Testimony of Manuel P. Teodoro, PhD
Community & Urban Affairs Committee
New Jersey Senate
10 September 2019

Chairman Singleton and members of the Committee, I’m honored to speak with you about the Water Quality Accountability Act (WQAA). My testimony is based on rigorous analysis of water utility management, finance and policy across tens of thousands of U.S. water systems, as well as 22 years of experience in the water sector as a professional and a researcher. My remarks are my own observations; I do not speak on behalf Texas A&M University as an institution.

First, I commend the New Jersey legislature for enacting this important law. The transparency that the WQAA promises and the incentives it creates can make New Jersey a national leader and model in water utility performance. My only gripe with the WQAA is its name: the word “accountability” implies a threat of punishment for failure. With due respect, I’d have preferred it be called the Water Quality Achievement Act. Public reporting on water system investment and performance should be a chance to celebrate excellence—a point to which I’ll return.

Of course, the ultimate success of any law depends on implementation. Over the past decade I’ve been analyzing utility Safe Drinking Water Act (SDWA) compliance with Dr. David Switzer at the University of Missouri. Our research has uncovered many important patterns, and we’ve published several of them in peer-reviewed scientific journals. Perhaps the most striking, persistent finding is the relationship between system size and SDWA compliance: across the country, small water systems suffer disproportionately from poor compliance with SDWA’s contaminant, treatment technique, management, and reporting rules.1 Several other researchers have arrived at this same finding independently.2 America’s water problems aren’t only in small systems, but there’s no question that they’re most prevalent in small water systems. This same pattern holds in New Jersey. In anticipation of this hearing, Dr. Switzer and I analyzed SDWA compliance in the Garden State from 2013-2018. After adjusting for source water, demographics, and socioeconomic conditions, we found a negative relationship between system size and SDWA health violations: all else equal, a New Jersey utility that serves 50,000 people commits about half as many violations as one that serves 5,000.

There are at least two reasons behind this consistent finding. The first and most obvious is organizational capacity. The smallest systems might have just 2-3 full-time personnel—perhaps even fewer—operating entire systems. This limited organizational capacity severely limits small systems’ ability to comply with drinking water quality regulations. Members of Congress understood these capacity limits when they drafted the SDWA, but they believed small systems would consolidate in order to comply with the new law.3 More than four decades later, it’s


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clear that the widespread consolidation Congress anticipated didn’t happen. Too many local officials have been unwilling or unable to build sufficient organizational capacity for SDWA compliance.

The second reason for the persistent relationship between utility size and compliance is enforcement (or lack thereof). The state agencies charged with SDWA enforcement have few effective levers with which to compel compliance. Criminal prosecutions under the SDWA are rare. Fining a municipal utility for SDWA violations punishes the very people that the law is supposed to protect. In most cases, a state regulatory agency cannot credibly threaten to put a water system out of business, and cannot provide the financial resources or human capital necessary to bring systems into compliance. Regulatory officials are also aware of small systems’ limited capacity, and so there is also an understandable reluctance to crack down on failing small systems—especially for local government systems. Instead, regulatory officials try, with varying degrees of success, to cooperate with local managers to bring systems into compliance. My research indicates that regulatory agencies are, on average, more willing to impose sanctions on investor-owned utilities to force compliance.4 The result is that, in many cases, many water systems violate the SDWA frequently and chronically. This well-intentioned regulatory neglect disproportionately affects communities with low socioeconomic status or high minority populations.5

The great promise of the WQAA is that public reporting of system conditions, performance, and asset management can change the incentives for water utilities to build and maintain safe, sustainable, and resilient water systems. Critically, the WQAA requires a utility’s highest-ranking official to certify compliance. Data from the law’s first year give some reason for concern. Ahead of this hearing, I analyzed data on WQAA compliance in the law’s first year. As of October 2018, just 44 percent of the utilities that are subject to regulation were in full compliance.

Compliance followed a familiar pattern. I fitted a statistical model that estimates the likelihood of full compliance with the WQAA in 2018 after adjusting for system size, ownership, source water, and community demographics. Figure 1 (attached) shows the relationship between system size and WQAA compliance. Notably, the relationship between size and WQAA compliance was different for regulated corporate, investor-owned utilities. As Figure 2 shows, smaller systems owned by larger corporate utilities were significantly more likely to comply with the WQAA than were municipal and independent private systems. The differences are largest for systems with populations from 10,000-80,000. Beyond that size, ownership's effect is statistically indistinguishable. This difference is probably due in large part to the investor-owned utilities' greater organizational capacity.

These initial findings raise some important issues for the WQAA’s efficacy. First, organizational capacity once again appears to be an impediment to compliance. Second, 55 utilities submitted certifications that were not signed by the highest-ranking official; 18 systems did not submit any certification at all. It might be tempting to dismiss these problems as mere technical errors, but certification by the highest official is crucial to incentivizing sound management. For the WQAA to reach its full potential, top executives who lead utilities must be readily identifiable, so that those leaders can be lauded for achievement or held accountable for persistent problems. Systems that completely ignore WQAA requirements set a troubling precedent.

Looking ahead, New Jersey might seek to develop more ways to celebrate WQAA compliance and publicly recognize the leaders who prioritize safe, sustainable water systems. The state might also consider policies that encourage or compel consolidation or regionalization of systems that fail to comply.

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Good afternoon Chairman Singleton and members of the committee. Commissioner Holden and I appreciate the opportunity to appear before you today to discuss the Board of Public Utilities’ role in regulating investor owned water utilities.

Our statutory mission is to serve the people of New Jersey by ensuring safe, adequate, and proper utility service at a reasonable rate for customers. The Board addresses issues of consumer protection, deregulation of energy and telecommunication services, and the structuring of utility rates, including water, to encourage resilience, energy conservation, and competitive pricing for more than nine million residents throughout the state.

As relates to water, the Board is responsible for reviewing and approving water rates charged by investor-owned utilities, as well as water service issues, like water pressure, main breaks and billing disputes and assessing water and wastewater infrastructure needs. We also work cooperatively with our colleagues at the Department of Environmental Protection when it comes to water quality. Finally, the Board’s Bureau of Underground Damage Prevention is responsible for implementing the Underground Facility Protection Act, known as the One Call Law, which requires all excavators to call for mark outs before they dig, and companies that have underground facilities to mark and identify those facilities to prevent damage by the excavator when they commence excavation.

Our jurisdiction includes investor owned utilities and limited jurisdiction over ten municipal systems that meet certain requirements. The Board has limited authority over any municipal system that also serves 1,000 or more billed customers living outside the utilities’ municipal boundaries. However, in those cases the Board’s limited jurisdiction only extends to the customers that do not live within the system’s primary municipality and only in regard to service issues, not rates. For example, there are individually billed customers of the City of Bordentown who live in Bordentown Township and the Board retains jurisdiction over certain service and reliability issues for the customers in the Township. The
Board's website has a list of the water systems we regulate and I have provided copies for the committee as well.

Water Quality issues and implementation of the Safe Drinking Water Act and Water Quality Accountability Act are outside of the Board's authority. However, we work closely with DEP when these issues impact systems we regulate.

Obviously, and understandably, the growing problem of aging infrastructure and of lead pipes leaching lead into water is of concern for our Administration and our entire state. It is also a complicated issue due to the dual nature of pipe ownership and replacement cost responsibility.

In general, the water companies are responsible for their pipes up to the valve, typically at the curb-stop. The pipe that runs from the valve to the home is the responsibility of the homeowner, who must pay costs of replacements. That cost can be prohibitive to any owner, particularly those in low-income communities where lead is often a disproportionate issue because of the age of the home or building.

Aging water infrastructure is a national problem for which the need of a solution is increasingly dire. To that end, the Board determined several years ago that a mechanism was needed for water utilities to accelerate the level of investment required to promote the timely rehabilitation and replacement of certain non-revenue producing, critical water distribution components, which enhance safety, reliability, and/or conservation and to speed the rate of renewal of this aging infrastructure.

Through regulation, the Board created the Distribution System Improvement Charge (DSIC), to serve this purpose and it has been a success.

COMMISSIONER HOLDEN WILL TALK IN MORE DETAIL ABOUT THIS. PASS TO HOLDEN.
WATER UTILITIES REGULATED BY THE BOARD OF PUBLIC UTILITIES

Aqua New Jersey, Inc.:  
Berlin Water Department, Borough of: * 
Bordentown, City of:*  
Clinton Water Department, Town of:*  
Collingswood Water Department, Borough of: *  
Dover Water Commission, Town of:*  
Fayson Lakes Water Company:  
Gordon's Corner Water Company:  
Lake Lenape Water Company:  
Middlesex Water Company:  
Midtown Water Company:  
Montague Water Company (Subsidiary of Utilities, Inc.):  
Mount Olive Villages Water Company:  
New Jersey American Water Co.:  
Park Ridge Water Department, Borough of:*  
Pinelands Water Company (Subsidiary of Middlesex Water):  
Ridgewood Water Department, Village of:*  
Shore Water Company Inc.:  
Simmons Water Company:  
SUEZ Water New Jersey:  
Trenton Water Department, City of:*  
Wildwood Water Utility, City of:*  

*Municipal Systems: Only subject to the Board of Public Utilities’ jurisdiction for customers served outside of the municipality’s limits; and only in regard to service issues, not rates.
COMMISSIONER HOLDEN

The Board’s DSIC regulations, give investor owned utilities the opportunity to expedite the replacement of water mains, utility owned service lines, and fire hydrants. The DSIC allows the water utility to recover the costs of, and earn a return on, DSIC eligible projects without the need to file a full rate case.

Water utilities predate gas and electric utilities and in many systems their age has begun to show. The underground infrastructure -- the water mains and pipes -- are often 50 or more years old and are thus reaching the end of their useful lives. The goal of the DSIC is to hasten the replacement and rehabilitation of aging infrastructure, thereby preserving the integrity of the water distribution system for customers. These infrastructure improvements reduce waste and conserve water by reducing leaks in underground pipes and valves and reducing water main breaks which are both costly and wasteful.

The ongoing success of the DSIC has led the Board to initiate the rule making process to explore the possibility of expanding the DISC to the wastewater (sewer) utilities. This is another area in great need of more infrastructure investment and the DSIC may be one of the ways to achieve that for the investor-owned utilities.

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Good morning, Chairman Singleton and members of the committee. I appreciate the opportunity to appear before all of you to discuss the Water Quality Accountability Act or the “WQAA.”

As many of you will recall, the Water Quality Accountability Act (WQAA) was passed by the Legislature and became effective in October 2017. The WQAA established new requirements for purveyors of public water to improve the safety, reliability, and administrative oversight of drinking water infrastructure. The law applies to public water systems with more than 500 service connections, which includes 287 public water systems throughout the State. These systems serve over 90 percent of New Jersey’s population.

The WQAA imposes several requirements on these public water systems, including specific requirements for regular inspection and testing of valves and hydrants, cybersecurity programs, and preparation and implementation of asset management plans. The law also requires water systems to develop mitigation plans when there are multiple violations of Safe Drinking Water Act requirements, which are enforced by the DEP.

Importantly, the WQAA requires that top ranking officials for municipal and investor-owned utilities provide an annual certification that their public water systems are in compliance with all drinking water standards and other requirements, including the new requirements of the Act. This annual certification is an excellent tool for making sure that the right people are paying attention to such an important public health responsibility – ensuring the safety and reliability of the public water supply.

The new requirement that these public water systems develop and implement asset management plans is a particularly critical tool for ensuring the reliability of the public water supply in the years to come. The water systems were required to implement these plans within 18 months of the passage of the law, and thereafter to submit triennial reports to the DEP detailing their past and future capital improvements. The requirement to implement an asset management plan became effective on April 19, 2019. The first triennial reports will be due beginning April 19, 2022.

Compliance

The DEP is pleased to provide you with information on the public water systems’ compliance with the WQAA to date. In general, most water systems have complied with the requirement to submit annual certifications to the DEP. However, not all of the certifications have been signed by the required top-level official, and the certifications alone do not demonstrate actual compliance with all drinking water standards and other requirements.
Based on the 2018 WQAA Certification forms submitted to date, DEP can provide you with the following specific information:

- As of September 3, 2019, 271 out of 287 certification forms had been submitted for 2018 – that’s a 94 percent compliance rate on form submissions.
- 71 percent of the systems reporting certified that they are compliance with the standards of the WQAA [but please note that this rate is based on self-certification and does not reflect an independent DEP determination of compliance];
- 33 certification forms, a relatively small amount, were signed by an individual other than the mayor or chief executive officer as required by the law; and 46 forms were signed by individuals whose legal authority to sign is uncertain.¹

DEP also conducted an informal survey shortly after the April 19, 2019 due date for Asset Management plans. Out of 287 applicable water system purveyors, 83, about one third, provided responses to this unofficial voluntary survey. DEP used the survey to get a sense of the overall status of Asset Management plans and to obtain preliminary data on costs of compliance with the WQAA. Based on the purveyors’ responses, more than 90% had developed and were currently implementing Asset Management plans. Some purveyors indicated that they had difficulty completing the life cycle costing and long-term funding strategy components of the plans, but more than 70% of respondents indicated that they had completed these components.

The next deadline for submission of the annual certification form is October 19, 2019. At that time, we will have more complete information on water systems’ compliance with the various requirements of WQAA. We would be pleased to share that information with the committee when it is received.

It is important to note that the annual certifications submitted under the WQAA, while an important tool to focus decision-maker’s attention and encourage compliance, do not substitute for water systems’ independent obligations under the federal Safe Drinking Water Act to conduct sampling and report compliance with substantive drinking water standards (known as maximum contaminant levels), treatment and monitoring requirements. For the committee’s information, we have provided a copy of DEP’s annual report on violations of national primary drinking water regulations for public drinking water systems.²

**DEP Outreach to Public Water Systems**

DEP has conducted extensive outreach to engage public systems and other interested parties in discussing the requirements and implementation of the WQAA. DEP has participated in over 10

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¹ Many municipal systems had the Borough Administrator, or similarly titled person sign the certification form. While the WQAA required the mayor or chief executive officer to make this certification, the DEP has found that many towns delegated a substantial amount of management authority to a Borough Administrator.

² See https://www.state.nj.us/dep/watersupply/pdf/violations2018.pdf.
stakeholder or panel activities on the WQAA, including activities with the League of Municipalities and the New Jersey section of the American Water Works Association.

Lessons Learned to Date

After the first year of implementation of the WQAA requirements and receiving the water systems’ annual certification forms, DEP has compiled some “lessons learned” that we are using to improve WQAA compliance processes going forward. Some changes are needed to ensure that all water systems fully understand the protocols and procedures for submitting the annual certification form. In order to reduce confusion on who should sign the form, the new 2019 certification form will include explicit language on the signing authorities. Small but important changes include having the due date marked in bold, red text and placed prominently on the top of the new form. Finally, the specific requirements of the WQAA have been individually outlined such that the signers must specifically indicate compliance with each section.

Proposed Rulemaking

DEP proposes to engage in rulemaking in order to codify and clarify the provisions of the WQAA, particularly the requirements with respect to asset management. DEP launched its rulemaking process in April 2019. Through early engagements with stakeholders, DEP has identified opportunities to use the rulemaking process to increase public availability of data, include water loss auditing, to provide training for people responsible for the fiscal aspects of the water system, and to plan for integration of climate change considerations in planning for the future.

DEP’s goal is to issue a proposed WQAA rule in early 2020. DEP believes that a rulemaking, in addition to clarifying the requirements of the law for public water systems, will help improve both understanding of the law’s reach and the enforceability of its requirements.

Conclusion

The DEP looks forward to continuing to work with the Legislature on building awareness of the importance of the requirements of the WQAA and implementing its important protections for the safety and reliability of the public water supply. I thank you again for the opportunity to testify and would be happy to answer any questions you might have.
Dear Chairman Singleton, and members of the Committee,

Thank you for inviting me to speak today.

At New Jersey Future we believe in the importance of great places to live. Integral to every great community is safe, reliable drinking water. Water is vital—every person and every business depends on clean, reliable water service every day.

Although many water systems in New Jersey and across the country are well-run, in others, investing in water infrastructure comes last on the long list of local issues needing attention and funding. The result of decades of decline? Water systems fail, sometimes unpredictably. In July, South River residents woke up to find brown water coming out of their taps and a month later it was reported that an employee was falsifying the water quality tests. Newark residents have struggled with lead in drinking water over the past few years. Inadequate, aging water infrastructure is a statewide problem. In many places 20, 30, even 40 percent of treated drinking water leaks out of pipes. Older water mains break, causing flooding and disrupting business and requiring expensive repairs. Leaks, breaks and contamination put our health and economy at risk. It also leads to breakdown of trust by the public in their water systems.

The Water Quality Accountability Act was passed in 2017 to ensure modern, reliable water systems. For the first time the State of New Jersey is regulating not just what comes out of our taps, but also the water systems and pipes that bring it there. Now, two years later, the Senate Community and Urban Affairs Committee is asking how well the law is working. Perhaps the most helpful way to think about it is this: Could the WQAA could help prevent the kind of water problems we see in South River, Newark, and communities around the state?

The answer is yes, but only if implementation is strengthened to ensure better compliance with the goals of the act.

There are many shortcomings with implementation of the Act so far. Here are a few examples:

- Since the act was signed in 2017, the DEP issued a schedule of reporting requirements. As of 2018 mayors and utility directors must certify in writing compliance with drinking water standards and the relevant requirements of the WQAA by October 19 each year. Unfortunately, the results are not easily obtained. How many utilities reported...
compliance, how many are not in compliance, and are there any that failed to reply? Do you know where your community stands? This information can only be found by asking the DEP.

- Additional reporting requirements include implementation of an asset management programs by April 19 of this year. Many utilities are on the path of implementing asset management. We have also heard from industry consultants that some water utilities are not taking the law seriously because they know that the DEP does not currently plan to enforce it.

- Although the DEP has held one stakeholder meeting, there are not as yet any detailed reporting requirements that the department, along with the BPU and DCA, could review to assess compliance.

How can implementation of the WQAA be assured?

To ensure the promise of transparency and accountability through the WQAA, we propose the following specific recommendations. Many of these were developed by the Jersey Water Works Asset Management and Finance committee in partnership with the American Water Works Association - NJ Chapter's Infrastructure Management Committee.

1. Regulations and other approaches must define clear reporting requirements, based on input from stakeholders. A few examples include:
   a. DCA needs to require annual submission of capital budgets, capital expenditures on planned projects, and capital expenditures on unscheduled or unplanned projects, each for the past five years. In addition, any funds diverted to the local governments' budgets should be clearly shown.
   b. DEP must require submission of water loss audits that are validated, joining states like California and Georgia who are using water loss audit information to hold systems accountable.
   c. Utilities must be required to conduct lead service line inventories and report summaries to the DEP on an annual basis. This requirement should be coordinated with the WQAA.
   d. Requirements on pipe condition, such as the number of water main breaks per mile should be submitted annually.
   e. Reporting on specific components of asset management programs that show progress over time, based on the Asset Management Key Performance Indicators issued jointly by the Asset Management Finance Committee of Jersey Water Works and the Infrastructure Management Committee of American Water Works Association New Jersey Section.

2. Sharing information on utility compliance in an easy-to-use public website.
   a. Utilities that are doing a good job should be helped to tell their story to customers, who can then be more supportive when and if rate increases are needed. Shared integrated state level data dashboard on key metrics can serve

1 See AWWA State by State Water Loss Policy Map 2016

Working for Smarter Growth...More Livable Places and Open Spaces
as a proactive risk management tool to anticipate and build resilience in our water infrastructure.

3. Mechanisms to ensure enforcement, including adequate budgetary resources for state agency staff and the creation of modern data portals and user-friendly interfaces.

4. Technical assistance for low-resource utilities, to help them meet the Act’s requirements.
   a. Many water utilities, especially smaller ones, need help to catch up with the WQAA. NJDEP should work with industry associations to provide this assistance.

Finally, we recommend that the approach employed by the WQAA be extended to the wastewater sector.

In summary, the Water Quality Accountability Act and data generated by it can change the way we all think and understand the crucial role of our unseen water systems. Knowledge is the sunlight that keeps us safe when it comes to water. On behalf of New Jersey Future and Jersey Water Works, I applaud your commitment to this issue and pledge our assistance to ensure we all can benefit from clean and reliable water systems.

Feel free to contact me with any questions or comments at Chris Sturm, csturm@njfuture.org or 609-393-0008, x114.

SUPPORTING INFORMATION

Lead Service Line Inventories

Recent news coverage of lead in drinking water in our state have highlighted the problems under the ground with our aging water infrastructure. Lead is a solvable problem and we cannot solve this without fully understanding the extent to which the problem is occurring. Robust transparent lead service line inventory data can help make visible the extent of our need. This is in line with the direction states like Michigan and Illinois and cities like Cleveland and Philadelphia among others have taken in resolution of this problem. When water systems can demonstrate where the problem is and how they are resolving the problem, public trust strengthens in how water utility payments are being reinvested in the system for improvement and upgrades. We recommend WQAA coordinate with any new requirements for lead service line inventories for all water systems and sharing of that data publicly. This fall JWW task force will be issuing a comprehensive statewide solution for lead in drinking water. We look forward to sharing this when it’s ready.

Enforceable Water loss audits

Water loss is a common occurrence for many water systems. Water loss audits can help identify places in the water system where water losses are happening and where corrective actions can be taken. Water loss audit when done well can help recoup savings for water system that can then be funneled back into water system improvement and infrastructure upgrades. It’s important to utilize best practice water loss audit tool as this will ensure data collected is accurate and

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validated. American Water Works Association's Water Loss methodology and its free audit software is one of the industry recognized best practice\(^3\). By requiring water loss audits and data reporting, NJ has an opportunity to join states like California and Georgia who are using water loss audit information to hold systems accountable\(^4\). **We recommend the state play a role through the WQAA to require water loss audit and sharing of this data publicly.**

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\(^3\) American Water Works Association. The State of Water Loss Control in Drinking water Utilities  

\(^4\) See AWWA State by State Water Loss Policy Map 2016  
Asset Management Key Performance Indicators (KPIs):
Rule Recommendations for State Government

Issued jointly by the Asset Management and Finance Committee of Jersey Water Works and the Infrastructure Management Committee of American Water Works Association New Jersey section

The following ideas are proposed as potential high-priority metrics for asset management program development and implementation, based where possible on existing information but also recognizing that the Water Quality Accountability Act will be forcing new actions. The Infrastructure Management Committee (IMC) of the AWWA-NJ Section recommended that this effort focus on three major aspects of the asset management planning process as priorities for metrics development. This document was developed based on discussions with Ed Carpenetti of Louis Berger, available guidance and concepts from a variety of sources, and input from the IMC and the Jersey Water Works Asset Management & Finance Committee.

A critical point is that this white paper provides a number of ideas that may be more relevant to internal utility use, some that may be appropriate for reporting to state agencies (either as written or with the utility simply verifying that they have incorporated the KPI in their management system), and a few that may be appropriate (perhaps in a lay-person summary form) for the general public. Those recommended for submittal to state agencies for their consideration in use are noted in the right hand column. In addition, many utilities will need to address these KPIs over an extended period, gaining experience with early steps so that later steps can be effectively implemented.

This document underwent a development stage with varied stakeholder input. This document is not intended for direct cut-and-paste use of the text and ideas without full understanding and consensus of the approach and impacts of these processes.
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<tr>
<th>Baseline Condition Assessment</th>
<th>Potential State Reporting Requirement</th>
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<tr>
<td><strong>Water Loss Audit.</strong> Real and apparent losses per service connection per day. Economically</td>
<td>Water Audit summary table from AWWA M36 process.</td>
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<td>recoverable annual real and apparent losses identified based on utility factors (and</td>
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<td>environmental stresses if relevant). The Delaware River Basin Commission (DRBC) reports</td>
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<td>on non-revenue water can be used as an initial benchmark, until sufficient New Jersey</td>
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<td>results are available.</td>
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<td><strong>Customer Metering.</strong> Percentage and number of service lines with individual customer</td>
<td>Number of water main breaks per mile of the purveyor system (not including service line breaks) for the past five years. Request break data for the four most common material types owned by the purveyor and one catchall category, by</td>
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<td>meters by customer class; age of meters by customer class.</td>
<td>pipe material category (e.g., Cast Iron; Ductile Iron; Pre-stressed Concrete Cylinder Pipe (PCCP); concrete steel cylinder (CSC) pipe; PVC; Asbestos Cement; Other). Possibly also track by pipe size categories (e.g., 6-inch and smaller; 8 to 12 inch; &gt;12 to 24; &gt;24).</td>
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<td><strong>Leaks and breaks</strong> per mile (or 100 miles) of pipeline and assessment of how these are</td>
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<td>geographically concentrated or related to pipeline type/construction/age. Results from New</td>
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<td>Jersey utilities can be assessed for an initial benchmark.</td>
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<td><strong>Water Availability.</strong> Current demand as a percent of available supply (per AWWA</td>
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<td>benchmarking evaluations). For example, five-year annual average demand divided by the</td>
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<td>average annual available water supplies considering firm capacity, annual water allocation</td>
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<td>plus net bulk water sales and purchases, and condition of withdrawal facilities (e.g., specific</td>
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<td>capacity of wells).</td>
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<td><strong>Energy and Chemical Demand Trends.</strong> Rolling multi-year (two to three years) average</td>
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<td>energy demands (not costs) and chemical use per million gallons of total delivered water.</td>
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<td><strong>Treatment System Functionality.</strong> Status of delivered drinking water quality relative to established SDWA MCLs and action levels, providing a sense of how much better the water quality is than the minimum level required.</td>
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**Operations and Maintenance Asset Management Program**

<p>| Definition of Assets, Asset Inventory and Asset Register using a database or Computerized | 1. Certification letter that an Initial Asset Management Plan is developed that meets the spirit |
| Maintenance Management System (CMMS) that can be integrated |                                                                                                                                                                                                                                    |</p>
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<td>2. Within five years of the Initial Asset Management Plan, submit an Asset Registry Certification letter stating that Level of Service Goals have been developed and presented to the public; and at least 80% of the systems assets are digitally mapped and digitally entered into an asset registry that meets the spirit of the above-referenced guidance documents and standard.</td>
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<td>3. Within five years of the Asset Registry Certification letter, submit an Asset Management Plan Certification Letter and an AMP Summary Letter outlining the purveyor's plan to operate and maintain the system for the next 10 or more years.</td>
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<td>4. Submit on a five-year basis revised AMP Summary Letters.</td>
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- **Commitment** to and tracking of frequency of valve and hydrant exercising. Frequency of exercise program should optimize resources to maintain the system (i.e., frequencies can vary, but for utilities subject to the Water Quality Accountability Act valves must be exercised every two or four years, depending on valve size, and hydrants at least annually).

- **Parameters** for asset condition assessment (addressing assets as defined above) that would trigger more frequent assessment or CIP activity. The parameters are based upon a risk assessment incorporating a specified analysis of Likelihood of Failure (LoF) and Consequence of Failure (CoF).

- **Commitment** to a strategic program for pipeline condition assessment (e.g., priority system based on the parameters discussed above; assessment method; schedule and frequency; results tracking). Results of the condition assessments can be used to reset the estimate remaining useful life of an asset.

- **Report** – Did the utility follow the plan? Did the utility change the plan based on
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<td>new information or results? Did something go wrong that was not addressed by the plan?</td>
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<th>Capital Improvement Plan Asset Management Program</th>
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| **Capital Expenditures** relative to planned/budgeted capital expenditures. Under the WQAA, three years of capital projects must be reported. A rolling multi-year average (three to five years) may be appropriate here, given that a slight delay could shift a major project into the next fiscal year. | **Capital budget for the past five years in thousands of dollars**  
**Capital expenditures on planned projects for the past five years in thousands of dollars**  
**Capital expenditures on unscheduled or unplanned projects for the past five years in thousands of dollars.** |

| Water System Value. Related to capital expenditures is an ongoing assessment of net capital value of the system, which would serve as an indicator of the balance between investment and structural decline. While many individual assets may render proper service well beyond the average service life used to develop financial depreciation rates, the Original Cost Less Depreciation (OCLD) value of the system should be tracked. Investor-owned entities will do this following the Uniform System of Accounts adopted by the NJ Board of Public Utilities while municipal entities will follow Government Accounting Standards Board (GASB) procedures. In either case, assets will be recorded to the utility asset register at original cost and depreciated using acceptable depreciation methods. At least annually, retirements and additions to the asset register will be made to reflect changes in the net value of the system. |  |

| Emergency Versus Planned Capital Projects. Costs and cost trends for implemented emergency repairs relative to implemented planned capital projects. Initially could use work orders as a proxy for costs. Includes definition of how costs are identified as emergency repairs (unplanned capital projects) and planned capital projects. While there would be a definite advantage to consensus definitions for these terms, the most critical point is consistent use of definitions and identification of trends by individual utilities. This KPI differs from the Capital Expenditures KPI in that it allows tracking both types of costs with the expectation that well-managed systems will either have or progress toward a low rate of emergency relative to planned capital project costs. |  |
September 9, 2019

Senate Community and Urban Affairs Committee
The Hon. Troy Singleton, Chair
The Hon. Ronald L. Rice, Vice Chair
The Hon. Christopher J. Connors

The Hon. Declan J. O’Scanlon
The Hon. Brian P. Stack

Dear Chair Singleton and Members of the Committee:

The Association of Environmental Authorities represents local, county and regional public agencies, mainly authorities, that provide water, wastewater and solid waste utility service to millions of New Jerseyans. Many Water Quality Accountability Act (WQAA) provisions, such as those dealing with asset management, are existing practices for AEA members, and they have not had to revise practices significantly. Where necessary, they have reorganized work priorities, purchased equipment, and hired new staff to address the valve and hydrant requirements.

The WQAA cyber planning requirements have been a necessary element of response to cyber security, which is among the most pressing problems facing our utility members. One industry publication estimated that in the last several years there have been more than 200 publicly acknowledged ransomware attacks against state and local governments. Several AEA member utilities have been subject to attacks. In addition to ransomware, IT professionals from my membership tell me they are coping with:

- Phishing phone calls are coming into receptionists and administrative staff;
- Phishing emails containing personal information relevant to specific individuals;
- Phishing emails to HR/Payroll people that ask for direct deposit information.

More can be done to help local governments stand up to cyberattacks. The attacks on AEA members have not impacted the environment or water quality, but they have financial impacts. Security-related costs include recovery expenses, hiring consultants, training, and insurance. Situational awareness training takes time and energy. Educating the "non-technical" people is becoming a must. Lakewood Township MUA, for example, is making quarterly security training mandatory for its entire staff. As “the Internet of Things,” AI, and other applications become more widely adopted, the vulnerabilities of local governments will increase. Setting a standard with regard to cyber training would be a worthwhile option for the State to consider. More coordinated support and funding for security would also be helpful.

AEA appreciates the opportunity to comment. Please contact AEA if there are any follow-up questions.

Very truly,

Peggy Gallos
Executive Director