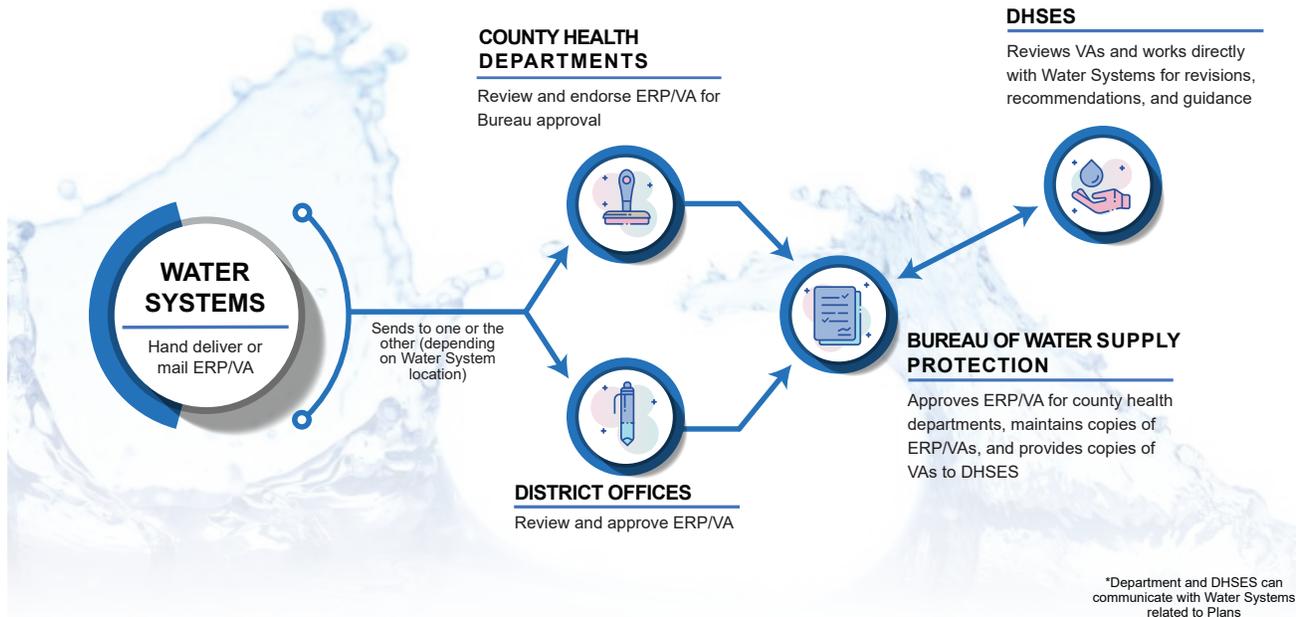
## Plan Availability, Timeliness, and Revisions

### Plan Availability and Timeliness

The Plans for most of the 317 Water Systems that were required to submit them were current and available at the Department. However, we identified several instances where it had been more than 10 years since a Water System last submitted an ERP or VA, and some Water Systems had never submitted a CVA.

Water System operators develop the Plans (or engage a third party to develop them or assist in their development) and submit them to the appropriate LHD. Plans are date-stamped upon receipt and securely stored in a designated area. Authorized LHD staff review the Plans and determine whether they are complete and whether the Assessments appear sufficient in scope. They use procedures and a review checklist developed by the Bureau to help ensure reviews are done in a consistent manner at the State and local levels and that they meet the Law's requirements. If a Plan needs to be revised before it can be approved, the Bureau issues a formal letter to the Water System identifying the revisions needed and the date they are due. District Office directors have authority to approve Plans, while County Offices submit Plans to the Bureau for final approval. The Law requires that the Department retain a copy of each Plan; however, ERPs (but not VAs) are also kept at the applicable LHD for availability to authorized personnel during Water System emergencies. The Bureau uses SDWIS to monitor Plan status. Figure 2 illustrates the Plan review and approval process.

## Figure 2 – Water System Emergency Plans Review and Approval Process



As of December 2022, 318 Water Systems were required to complete and submit a Plan to the Department. (We didn't include the New York City Water System in our audit work; the audit focuses on the remaining 317 Water Systems.) Since Plans are due every 5 years and due dates vary by Water System based on date of last submission, we considered a Plan current if it had a Bureau "received" date stamp of January 1, 2017 or later.

Of the 317 Plans we examined, we found some that did not have a current ERP, VA, and/or CVA, as follows:

- No current ERP for 32 (10%), including 15 for which it had been more than 10 years since the Water System's last submission, with the most recent submissions ranging from 2002 to 2010.
- No current VA for 33 (10%), including 16 for which it had been more than 10 years since the Water System's last submission, with the most recent submissions ranging from 2002 to 2010.
- No current CVA for 30 (9%). The first CVAs were due in January 2018.

In response to our observations, Department officials stated that the lack of an updated copy of the Plan in Bureau records is not necessarily an indication that a Plan has not been submitted, reviewed, and approved in accordance with the Law. They added that for Plans that were approved by the District Office, the lack of an updated copy at the Bureau is an indication that the District Office hasn't forwarded a final copy to the Bureau. While this response may account for some of the Plans that

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the Bureau didn't have, it does little to explain instances where a decade – or longer – had elapsed since the most recent Plan submission. If Plans are not yet received or approved, the Assessments, which include both the VAs and the CVAs, also don't advance to DHSES for its review and potential discussion with the Water System about identified risks, including cybersecurity risks.

## Plan Revisions

Although the Department issues letters to Water System operators when their Plans need revisions, there is minimal follow-up or enforcement when they don't submit them or are late in submitting. The Bureau issues letters to Water Systems if their Plans can't be approved without revisions. LHD and Bureau personnel enter dates into SDWIS, such as the date revisions are requested or a Plan is approved, that indicate where a Plan is in the review or approval process. According to officials, the Bureau runs SDWIS Status Reports quarterly, or more frequently if needed or requested, to determine and track the submission status of all Water Systems required to submit a Plan.

The Bureau also uses SDWIS data in preparing Department Public Water System Supervision Program Annual Reports.

According to the Status Reports, as of January 2022, 45 Water Systems were required to submit revisions to their ERP/VA or CVA before the Plans could be approved. We were unable to locate records for one Water System; according to Bureau officials, they were accidentally destroyed due to human error, and revisions to both the ERP/VA and the CVA were needed per SDWIS. Of the remaining 44 Water Systems, 19 were required to submit revisions for their ERP/VA, seven for their CVA, and 18 for both. We reviewed the Bureau's information to determine if it agreed with the Status Reports and if the Water Systems submitted their revisions timely, and to identify what steps, if any, the Bureau took to ensure revisions were received and were appropriate. The status of revisions for the 44 Water Systems, based on our October 2022 review, were as follows:

For ERP/VA revisions requested from 37 Water Systems:

- For 29 Water Systems (78%), the Bureau did not receive their revisions, which ranged from 5 months to nearly 3 years past due. Of the 29, 15 submitted their revisions to the LHD but they weren't available at the Bureau at the time of our review. Of the remaining 14, the Bureau issued Notices of Violation (NOVs) directly to five Water Systems and reminders to the applicable LHD to follow up on nine.
- For eight Water Systems (22%), the Bureau received the revisions, which ranged from 2 days to nearly 2 years past due. The Bureau approved five of those. For the remaining three Water Systems, the Bureau requested additional revisions, such as preparation of a public version of the Plan, identification of a corrective action plan, and identification of water facilities certified by the Department. We also note that the Bureau approved revisions for one Water System even though it didn't address the items in the revision request.

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For CVA revisions requested from 25 Water Systems:

- For seven Water Systems (28%), the Bureau did not receive their revisions, which ranged from 1 to nearly 4 years past due. Of the seven, the Bureau issued NOVs to the two Water Systems whose revisions were most overdue; there was no evidence of follow-up for the remaining five. The Bureau received revisions for 18 of the 25 Water Systems (72%).

Without adequate follow-up, there is reduced assurance that Plan revisions were made and address the areas identified by the Bureau.

## Monitoring Plan Status

### SDWIS Versus Bureau Records

Under State Public Health Law §206, the Department is authorized to assess civil penalties against public water systems that serve a population of 5,000 or more for each violation of or failure to comply with any term or provision of the State Sanitary Code. The Code's requirements mirror the Law with respect to Water Systems' obligation to submit Plans to the Department. The Bureau uses SDWIS Status Reports to identify Water Systems with overdue Plans.

Bureau reports track the ERPs and VAs as one document in SDWIS, although these parts of a Plan are separate and may be submitted by the Water System at different times, and CVAs are tracked separately in SDWIS. According to the Status Report dated January 5, 2022, 161 of the 317 Water Systems' ERPs and VAs – or 51% – had been approved. We compared the SDWIS information to information we observed in Bureau records and found that two of 161 Water Systems lacked an updated ERP and VA in the records, despite being recorded as approved in SDWIS. One Water System's most recent Plan was dated March 2014, and the Bureau had no record for the other. While this is not a large discrepancy, it illustrates a weakness that could affect the reliability of information used for monitoring Plan status. Department officials said that there will always be a period of time between when a Plan is marked as approved in SDWIS by the District Office and when an approved copy of the Plan is forwarded to, received, and filed by the Bureau.

### Follow-Up on Late Plans

In April 2021, the Bureau began issuing NOVs to Water Systems that failed to submit an updated Plan timely, requiring them to submit a current Plan within 45 days. To identify the relevant Water Systems, Bureau staff used the data from the Status Reports, which, as described above, conflicted with Bureau files in some cases. According to the January 5, 2022 Status Report, there were 19 Water Systems with overdue ERPs/VAs and five with overdue CVAs. The Bureau issued NOVs to 15 of the 19 with overdue ERPs/VAs and to all five with overdue CVAs. Despite the NOV deadlines, as of January 5, 2023, the Bureau still had not received six of the 15 ERPs/VAs or any of the five CVAs. At the time of our audit, the Bureau had not assessed administrative penalties or fines for late or missing Plans. We note that, in

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July 2022, the Bureau issued a second round of NOVs, with a due date of 30 days, to newly non-compliant Water Systems as well as second NOVs to those that did not adequately respond to the first one.

In response to our observations, officials stated that, although the Bureau had not assessed administrative penalties or fines, issuing NOVs is part of the enforcement escalation process. They also said that the Bureau has outlined a more timely process for issuing NOVs, and that they will review quarterly Status Reports to identify Water Systems that have missed the submission deadlines. Still, without consequence, it is unclear whether this practice will help ensure that Water Systems provide this important information to the Bureau and – through its review of the Assessments – to DHSES.

In response to our preliminary observations about revisions and monitoring Plan status, Department officials acknowledged that SDWIS has limitations but stated it is the best tool currently available to LHDs and the Bureau to track Plans as they move through the review and approval process. They also said that some LHD personnel found SDWIS reports to be difficult and limited in the information they provide. They agreed that additional guidance should be provided to LHDs on using SDWIS to track and monitor Plan progress, and cited staff limitations as a historical barrier to doing so. Department officials also said that, in September 2022, during the course of our audit, they issued revised guidance to LHDs addressing Plan review and approval, and that they will host a webinar to go over the updated materials and review SDWIS data entry. They added that the Department's increased staffing since fall 2021 will allow for more oversight of the program.

## **Collaboration Between the Department and DHSES**

Despite DHSES' initial contact with the Department after receiving Water Systems' Assessments, there is limited participation by LHD staff in the calls and site visits to Water Systems where recommendations may be communicated. Further, there is little collaboration between the two agencies to follow up on risks identified by DHSES' reviews and the related recommendations communicated to Water Systems. This lack of collaboration and follow-up represents a gap in Water System oversight.

After the Bureau approves an Assessment, including both the VA and the CVA components, Bureau personnel hand-deliver a copy to the Unit, where it is kept in a secure area. The Unit performs a two-step review of each Assessment: an Initial Review and an Analyst Review. The Initial Review determines whether all required information has been included in the Assessment. The Analyst Review determines whether the Water Systems address basic security standards and procedures and includes prioritized corrective actions and dates for each identified vulnerability in its Assessment. Unit staff use templates created by the Bureau to conduct their reviews and may issue recommendations or general guidance to Water Systems to enhance protections against terrorist or cyberattacks.

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The Unit's review identifies specific areas that require follow-up, which are classified as follows:

- Data intake – indicates that an Assessment is missing information or a question was not answered correctly.
- Clarification call – conducted to gain a better understanding or clarification on specific answers provided in the Assessment.
- Site visit – can be initiated at the Water System's request or by Unit staff if they can't identify answers to targeted questions pertinent to the physical and cybersecurity of facility operations and if it has been more than 3 years since the last Assessment review.

Recommendations for VAs may relate to areas such as ensuring that personnel criminal background checks have been done, having alarm systems or other methods to detect unauthorized access, and having a program to encourage the public to report suspicious activity. Recommendations for CVAs may address areas such as remote access protocols, encryption tools for data transfers, and periodic cybersecurity training for staff and outside entities.

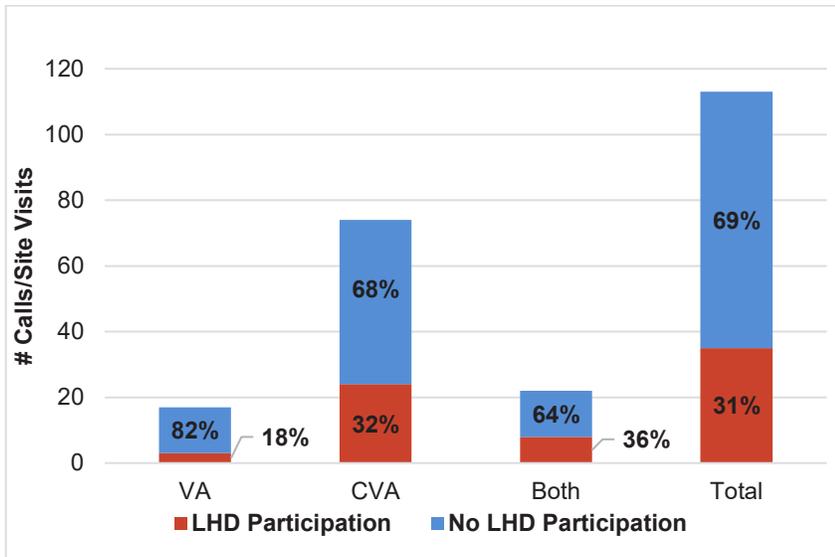
As of October 2022, the Bureau had approved and provided 175 Assessments to the Unit for review. In its Initial Review, the Unit found that 32 of the 175 included all required information and there was no need for further follow-up in the Analyst Review. Of the remaining 143 Assessments, 140 required follow-up, and as of November 2022, the Unit still awaited contact information from the Bureau for three Water Systems. Of the 140 Water Systems whose Assessments needed follow-up, 113 required a call or site visit, and 27 required follow-up related to data intake. Of the 113 Water Systems that needed a call or site visit:

- For 74 (66%), the follow-up related to their CVA;
- For 17 (15%), the follow-up related to their VA; and
- For 22 (19%), the follow-up related to both their CVA and VA.

According to Unit staff, when Assessments require follow-up, the Unit notifies the Bureau and requests contact information from Bureau staff for the Water System and associated LHD. The Unit sends an initial email to the Water System detailing the items requiring additional information and requesting a meeting with their staff. LHD officials are copied on all initial emails; Bureau officials are not.

Although the Unit included LHD officials on all initial emails to the 140 Water Systems since it began receiving the Assessments from the Department in late July 2019, as of our testing in November 2022, LHD staff had attended just 35 of the 113 calls/site visits, or 31% of the time. Figure 3 depicts LHD participation at the calls and visits.

**Figure 3 – DHSES Calls/Site Visits With Water Systems**



According to DHSES officials, for security reasons, some information, such as recommendations, is communicated to Water Systems verbally. As such, unless LHD staff participate in the calls or site visits where the recommendations are shared, they are unlikely to know the content or significance of the risks that have been identified. Further, the Unit doesn't include LHD or Bureau officials in post-call or post-visit communications unless they attended the initial call or visit.

In response to our observations, Department officials said there is no statutory requirement that DHSES communicate its recommendations to the Department, and indicated there is already a strong collaborative process. They also stated that, following the 2019 execution of the Memorandum of Understanding with DHSES, the two agencies met four times (twice in 2019 and once each in 2020 and 2021) to discuss overall program implementation, including common issues identified by DHSES for which additional focus or guidance might be beneficial. They also said that their staff have informal discussions during the transfer of documents and that the two agencies collaborated on revisions to the VA template released in September 2022.

DHSES officials stated that their invitation to LHD staff to participate in calls and visits provides the Department full access to the suggested recommendations made to Water Systems. Still, the low attendance by LHD personnel at these meetings results in the Department being less informed of actual or potential risks, including whether they are or will be addressed and whether, and to what extent, they may be concentrated among certain Water Systems and therefore warrant more attention.

Notably, neither DHSES nor the Department follows up to determine whether Water Systems address and implement DHSES' recommendations, some of which could address potentially critical areas. In response to our preliminary recommendation to both agencies to strengthen the follow-up on DHSES' recommendations to Water

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Systems, Department officials maintained that the Department lacks authority under the Law to require Water Systems to take action to address identified vulnerabilities, whether they are identified as part of the Assessment or as recommended by DHSES. They also said that it's up to each Water System to evaluate the risk of any vulnerability against the costs to address it.

Similarly, DHSES officials said that DHSES has no regulatory or statutory authority to compel Water Systems to commit to their suggested recommendations, and Water Systems have discretion to accept or reject them. DHSES officials added that their records would ensure they were aware of prior findings and recommendations at the time of subsequent submissions, and that they would anticipate that the recommendations would be addressed. They also said that it is the sole responsibility of the Department to follow up on recommendations.

While we recognize there are potential gaps in the Law related to responsibility for addressing Water System vulnerabilities, the justification for the Law expressly cites the importance for New York to remain vigilant in obtaining and sharing information related to cyber threats and terrorist attacks against critical infrastructure. In this spirit, and in the best interest of securing the State's Water System infrastructure, we recommend that the Department and DHSES collaborate to strengthen the follow-up on recommendations to Water Systems.

## Public Notice of Plan Availability

The Bureau does not verify whether Water Systems issue the required public notice of Plan availability, which provides a venue for public comment. While the checklist that Bureau personnel use includes a field to indicate whether a public version of the ERP is available, it doesn't contain a field to indicate whether the Water System issued the required public notice of Plan availability, and we found no other information in our review of the 317 Water System files to indicate that personnel verify this, even on a sample basis.

In response to our observations, Bureau officials said that they don't require Water Systems to submit proof of publication, nor do they verify that the notice has been published. They also stated that no Water Systems had yet submitted public comments about the Plans, adding that the Law is unclear about whether public notice is a requirement of just the initial submission or of all subsequent submissions. Because public notice provides transparency, as well as an opportunity for input from Water System customers, the Bureau should take action to determine if Water Systems are fulfilling this important obligation.

## Recommendations

### To the Department:

1. Develop and implement a method to monitor the timeliness of Water Systems' Plan submissions and to follow up on requested revisions.

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2. Develop and communicate guidance regarding LHD participation at site visits and calls with Water Systems that incorporates consideration of the nature and extent of the risks identified.
  3. Provide guidance to LHDs that addresses both effective use of SDWIS in monitoring Plan compliance and practices for reviewing Assessments.
  4. Take action to determine, on a sample basis, whether Water Systems issue the required public notice of Plan availability for review and comment.

**To the Department and DHSES:**

5. Establish a method to strengthen the follow-up on recommendations that DHSES communicates to Water Systems.

# Audit Scope, Objectives, and Methodology

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The objectives of our audit were to determine if the Department is providing sufficient guidance and oversight to ensure that Water Systems have completed and submitted updated ERPs timely, including Assessments, to the Department as required; and whether the Department and DHSES are effectively collaborating to share relevant information regarding the VAs and to ensure that any recommended follow-up actions occur. Our audit covered the period January 2017 to January 2023 for the Department and April 2019 to November 2022 for DHSES.

To accomplish our objectives and assess related internal controls, we reviewed applicable laws, regulations, policies, procedures, and documentation provided by both the Department and DHSES that related to their oversight of Plans. We interviewed officials from both agencies, and also met with Bureau, LHD, and Unit staff to gain an understanding of their processes for receiving, reviewing, and approving Plans. We also met with staff from two Water Systems to gain an understanding of their processes for creating and updating Plans.

To assess whether the Department had received updated Plans, as required, we reviewed the hard copy files for 317 of the 318 Water Systems that were required to submit a Plan (the remaining one Plan was for the New York City Water System, which we did not include in our audit). We determined whether the files contained a current Plan and reviewed information about the Bureau's guidance and oversight, including any communication between the Bureau and the Water Systems. Further, we reviewed a judgmental sample of six Plans, based on county size, to determine if they contained all information required by the Law, and found no exceptions. We did not design these samples to project their results to the population from which they arose, nor did we project any sample results to the related population.

We also obtained SDWIS reports related to the status of Plans as of January 5, 2022 and compared the report information with the information in Bureau files. We determined that the SDWIS report information was sufficiently reliable to be used for our testing (we tested it and found it was complete, though not always accurate); however, we relied on other evidence, such as hard copy files, to support our findings.

To determine if the Department and DHSES are effectively collaborating to share relevant information regarding the Assessments and to ensure that any recommended follow-up actions occur, we reviewed all 175 Plans physically located at DHSES, as well as electronic documentation of their Assessment reviews, to determine the outcome of their reviews and the level of communication with the Department. As part of our audit procedures, the audit team used data visualization software to enhance understanding of our report (Figure 1).

# Statutory Requirements

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## Authority

The audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law.

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 objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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. These duties may be considered management functions for purposes of evaluating organizational independence under generally accepted government auditing standards. In our professional judgment, these duties do not affect our ability to conduct this independent performance audit of the Department's and DHSES' oversight of water supply emergency plans.

## Reporting Requirements

We provided a draft copy of this report to Department and DHSES officials for their review and formal comment. We considered their responses in preparing this final report and have included them in their entirety at the end of the report. Department officials generally agreed with our recommendations and indicated steps they will take to address them; however, DHSES officials disagreed with our conclusions. We address certain remarks in our State Comptroller's Comments, which are embedded within each response.

Within 180 days of the final release of this report, as required by Section 170 of the Executive Law, the Commissioner of the Department of Health and the Commissioner of the Division of Homeland Security and Emergency Services 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.

# Agency Comments – DOH and State Comptroller’s Comment

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**Department  
of Health**

**KATHY HOCHUL**  
Governor

**JAMES V. McDONALD, M.D., M.P.H.**  
Acting Commissioner

**MEGAN E. BALDWIN**  
Acting Executive Deputy Commissioner

April 27, 2023

Nadine Morrell, Audit Director  
Office of the State Comptroller  
Division of State Government Accountability  
110 State Street – 11<sup>th</sup> Floor  
Albany, New York 12236-0001

Dear Nadine Morrell:

Enclosed are the Department of Health’s comments on the Office of the State Comptroller’s Draft Audit Report 2021-S-39 entitled, “Oversight of Water Supply Emergency Plans.”

Thank you for the opportunity to comment.

Sincerely,

Megan E. Baldwin  
Acting Executive Deputy Commissioner

Enclosure

cc: Melissa Fiore  
Michael Atwood

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**Department of Health  
Comments on the  
Office of the State Comptroller’s  
Draft Audit Report 2021-S-39 entitled,  
“Oversight of Water Supply Emergency Plans”**

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The following are the Department of Health’s (Department) comments in response to the Office of the State Comptroller’s (OSC) Draft Audit Report 2021-S-39 entitled, “Oversight of Water Supply Emergency Plans.”

**To the Department:**

**Recommendation #1**

Develop and implement a method to monitor the timeliness of Water Systems’ Plan submissions and to follow up on requested revisions.

**Response #1**

The Department has formalized a policy to monitor submission status and take escalating enforcement actions against water systems which miss submission deadlines. In response to local health department concerns regarding the lack of suitable tools in the Safe Drinking Water Information Systems for tracking document submission status and due dates, the Department has developed standalone tools to provide this information to the local health departments on a quarterly basis.

For those water systems with approved water supply emergency plans, each quarterly notification provided by the Department includes the date by which plans must next be submitted by the water system. When a submission deadline is missed, the Department has established a standardized schedule of increasingly severe penalties through which a water system will progress until the system returns to compliance. In accordance with existing Department policies and procedures, continued non-compliance will result in use of the administrative tribunal process for enforcement of the State Sanitary Code.

The most recent quarterly update was issued in January 2023, which resulted in the issuance of 51 notices of violations. Another 11 water systems were notified that they would receive notices of violation if documents were not submitted by April 1, 2023. The next quarterly update, and any necessary notices of violation, will be issued in the spring of 2023. The Department anticipates that this regular enforcement process will result in timely submission of documents by water systems.

**Recommendation #2**

Develop and communicate guidance regarding LHD participation at site visits and calls with Water Systems that incorporate consideration of the nature and extent of the risks identified.

**Response #2**

The Department agrees that LHD participation in calls or site visits conducted by DHSES with water systems would be beneficial to the overall supervision of the water systems. The Department will communicate to local health departments the recommendation that they participate but recognizes that local health departments must prioritize activities required by law or regulation. We anticipate that LHD participation will improve due to a shift in focus from COVID-19 response to routine activities.

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### **Recommendation #3**

Provide guidance to LHDs that addresses both effective use of SDWIS in monitoring Plan compliance and practices for reviewing Assessments.

### **Response #3**

Updated guidance documents were issued to local health departments in September 2022 as part of the Department's regular 5-year updates to this program. The guidance included updated review checklists and an overview of entering tracking dates into the Safe Drinking Water Information System. The Department also presented the information to the local health departments during webinars held on December 19, 2022 and January 6, 2023.

### **Recommendation #4**

Take action to determine, on a sample basis, whether Water Systems issue the required public notice of Plan availability for review and comment.

### **Response #4**

The Department interprets paragraph 3 of public health law section 1125, which requires notification of availability for public comment, to apply to the initial preparation of the water supply emergency plan, which was required by paragraph 4 to be submitted to the Department by December 31, 1990. Resubmission of the water supply emergency plan to the Department is required by paragraph 5, which includes review and, if necessary, revision prior to resubmission, but does not include any requirements to provide notification or public comment. Paragraph 5 has also been revised several times since initial adoption to require additional items be included in the water supply emergency plan, but no requirements for additional public comment were established.

The Department finds that transparency and opportunity for input from water system customers is provided by paragraph 7, which allows the commissioner to provide an opportunity for public hearing for persons served by a community water system.

**State Comptroller's Comment** – In their response to our preliminary findings, Department officials stated that the requirements of the Law regarding public notice are unclear; here, they express their interpretation that public notice is required only upon initial Plan submission (around 1990), which would have been roughly 33 years ago. Although the Law may be silent about the required frequency of public notice, we urge the Department to implement our recommendation, which we believe will enhance transparency and offer a venue for input.

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**To the Department and DHSES:**

**Recommendation #5**

Establish a method to strengthen the follow-up on recommendations that DHSES communicates to Water Systems.

**Response #5**

Neither the Department nor the local health departments nor DHSES have the authority under public health law section 1125 or executive law section 711-B to require water systems to take any action based on the recommendations or general guidance issued to them by DHSES. The Department recognized the expertise provided by DHSES' Critical Infrastructure Protection Unit and presumes that their recommendations will be evaluated by the water system on their own merit and implemented by the water system when appropriate.

The Department will work with DHSES to identify opportunities for follow-up where such follow-up is likely to result in implementation of the recommendations made by DHSES.

# Agency Comments – DHSES and State Comptroller’s Comments

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## Homeland Security and Emergency Services

**KATHY HOCHUL**  
Governor

**JACKIE BRAY**  
Commissioner

Ms. Nadine Morrell, Audit Director  
Office of the State Comptroller  
Division of State Government Accountability  
110 State Street – 11<sup>th</sup> Floor  
Albany, New York 12236

Dear Ms. Morrell:

The New York State Division of Homeland Security and Emergency Services (DHSES) has reviewed the Office of the State Comptroller’s (OSC) draft audit report for audit 2021-S-39 entitled “*Oversight of Water Supply Emergency Plans.*” DHSES takes great pride in the efforts made to enhance Water Suppliers’ protections against a terrorist attack or cyber-attack as prescribed by Public Health Law (PHL) §1125 and Executive Law (EXC) §711-B.

The draft audit report recommends DHSES strengthen its follow-up procedures used to monitor the corrective actions taken by the Water Suppliers to implement recommendations made by DHSES. The law does not provide DHSES with regulatory or statutory authority to compel Water Suppliers to respond to recommendations or develop and implement a corrective action plan. In addition, DHSES has always had a process in place to ensure we are aware of prior findings and recommendations at the time of subsequent Cybersecurity Vulnerability Assessment submissions and determine if past recommendations were addressed.

DHSES has reviewed the findings and recommendations and noted the areas in the report where we take exception or correction is needed. If you have any questions regarding the Agency’s response, please contact Brian D. Jackson of DHSES’s Office of Internal Audit at (518) 457-5120.

Sincerely,

A handwritten signature in blue ink, appearing to read "Benjamin Voce-Gardner", with a long horizontal flourish extending to the right.

Benjamin Voce-Gardner  
Director, Office of Counterterrorism

cc: Terence O’Leary  
Brian Wright  
Thomas McCarron  
Brian Jackson

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**New York State Division of Homeland Security and Emergency Services  
Response to Office of the State Comptroller Draft Audit Report:  
Oversight of Water Supply Emergency Plans  
2021-S-39**

The New York State Division of Homeland Security and Emergency Services (DHSES) response to the Office of the State Comptroller’s (OSC) draft audit report regarding the Oversight of Water Supply Emergency Plans is presented below. DHSES appreciates the detailed recitation in this report, highlighting the thoroughness of the Division’s program to enhance water suppliers’ protections against a terrorist attack or cyber-attack as prescribed by law. DHSES has reviewed the findings and recommendations and noted the areas in the report where we take exception.

**Comments on Described Conditions**

The following section presents specific comments regarding selected wording contained in the preliminary audit findings report.

**Key Findings:**

- **Page 2, Second Bullet, second sentence:** “Further, there is little collaboration between the two agencies to follow up on risks identified by DHSES’ review and the related recommendations communicated to Water systems. This lack of collaboration represents a gap in Water System oversight.”

*Agency Response:* Correction. DHSES has insured that Department officials were invited to participate in all emails, phone calls, visits, and recommendations that DHSES communicates to Water Systems.

**State Comptroller’s Comment** – We acknowledge that DHSES invites Department officials to participate in DHSES’ communications – such as calls and visits – with Water Systems. However, the fact that Department personnel are invited doesn’t, on its own, address the follow-up on the risks that may be identified during those very calls and visits, where collaboration is likely to add value.

**Key Recommendations:**

- **Page 2, Fourth Bullet, first sentence:** “Establish a method to strength the follow-up on recommendations that DHSES communicates to Water systems.”

*Agency Response:* Correction. DHSES has no regulatory authority requiring Water Suppliers to commit to suggested recommendations. Water Suppliers are mostly local government entities with independent discretion to accept or reject recommendations made by DHSES. It is the responsibility of each water supplier to evaluate identified vulnerabilities to determine if the risk the vulnerability poses to the water system outweighs the costs associated with removing or reducing that risk and take action where appropriate.

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**State Comptroller's Comment** – Our report cites potential gaps in the Law related to responsibility for addressing Water System vulnerabilities, but also points out that the justification for the Law includes language that emphasizes the importance of sharing information related to cyber threats and terrorist attacks against critical infrastructure. Our recommendation to DHSES, which was also made to the Department, is based on the premise that follow-up will be strengthened if it involves sharing and collaboration between DHSES and the Department.

*In addition, DHSES has a process in place to ensure that we are aware of prior findings and recommendations at the time of subsequent VA submissions and determine if past recommendations were addressed.*

**State Comptroller's Comment** – At the time of our audit work, the submissions to DHSES that we examined were initial submissions in line with the change in the Law, and none had undergone the process DHSES refers to. As such, we cannot comment on the adequacy of this process.

**Background:**

- **Page 6, Paragraph 2, seventh sentence:** “Department guidance states that Water Systems should review their Plan annually to ensure the contact and other information is accurate and should revise their VA as needed to reflect vulnerabilities that have been identified or corrected since the VA was last approved.”

*Agency Response:* Correction. Department guidance states that Water systems should review their Plan annually to ensure the contact and other information is accurate and should revise their VA and CVA as needed to reflect vulnerabilities that have been identified or corrected since the VA and CVA were last approved. DHSES expects that if a recommendation is made to the PWS related to a vulnerability and it is addressed by the PWS, we should receive a revision.

**State Comptroller's Comment** – DHSES is commenting on guidance issued by the Department of Health. Although the guidance we refer to here does not expressly mention the CVA, the Department's written guidance frequently includes the CVA as part of the VA.

- **Page 13, Paragraph 4, second sentence:** “Further, there is little collaboration between the two agencies to follow up on risks identified by DHSES' review and the related recommendations communicated to Water systems.”

*Agency Response:* Correction. This statement is incorrect, DHSES has insured that Department officials were invited to participate in all emails, phone calls, visits, and recommendations that DHSES communicates to Water Systems.

**State Comptroller's Comment** – We acknowledge that DHSES invites Department officials to participate in DHSES' communications – such as calls and visits – with Water Systems. However, the fact that Department personnel are invited doesn't, on its own, address the follow-up on the risks that may be identified during those very calls and visits, where collaboration is likely to add value.

- 
- **Page 13, Paragraph S, fourth sentence:** “The Analyst Review determines whether the water systems address basic security standards and procedures and identify corrective actions to take when they are not met...”

*Agency Response:* Correction. The Analyst Review determines whether the PWS addresses basic security standards and procedures and includes prioritized corrective actions and dates for each identified vulnerability in their assessment.

**State Comptroller’s Comment** – We have modified our report to reflect DHSES’ preferred wording.

- **Page 13, Paragraph S, fifth sentence:** “Unit staff use templates created by the Bureau to conduct their reviews...”

*Agency Response:* Correction. PWS use Bureau and/or industry templates to conduct their reviews, and DHSES assists with revising templates that DOH endorses. Unit staff utilized a template created by the Bureau as a baseline for their review, however the Unit established its own review process focusing on completeness, consistency, along with targeted areas and questions.

- **Page 14, Paragraph 1, third bullet:** “Site visit - can be initiated at the Water System’s request or by Unit staff if they can’t identify answers to targeted questions pertinent to the cybersecurity of facility operations or if it has been more than 3 years since the last Assessment review.”

*Agency Response:* Correction ...Unit staff if they can’t identify answers to targeted questions pertinent to the physical and cybersecurity of the PWS and is more than three years old from the time of the review.

**State Comptroller’s Comment** – We have modified our report to reflect that a site visit may be initiated by Unit staff if both conditions are present (inability to identify answers to pertinent targeted questions and more than three years since last Assessment review).

### **Response to Key Recommendations**

The following section presents DHSES’s response to the recommendations contained in the preliminary audit findings report.

- **Recommendation 5:** Establish a method to strengthen the follow-up on recommendations that DHSE makes to Water Systems.

*Agency Response:* Currently DHSES has a process in place to ensure that we are aware of prior findings and recommendations at the time of subsequent VA submissions and determine if past recommendations were addressed. DHSES will also work with Department officials to explore methods that strengthen the follow-up on recommendations that DHSES communicates to Water Systems.

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*In addition, DHSES has implemented new procedures to improve communications with the Department, insuring Department representatives are included and aware of all emails, phone calls, visits, and recommendations that DHSES communicates to Water Systems.*

**State Comptroller's Comment** – We're pleased that DHSES will work with the Department to enhance communications and the follow-up on recommendations to Water Systems.

# Contributors to Report

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**Andrea C. Miller** - *Executive Deputy Comptroller*

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