DRINKING WATER NEWS

pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION

TOM WOLF, GOVERNOR • PATRICK MCDONNELL, DEP SECRETARY

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The Pennsylvania Department of Environmental Protection (DEP) Bureau of Safe Drinking Water is proud to provide updates, information, explanations, and reminders to you with this edition of the Drinking Water News. In this issue:

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Your feedback and suggestions can be submitted to dagrube@pa.gov.

To access referenced regulations throughout this edition visit Chapter 109. Safe Drinking Water.

Optimal Performance Ranges for Corrosion Control Treatment

John Cairnes, Compliance Specialist, DEP Southeast Region

Corrosion control treatment presents unique challenges for water suppliers. Treatment requires a high degree of precision, not merely to protect pipes and reduce corrosivity, but also to produce chemical stability in finished water and avoid fluctuations in water chemistry that can undo in days a level of protection that has taken a water system weeks or months to achieve.

DEP will designate optimal corrosion control treatment water quality parameter performance requirements, or a "water quality parameter designation" for short, as the final step in the process for achieving optimized corrosion control at public water systems. Following installation of corrosion control treatment and issuance of a corrosion control operations permit, a water system will conduct monitoring for lead, copper and applicable water quality parameters for two consecutive 6-month monitoring periods. At the conclusion of these two monitoring periods, a water system needs to request water quality parameter designations from DEP in accordance with 25 Pa. Code Section 109.1107(a)(3)(v). This request must be accompanied by a summary of the analyses of samples collected during the two six-month monitoring periods, and recommended performance requirements, such as pH levels and dosages of inhibitor chemical to be maintained, where applicable.

After DEP reviews the data in a water system's request, it will approve optimal performance requirements for the system's treatment. Depending on the type of corrosion control employed at the system, and what treatment chemicals are used, these requirements may include a minimum value or a range for pH, alkalinity, phosphate, silicate or calcium that must be maintained at the entry point and in the distribution system.

DEP will document the water quality parameter designation(s) in an amended operations permit to the system. The permit may include special conditions, including specific monitoring requirements to ensure the efficacy of the treatment through performance monitoring.

Once a water quality parameter designation is granted to a water system, that system must operate its treatment within the designated performance ranges. Failure to maintain designation ranges is called an excursion. A system will be deemed out of compliance if it experiences excursions for more than any nine days during any six-month monitoring period. Frequent monitoring of water quality parameters will enable a system to correct excursions before they extend to a duration that will cause a violation for the system.

Water quality parameters designations are a complex, and sometimes overlooked, part of optimizing a water system's corrosion control. But as the water infrastructure in Pennsylvania continues to age, and the cost of service line and water main replacement continues to rise, optimized corrosion control becomes an increasingly important tool in delivery of clean potable water to customers.

Cybersecurity in the Drinking Water Sector

Drew Hoffman, Compliance Specialist, DEP Southcentral Region

"It has long been recognized that among public utilities, water supply facilities offer a particularly vulnerable point of attack to the foreign agent, due to the strategic position they occupy in keeping the wheels of industry turning and in preserving the health and morale of American populace."

When FBI director J. Edgar Hoover wrote that in 1941, he was probably thinking of foreign agents attempting to directly sabotage industry and infrastructure. While it might be common to assume that mostly large coastal cities would be targeted, the thwarted Operation Pastorius had included amongst its targets, the Pennsylvania Railroad's Horseshoe Curve and rail shops in Blair County in addition to targets in New York, Philadelphia, and elsewhere. Not only would this have damaged critical railroad infrastructure, but also impacted water supplies for the City of Altoona. For many years, the main perceived security risk was physical damage caused by local vandals or disgruntled employees. In the modern world of interconnected everything, risk of attack by foreign agents is increasing across a broad variety of water systems. With technological advances, cybersecurity must now also account for attack by foreign governments.

Although the Safe Drinking Water regulations under Title 25, PA Code Chapter 109 do not specifically mention cyber security, existing requirements are broad and include security measures regardless of whether the measures are related to cyber- or physical security as follows:

- All public water systems (PWS) are required to provide and effectively operate and maintain PWS facilities and take whatever investigative or corrective action is necessary to assure that safe and potable water is continuously supplied to the users. **(§ 109.4. General requirements.)**
- All community water systems (CWS) are required to develop and implement an operation and maintenance plan which should include details about manual or automated/remote operations and standard operating procedures. **(§ 109.702. Operation and maintenance plan.)**
- All CWSs are required to conduct an evaluation of the water system at least annually which should include an evaluation of all facilities (e.g. sources, intakes, treatment facilities, finished water storage). **(§ 109.705. System evaluation and assessments.)**
- All CWSs are required to develop an emergency response plan (ERP) for the provision of safe and adequate drinking water under emergency circumstances. This plan must include a list of the probable emergency situations, including security risks, and the corrective actions for each. **(§ 109.707. Emergency response plan.)**

In addition, DEP incorporates industry standards into its design and permitting program. **(§ 109.602. Acceptable design.)** For example, ANSI/AWWA Standard G430, Security Practices for Operations and Management, is considered an all-hazards risk management strategy. Also, the 10 States Standards (for which PA is a member) include a Policy Statement on Infrastructure Security for Public Water Supplies. The document includes both physical and cyber-security measures. 10 States Recommended Standards for Water Works (Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers), see page xxv.

In addition to the above state requirements, under the federal America's Water Infrastructure Act of 2018, all CWSs serving more than 3,300 people are required to conduct/update their Risk Assessment and ERP (which includes cyber security) and submit a certification of completion to EPA. View Federal Requirements.

Whatever the form of existing or future security requirements, cybersecurity is something you as an operator or owner of a water system need to think about. Supervisory Control and Data Acquisition (SCADA) and other connected systems provide great benefits to PWS operations, but also present potential pathways for security threats.

Risks from Cybersecurity breaches are varied, but include:

- Disruptions of the operator's ability to monitor and record system operations through SCADA.
- Disruption of control/monitoring of industrial control systems (ICS) such as pumps and valves potentially affecting available volume and pressure.
- Disruption of treatment potentially causing complete treatment breakdowns or over or underfeeding of treatment chemicals.
- Denial of Service attacks that prevent water system staff from access various network resources.
- Damage or defacement of the water system website or email system.
- Theft of personal data from customer billing databases.

Ransomware attacks on infrastructure, SCADA and ICS have seen an increase in usage by both domestic and foreign agents. It's possible for a cybercriminal to breach a system creating one problem, while also holding the system for ransom and threatening further system compromises or release of confidential data. EPA provides a checklist (Water Sector Incident Action Checklist - Cybersecurity) for systems to prepare for and respond to cybersecurity incidents.

There are a number of potential pathways for breaches of a water or wastewater system's cybersecurity.

- Spearphishing attacks typically use deceptive emails in an attempt to get unsuspecting personnel to click on a link leading to the downloading of malicious software or revealing of passwords. These are a greater risk when facilities fail to isolate Information Technology systems (IT) from Operational Technology systems (OT).
- Back doors / Exploitation of outdated operating system software. Keeping computers up to date with the latest software can be a nuisance, and costly when old hardware is no longer capable of supporting the newest software, however software developers eventually stop making security updates for older versions of their products.
- Remote Desktop Protocols and other functions that allow for system data and controls to be accessed remotely by operators offsite present a major risk if not fully secured and kept up to date.
- Old control system firmware can be easier for hackers to access.
- Administrator or other logins used for the initial setup of control systems which are not changed from the original default vendor settings.

A number of risk reduction measures should be considered:

- Each employee should have a unique login. Common logins used by multiple employees make IT and OT systems much more vulnerable to exploitation by disgruntled employees and former employees and make it harder to determine who caused the attack.
- Multiple levels of access should be set up for various types of employees, i.e. all employees do not need administrative privilege on IT and OT systems.
- Use best practices for passwords. The Federal Trade Commission (FTC) has a number of recommendations for how to keep passwords and logins more secure:

1. Strong passwords are longer than 12 characters,
2. Strong passwords are made up of a passphrase of random words memorable to the user.
3. Consider frequency of password changes. While passwords should be changed following a security breach, increased frequency can lead to formulaic or weak passwords, writing down of passwords, and password reuse.
4. If added malware includes a keylogger, a piece of software that records the target computer's keystrokes and sends record of them back to the attacker, remove the keylogger before changing the password.

- Use multifactor authentication, in which a login or code entry from a second device such as a personal cellphone is used to authenticate a login to a secure computer system.
- Maintain the ability to operate the system manually as a backup to your more convenient computerized controls. This should be addressed in your Operations and Maintenance Plan as well as your Emergency Response Plan.
- Where possible airgap OT systems to eliminate access to them via the internet.
- Install and maintain firewalls to protect inside and outside of your IT and OT systems.
- Keep software and firmware up to date. Software/firmware updates include patches for security vulnerabilities.
- Use antivirus/anti-malware software.
- Keep Information Technology isolated from Operational Technology. This should keep any security breech contained to just one area.
- Implement a Cybersecurity Program such as is outlined in this EPA guidance: Water Sector Cybersecurity Brief for States.
- Stay up-to-date on cybersecurity issues through updates provided by organizations like the Cybersecurity & Infrastructure Security Agency (CISA).
- Limit what can be adjusted remotely. For example, if a chemical feed pump and chemical feed tank are sized correctly, it becomes harder to cause a significant overfeed. Limits within the control software itself are also advisable.

With an increasing trend toward automation of control systems, recording systems, and billing systems, the potential targets for cyber-attacks in the water sector become more numerous. The competition between cybersecurity experts and cybercriminals as well as foreign government backed hackers is likely to continue and even increase for the foreseeable future. Ultimately, cybersecurity is a key system component that water system owners and operators must address; and is one more hat for operators to wear.

Chain Issues and the Impact on Public Water Systems – Take Time to Prepare

Jill Anderson – Environmental Group Manager, Central Office

Disruptions to the supply chain and material shortages have been widely observed and are currently impacting many facets of life. From the hottest toys during the holiday season and medical supplies and equipment to sweatpants and loungewear and even grocery items, we have all most likely felt the effects. While many of these impacts are at worst an inconvenience, what happens when critical supplies that prevent a public health crisis become unavailable? As a public water supplier, you have likely already considered that scenario. Water treatment chemicals, treatment equipment and other plant components, distribution system parts, and water quality monitoring equipment and reagents are all critical components for you to be able to do your jobs and protect public health. Therefore, it is imperative for you to prepare for the worst and have back up plans in place in case these critical supplies become unavailable.

The most important thing you can do to prepare is planning. Explore all options before you are in a situation where you are running out of critical supplies. Be prepared to order supplies earlier or more frequently than expected in anticipation of delivery lag times. Consider whether you need to order more than normal in anticipation of receiving less than ordered, or to increase on-site storage for parts or chemicals with a longer shelf life; just keep in mind that increasing storage of a chemical or reagent to the point that you are not able to use it within its shelf life or before its expiration date will not be helpful to you or anyone else who needs the same product. Also, be prepared to order from an alternate supplier. Investigate different suppliers and establish contacts with multiple vendors before you need them. The NSF website Search for NSF Certified Drinking Water Treatment Chemicals is a resource you can use to locate chemical suppliers for a wide variety of chemicals used in drinking water treatment.

Keep in mind that if you are having difficulty obtaining a particular chemical, switching to a different chemical for the same treatment objective is not as simple as it may seem. There are many important considerations with switching chemicals. Your operating permit specifies what treatment chemicals you are permitted to use. You need to work with DEP regional engineering staff in order to get a permit amendment issued **prior** to making a chemical switch. Existing chemical feed equipment may not be compatible with a new chemical. There may be specific safety concerns with a new chemical that did not exist with the original chemical, so additional safety equipment may be needed. Simultaneous compliance and unintended consequences from a chemical switch must be considered. Also, different treatment chemicals may require different operator certification subclassifications. For example, consider a system exploring a switch from sodium hypochlorite for disinfection to gaseous chlorine. In addition to the permit amendment, the system would need upgraded chemical feed equipment for gas chlorine, additional safety equipment to safely handle and store the chlorine gas, and a certified operator with the appropriate subclassification for gaseous chlorination.

Chlorine gas cylinders with appropriate chemical feed and safety equipment, including safety chains and vacuum regulators

Consider whether you need to prepare backup monitoring equipment for use, particularly for compliance monitoring locations and parameters. Compliance monitoring is how water systems demonstrate compliance with permit and regulatory requirements, such as entry point chlorine residual and combined filter effluent turbidity. If reagents or parts for monitoring equipment are not readily available, you may need to rely on backup monitoring equipment to demonstrate compliance.

This is also an ideal time to consider becoming a member of PaWARN, which is Pennsylvania's Water/Wastewater Agency Response Network. According to the PaWARN website, PaWARN is a statewide network of "utilities helping utilities." By becoming a member, you become part of this network, with a shared goal of promoting emergency preparedness, response support, and mutual aid assistance. Utility members are available to share resources, in accordance with the mutual aid agreement, to help each other respond to and recover from natural disasters or other emergency situations. To learn more about PaWARN benefits and membership, visit the PaWARN website. Even if you are not yet a PaWARN member, consider reaching out to neighboring water systems to establish connections and build mutually beneficial relationships. You may not be able to acquire a chemical feed pump to replace one that breaks, but perhaps a neighboring system may have one they can lend you. Build those connections now with your neighbors and work together to help each other out in times of need.

Water systems should be prepared to communicate with the appropriate County Emergency Management Agency (EMA) in the event of equipment or chemical shortages. A list of county EMA contacts can be found here. If you are unable to obtain a resource, you should first explore all options discussed above. After you have exhausted all potential avenues to locate that resource, you should contact the county EMA to begin the Mission Request process. A mission request (also called a resource request) is a formal request to the Commonwealth of Pennsylvania for resources to fulfill an unmet capability need. The request to the state for resources is made after local, county, mutual aid, and/or private sector resources are exhausted. Mission request forms can only be submitted to the Pennsylvania Emergency Management Agency (PEMA) by authorized county EMA personnel or commonwealth agency representatives, but any jurisdiction can complete the mission request form and submit it to the appropriate county EMA. Once the request is submitted to the county EMA, if they are unable to fill the request at the county level, it will be routed to PEMA for review and action. More information on this process can be found on the PEMA Mission Request website.

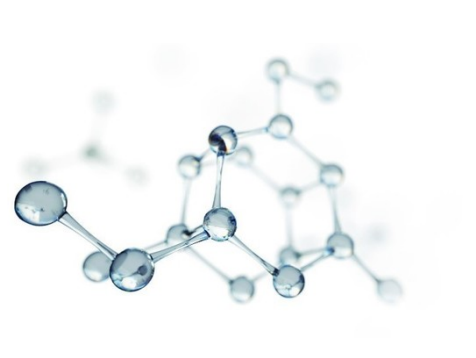
Communication with regional DEP staff early and often is a crucial step to take if you begin to feel the impacts of the supply chain issues. Reach out to your local DEP representatives to discuss potential options and solutions or with questions about your planning and preparation efforts. Remember to discuss anything that may require a permit amendment with regional DEP engineering staff before making those changes. And of course, make sure that you remember the one-hour reporting requirement. Regulations require reporting to DEP within one hour of discovery of "A lack of resources that adversely affect operations, such as … imminent depletion of treatment chemical inventories." (25 Pa. Code Chapter 109 § 109.701(a)(3)(iii)(H).) DEP 24/7 contact numbers can be found on the Emergency Preparedness for Water and Wastewater Facilities website.

Finally, updating your Emergency Response Plan (ERP) is another important step you can take now to prepare. If you do eventually find yourself in the situation where you cannot obtain a critical supply, in spite of all of your best planning and preparation, an updated ERP will be crucial to prevent the situation from going from bad to worse. Make sure all emergency contacts are up to date and accurate, including the alternate chemical suppliers you identified, neighboring water systems, PaWARN, county EMA, and relevant DEP staff. Also, prepare for the potential need to issue public notification (PN). Review your plans for issuing system-wide PN and update your PN templates so that you can issue Tier 1 PN in the required 24-hour timeframe with little effort if the need arises. Difficulties in handling and responding to an emergency situation that may result from supply chain issues will only exacerbate the situation and cause further disruptions. Visit DEP's Emergency Preparedness for Water and Wastewater Facilities website for the ERP template, PN information, and more.

With any potential emergency situation, being prepared to respond effectively and efficiently is key to managing the situation and preventing it from causing additional disruptions. The supply chain issues and potential chemical and equipment shortages are no different. Taking steps to investigate options and having backup plans for alternative solutions is critical in order to be prepared in case supplies become unavailable.

When Cleaning Your Well or Filter With Chemicals, First Get a Permit

Gail Guenther, Compliance Specialist, DEP Southwest Region



Regular cleaning of well sources and filters is a fundamental component of the effective operation and maintenance of your public water system facilities. Planning ahead makes the task easier, including consideration of the method of cleaning you will use and whether that process requires a permit or other advance authorization from DEP.

Under Section 109.501 of the Safe Drinking Water regulations, 25 Pa. Code § 109.501, you must obtain a permit from DEP before making substantial modifications to your permitted public water system and before operating your system with those modifications. A "substantial modification" is a change in your system that may affect the quantity or quality of the water you serve to the public or may be prejudicial to public health or safety (25 Pa. Code § 109.1). The use of chemicals to clean filters or wells is a process that falls under this umbrella, because of the possibility for impact to water quality and public health and safety.

Section 109.606 of the regulations, 25 Pa. Code § 109.606, requires all chemicals that come into contact with drinking water or that may affect water quality to be acceptable to the Department. Chemicals that are certified for conformance with ANSI/NSF Standard 60 or those that meet the food grade standards of the *United States Pharmacopeia* are deemed acceptable to the Department under the regulations. The DEP permitting process helps to assure that these requirements are met.

Permits for chemical well or filter cleaning may be obtained from your regional Safe Drinking Water program office. The application is available on DEP's website. Instructions for completing the permit application and links to the application and other helpful information can be found on DEP's website and on DEP's eLibrary.

Remember to allow sufficient lead time for DEP's administrative and technical staff to review your application. If you have any questions about the permitting process, information required in the application or how to submit your application, or if you wish to schedule a pre-application meeting, please contact the Safe Drinking Water program at your DEP regional office.

Drought Contingency Plans

Kristina Peacock-Jones, P.E., Commonwealth Drought Coordinator, Central Office

Now is the time to plan ahead and make sure you have an up-to-date Drought Contingency Plan (DCP). DCPs are an important tool to have on hand in the event of a drought or other times of low water supply. If you are a public water supplier and do not have a DCP please create one using our guidance and templates.

If you already have one on file with us but it's been over three years since it was submitted, please review and update your DCP to account for any changes in either your sources or the demands on your system. DCPs can be submitted online via DEP's Greenport through our Drought Emergency Application. If you have any questions, or we can be of assistance to you in any way, please feel free to contact our Compacts and Commissions Office by e-mail at droughtinfo@pa.gov or by telephone at 717-772-4048.

Standard Monitoring Framework and the Monitoring Waiver Application

Matthew Shope, Compliance Specialist, DEP Northeast Region

January 30, 2021 marked the thirtieth anniversary of the Environmental Protection Agency's (EPA) establishment of the Standardized Monitoring Framework (SMF) which streamlined monitoring frequencies for potential drinking water contaminants. This enabled options for the Commonwealth to create compliance frameworks for the issuing of waivers to public water supplies to reduce monitoring.

The SMF systematizes, simplifies, and combines the monitoring requirements for over sixty-five chemicals. The system consists of a nine-year fixed compliance cycle. The cycle is divided into three compliance periods of three years each. The SMF also allows for further subdivision of the periods into annual and quarterly.

Standardized Monitoring Framework – Compliance Cycles and Periods					
4th Compliance Cycle			5th Compliance Cycle		
1st Period	2nd Period	3rd Period	1st Period	2nd Period	3rd Period
2020	2023	2026	2029	2032	2035
2021	2024	2027	2030	2033	2036
2022	2025	2028	2031	2034	2037

The third compliance cycle was completed in 2019 and renewed in 2020. The current compliance cycle is divided for the first period to be conducted from 2020-2022 with subsequent triennial periods concluding in 2028.

Table 1. Standardized Monitoring Framework Schedule 2020-2037

By utilizing the SMF, the Commonwealth has enacted an EPA-approved waiver system for public water system to reduce sampling frequencies. Reduced frequencies for inorganic contaminants (asbestos conditions differ), volatile organic contaminants (except for vinyl chloride), and synthetic organic contaminants for surface and groundwater sources. Monitoring waivers are not allowable for nitrite and nitrate.

Unless a waiver is requested by a public water system and approved by DEP, public water systems must conduct required monitoring as established in 25 PA Code §109.301. It is the responsibility of the public water system to submit a Monitoring Waiver Application (3930-FM-BSDW0020a) for reduced monitoring of the drinking water contaminants described above. At a minimum, the application needs to contain the following information:

- Previous monitoring results.
- Inventory of land uses within Zone II (a ½ mile radius around the source unless a more rigorous delineation has been completed) for a groundwater source or within a 10-mile semi-circular radius for surface water sources.
- Inventory of substances or products used for each land use.
- Site map showing the location of PWS sources and the distance to each land use.

A separate waiver request application is required for each of the public water system's entry points. Once approved, the waiver is effective for one compliance period and may be renewed. Until the request (or renewal) is approved by the Department the public water system is required to conduct all required monitoring.

The Monitoring Waiver Application and additional information may be found on the Bureau of Safe Drinking Water's website.

Planning for Long-term System Maintenance and Aging Infrastructure

Andrew Kaufman, Compliance Specialist, DEP Southwest Region

Water intake pumps

100-year-old iron water line with tuberculation and mineral build-up

When looking at all the things required to keep a Public Water System operating at peak performance, there are many different actions which both can be and need to be performed.

While most focus on the immediate upkeep and day to day operations, one of the most overlooked yet possibly the most important aspects of maintaining a PWS is to plan for long-term system maintenance and keeping an account of your aging system's infrastructure.

Unfortunately, way too often such long-term maintenance and goals for a public water system of any size ends up being over-looked and neglected, constantly pushed into the future, or just plain forgotten about. So, when a piece of that system eventually fails, whether critical or not, it can leave that system in a situation which could have been avoided with some simple planning and forethought. Any public water system can prepare for equipment or material failure and in some instances even prevent such failures from ever occurring.

The first way to prepare yourself and your system is to proactively perform regular needed maintenance as recommended by the manufacturer. Such maintenance can range from daily equipment checks for wear, stress, and adequate lubrication, to monthly and yearly parts inspection and replacement. System maintenance can also consist of yearly or multi-year projects such as distribution line flushing and storage tank cleaning and repainting, all of which can be much cheaper than full replacement once those components prematurely fail due to maintenance neglect.

Aging water storage tank

Another important action which any public water system can take is to plan ahead for the partial or full replacement of your system's equipment and infrastructure as it ages and reaches its eventual expected lifespan. While it can be relatively easy to keep track of when your system's assets were installed, it can sometimes be a little harder to know how long that part of your system will last before eventual failure. But what can end up being the most prohibiting aspect of the inevitable replacement of that asset for a system can be, you guessed it, money. And while funds can seem like a huge restraint for any system's planning for the future, it can actually be overcome. When your system's managers create a budget and put monies aside each year instead of using it elsewhere, those big expense water line replacements, or system upgrades, or pump replacements can be covered. On top of money management there are many local, state, and federal grant and low interest loan programs available to water systems for just such system upgrades, maintenance, and replacement projects.

One of the best ways to stay ahead of your aging infrastructure is through ongoing evaluation and planning. This can be accomplished through keeping not only an inventory on your back-up equipment and materials, but also your entire system's stock of current equipment and overall materials. By knowing where and what condition the different components of your system are in, it allows for a system to plan ahead by being able to prioritize not only replacement but also rehabilitation. By taking stock of your entire system from source to production and treatment, through distribution, right up to the customer's tap, a water system can better determine the system's needs and plan ahead for both improvements and future growth, regulations, system efficiency, and aging assets.

Pipeline main break repair

As technology advances systems are able to take advantage of the new techniques and resources they provide. For example, by utilizing acoustic monitoring or other leak detection methods a system is better able to not only discover water loss but locate and pinpoint those leaks before they become major water line breaks. Through pressure management and computer modeling a system could extend the life of their water pipes and other components, all by relieving unneeded stress on those lines and associated components from pressure reduction. New techniques can also allow a system to look at the most cost-effective ways to proactively maintain their systems. For example, one possible cost-effective method of waterline maintenance now available is pipeline rehabilitation instead of total replacement. As slip linings, or rehabilitation of the structural integrity of an aging pipeline can now be more readily utilized, such technologies are able to cost as little as half the cost of replacement.

In short, while there are many things which can help you as an operator and/or owner to produce high quality drinking water for years to come, some of the most basic of these are simple normal maintenance and upkeep of your system along with proactive replacement or rehabilitation of aging infrastructure.

Source: Solving the Aging Infrastructure Problem

Why Your Public Notice May Not Be Meeting Requirements

Nathan Radabaugh, Compliance Specialist, DEP Northcentral Region

The requirements of our Drinking Water regulations put the responsibility on the Public Water System to notify customers when the system has experienced certain violations or a situation that has the potential for adverse health effects. In order to ensure that the necessary information reaches the customers, regulations stipulate what must be in a Public Notice and how it should reach customers. Providing a complete and accurate Public Notice is necessary to ensure that your Public Water System is meeting the requirements of the Safe Drinking Water Regulations and to ensure that the public is being protected from the harmful effects of drinking water contaminants. When preparing a Public Notice, it is first important to ensure that the notice contains all the required elements to be deemed complete. Section 109.411 of the Safe Drinking Water regulations, 25 Pa. Code § 109.411 deems that a Public Notice must contain the following 10 items:

1. A description of the violation or situation, including the contaminants of concern, and (as applicable) the contaminant levels.
2. When the violation or situation occurred.
3. Any potential adverse health effects from the violation or situation, including the standard language under § 109.411(e)(1) or (2), whichever is applicable.
4. The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water.
5. Whether alternative water supplies should be used.
6. What actions consumers should take, including when they should seek medical help, if known.
7. What the system is doing to correct the violation or situation.
8. When the water system expects to return to compliance or resolve the situation.
9. The name, business address and telephone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice.
10. A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subsection § 109.411(e)(3), when applicable.

It is important to understand that if your Public Notice does not contain the items listed above, you may be notified by DEP that the public notice is not complete. This will entail amending the Public Notice to correct the deficiencies and redelivering it to your system's customers. DEP's public notification page contains links to templates for various types of Public Notice that are free for public use and can be accessed at any time. It is also important to remember that when your system is using the Consumer Confidence Report (CCR) as a way to post Tier 3 Public Notice, the violations listed in the CCR must contain the 10 items listed above for each violation.

Another important aspect of the Public Notice is to ensure that it is distributed in a way that coincides with regulations. Sections 109.408 through 109.411 detail the delivery requirements for all the Tiers of Public Notice. Regulations also detail the different delivery requirements between a Community and a Noncommunity water system. With dozens of ways to relay communication available in our modern world, not all of those ways are sufficient to meet the requirements of Public Notice delivery. Social media can be a way to widely disseminate information, but it is not comprehensive enough to ensure that all customers in a system receive the information. Only posting on social media applications or on a website should not be regarded as a way to ensure that all customers are being made aware of the Public Notice. Noncommunity systems face different challenges to post Public Notice. The task of posting the notice in a conspicuous location likely will entail the need to post the notice in multiple places. The notice needs to be able to reach all customers of that water system; this also includes posting in a location that will reach the employees of the water system.

Laboratory Reporting Requirements

Gina Kellett, Compliance Specialist, DEP Northeast Region

Pennsylvania accredited laboratories play a huge role in ensuring that public drinking water systems remain in compliance with safe drinking water regulations. As it goes, public drinking water systems regularly collect drinking water samples to ensure that they are meeting regulatory requirements. Once these samples are collected, they are sent to laboratories for analysis.

Once that analysis is complete, the laboratory then must report the sample results to the Department via the Drinking Water Electronic Lab Reporting System (DWELR). Additionally, if the sample results were positive for bacteria or were above the regulatory limit of other regulated contaminants, the laboratory is required to contact the water system and the Department.

It's common knowledge that in the event of a maximum contaminant level/action level exceedance or a positive sample result the laboratory is required to notify the Department in writing within twenty-four hours of the receiving the result. However, it might not be as well known that this written notification has its own set of requirements.

Under 25 Pa Code 109.810(b)(ii) a Pennsylvania accredited laboratory is required to include the public water system identification number (PWSID) of the system, the system's name, the contaminant involved in the occurrence, the level of the contaminant found, where the sample was collected, the dates and times that the sample was collected and analyzed, the name and identification number of the accredited laboratory, the name and telephone number of a contact person at the laboratory and what steps the laboratory took to contact the public water system before calling the Department. (In the event that the water supplier cannot be contacted, the laboratory is required to notify the Department within two hours of the determination of the sample result, this then needs to be relayed to the Department in the written notification.

If the laboratory fails to include this required information in the notification to the Department, the laboratory is in violation of the Chapter 109 Safe Drinking Water regulations and may be subject to formal enforcement actions by the Department.

To make it easier to ensure that laboratories include the correct information, the Department created a fill-in-the-blank notification sheet that can be completed and submitted to the Department via fax or email. The use and proper completion of these notification forms are encouraged to ensure compliance with laboratory notification requirements. Laboratories should also be aware that a separate form is needed for each individual result, so for example, if all 3 coliform check samples are positive, the laboratory needs to complete and submit 3 forms (1 for each result).

Chain of Custody Forms – What's the Big Deal?

June Black, Program Specialist, Central Office

Have you ever wondered why Chain of Custody (COC) forms ask for so much information? As a water system, you may submit samples from the same locations, for the same tests, to the same lab on a regular basis. So, shouldn't they know what you need? Can't they just look at an older COC to get the information they need to report your data to DEP? The simple answer is "no." Why? Because a COC is a legal document which tracks and documents a **particular sample** from the time of collection until the sample is received at the lab. The COC ensures that sample integrity is maintained and also provides the lab with the information needed to analyze **and report** the sample results.

What information is the most critical to enter on the COC? The laboratory's accreditation guidelines require information that allows the custody of the sample to be tracked from the time it is collected until it is received at the laboratory. This includes date and time of collection, name & signature of the collector, etc. The laboratory also needs to know what tests are to be performed on the sample, which means listing the sample matrix, container and preservation type, and the methods or analyses to be performed.

It is important to fill out all the COC fields because **even if the laboratory results have been entered in DWELR, it does not mean they have made it all the way to the Department's sample data set (sample file)!** When data are uploaded from DWELR on the 10th of each month they must pass a series of "tests" (error checks) before they are allowed to move into the sample file. If any errors are detected the data will get stuck in a reject file until the errors have been resolved. The majority of the observed errors could have been avoided by properly and completely filling out the COC at the time the samples were submitted to the lab for analysis.

What happens if your data don't make it into the sample file? **Data that are not in the sample file are not evaluated for compliance.** Missing data could result in a Monitoring/Reporting violation for your system. (Did you know you can check the data for your system after the lab enters them in DWELR? Refer to the following article *"We're Glad You Asked"* for more information).

Samples that need to be reported to DWELR require additional information on the COC to ensure accurate reporting! This includes the PWS ID number, the location/entry point/source/plant and/or filter ID, a description of the sample location, and the sample type (E, D, S, R, P, C). Do not expect the laboratory to know this information! As the sample collector, there are many resources available to help determine this information before submitting your sample.

> The Drinking Water Reporting System is an easy to use, searchable database that contains information on your system's sampling points and monitoring requirements.
>
> **Every system is required to have Site Sampling Plans** which list all of the sampling points and location IDs. They also include information on sampling locations for check and confirmation samples, and which locations are valid for coliform and disinfection by-product sampling. **If your lab collects samples for you, it is vital that they have an accurate and up-to-date copy of any Site Sampling Plans.**
>
> Your sanitarian is available by phone or email and can answer many of your questions.
>
> The members of the PADWIS section can be contacted by phone (717-772-4018) or email ra-padwis@pa.gov during regular business hours and can answer many types of questions.

What about a COC that has some of this information (such as sample location ID and tests to be performed) already filled out? Although a pre-populated COC seems like a helpful and time-saving tool, DEP **strongly discourages** this practice! It is easy to introduce or propagate errors when using a form that has been filled out ahead of time. There have been a few recent instances where the actual sample collection details did not match the information on the pre-populated COCs, and the subsequent reporting errors caused violations and corrective actions for the affected water systems. Additionally, by signing a COC, the sample collector is certifying that the information is accurate and correct. If the sample was collected from a different location than what is noted on the form and the form is not corrected, the sample collector is submitting false information. It's much less likely that errors will be made if the form is filled out in "real time."

Here's a suggestion – instead of using a pre-filled out COC, make yourself a "cheat sheet" that lists location IDs and descriptions, sample types, and other information you need to remember when filling out those forms.

Following these basic steps will help your laboratory make fewer reporting errors, which means fewer phone calls/emails, and fewer monitoring/reporting violations. It's a win-win!

We're Glad You Asked…

Cathy Port, Program Specialist, Central Office

Why do I get a violation when the lab makes an error in reporting sample results for my PWS?

You are ultimately responsible for correct reporting of your data.

The Safe Drinking Water regulations ***(§ 109.701. Reporting and recordkeeping)*** require the water supplier to "…assure that the results of test measurements or analyses … are reported to the Department…" This section of regulation also states that "Each water supplier shall be responsible for the accurate reporting of data…." and for "providing accurate monitoring and sample information to the accredited laboratory…"

What this means from a practical standpoint:

- Take care in filling out your sample chains-of-custody so that the lab has the necessary information to report correctly.
- Review DWELR error reports.
- Retrieve a DWELR printer-friendly version of your report and proof-read the data you report or that the lab reports on your behalf.

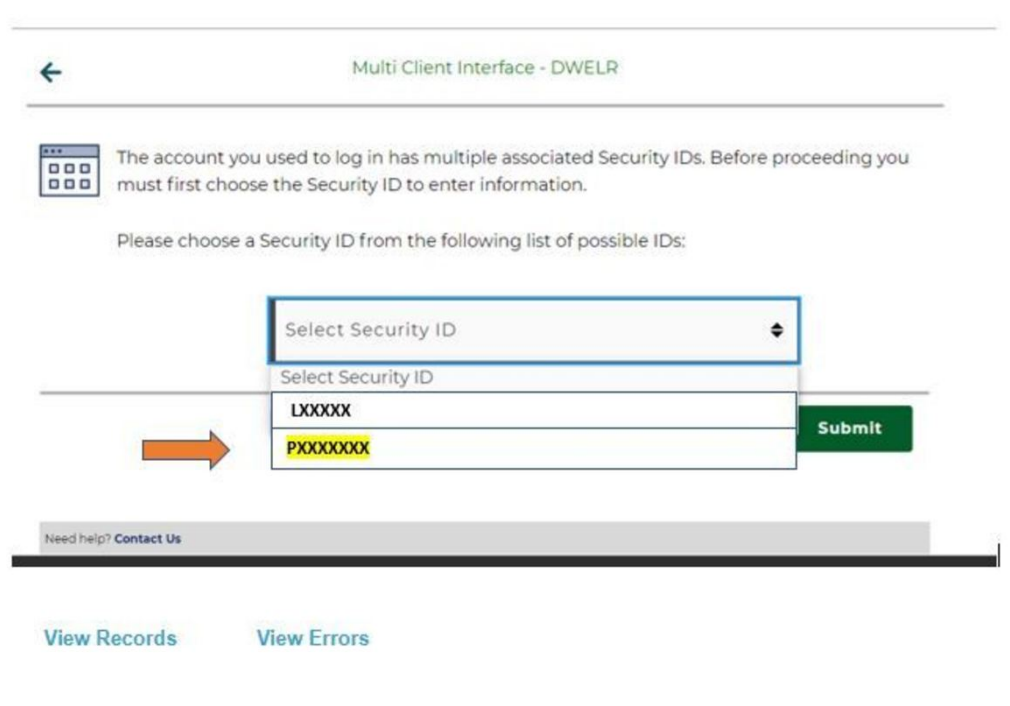
You can review data the lab has reported on your behalf before it is submitted.

The DWELR application in DEP Greenport (even if you don't report any data) has a feature that allows View-Only access to all data reported for your PWS. We suggest you use this feature every month before the end of the reporting period (midnight on the 10th of the month).

If you already have a DWELR, account, and you see more than one security ID, select the security ID that begins with a "P" (see figure below). Once you select the "P" account, choose both: **View Records** and **View Errors** from the menu to review your data. You can create a "printer-friendly" (.pdf) version of your report. Pay close attention to results, dates, sample locations, and sample types. If you see an error or a mistake, either from the Error Report or from proof-reading the records, or you have missing results, contact your laboratory and have them make any corrections to your data or submit the missing sample results before midnight on the 10th of the month.

Labs report a large amount of data each month. The few minutes it takes you to review and confirm that your sample results are reported correctly and on time is time well spent. Compliance with the monitoring ***and reporting*** requirements of the Safe Drinking Water Act is based on a data-intensive, automated review of your self-monitoring data, so it is up to you to make sure that monitoring results are reported correctly.

If you don't have a DWELR account or you do not have a security ID that begins with a "P," just contact us at 717-772-4018 or e-mail ra-padwis@pa.gov and we will help you get set up with a "View Access" DWELR account.



Multi Client Interface - DWELR

The account you used to log in has multiple associated Security IDs. Before proceeding you must first choose the Security ID to enter information.

Please choose a Security ID from the following list of possible IDs:

Pennsylvania Department of Environmental Protection, 400 Market Street, Harrisburg, PA 17101

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