

# Drinking Water News

A Newsletter for Pennsylvania's Public Water Systems

Published by the Pa. Department of Environmental Protection

Fall 2013/Winter 2014

## Public Notification Requirements – Is Your Water System Prepared to Meet Them?

Paul Vogel, Compliance Specialist, Southwest Regional Office

The latest revisions to the Public Notification (PN) requirements were enacted in May of 2009. Although they no longer should be unfamiliar to you, there are some aspects of the PN requirements that often get overlooked when the actual need for PN arises. This is particularly true when it comes to those instances where a Tier 1 PN is required under circumstances that are extremely time-sensitive and often very chaotic.

As is the case of all aspects of emergency response, operators should be familiar with and evaluate your system-specific PN procedures **PRIOR** to the times when they will need to be implemented. Your PN procedures are a required part of a complete Emergency Response Plan for your system.

Public notices must include very specific information in order to be considered complete. You may have heard this information referred to as the “10 Content Elements.” It is possible to issue a public notice to your customers that you believe adequately informs them of issues with their drinking water; however, it may not meet all of the regulatory requirements of the PN rule, because you failed to include the 10 Content Elements.

There is also specific information that must be included in a message delivered by an auto-dialer. Although these are generally abbreviated messages, there are four content elements that must be included in order to meet the PN requirements. Those four elements are: a description of the violation or situation, including the contaminant of concern; whether alternative water supplies should be used; what actions consumers should take; and a telephone number or website address where consumers can obtain the entire notice.



A common mistake is not including all of the necessary content elements in an abbreviated message, the full PN itself or both. Water suppliers should consider utilizing the PN templates prepared by DEP. The templates include all of the information that is required. They may be found in the Public Notification Handbook or on the DEP website at

[http://www.portal.state.pa.us/portal/server.pt/community/public\\_drinking\\_water/21162/public\\_notification/1258843](http://www.portal.state.pa.us/portal/server.pt/community/public_drinking_water/21162/public_notification/1258843)

Larger systems also need to be conscious of the accessibility to the full public notice. If your auto-dialer message refers consumers to a website, the website needs the capacity to handle a large increase in the number of people trying to access the notice at the same time. The same will apply if the auto-dialer message refers customers to a dedicated telephone line to receive the full PN. The whole point of the public notice is to ensure that the information gets to all of the consumers.

Take some time to ensure that your PN procedures are clearly laid out in your Emergency Response Plan. If you determine the best methods for effective delivery, the actual PN issuance should go smoothly. That, in turn, will enable you to focus your resources on addressing the underlying issues at your water system. A little planning ahead will allow you to meet your PN requirements and provide for the health and safety of your consumers.



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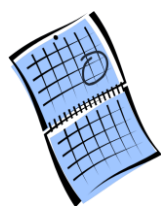
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## Stage 2 DBPR Compliance Monitoring for Schedule 3 and 4 Systems: Routine or Reduced

Jill Anderson, Compliance Assistance Specialist,  
Southcentral Regional Office

Effective Oct. 1, 2013, Schedule 3 and 4 water systems (those serving less than 50,000 customers) should be collecting TTHM and HAA5 samples according to the monitoring requirements of the Stage 2 Disinfection Byproducts Rule (i.e. Stage 2). A common question from these systems is, "Do we qualify for reduced monitoring?" Systems that were on reduced monitoring under Stage 1, but are now on routine monitoring for Stage 2, may not fully understand the reason(s) for the change.



If your PWS was on a reduced monitoring status under Stage 1, it may be possible to remain on reduced status as you begin monitoring for Stage 2. However, in order to remain on reduced monitoring there are three criteria that must be met. Failure to meet even one of these criteria means that your PWS must begin Stage 2 monitoring on a routine status.

The three criteria to remain on reduced monitoring from Stage 1 to Stage 2 are:

**1. A 40/30 Certification or Very Small System (VSS) waiver for the Initial Distribution System Evaluation (IDSE):** Early implementation activities for Stage 2 involved conducting an IDSE for your system in order to identify the most appropriate TTHM and HAA5 compliance monitoring locations. There were two options for the IDSE that did not involve additional sampling beyond what was required for Stage 1 compliance monitoring: The 40/30 certification and the VSS waiver. If your system received one of these options, then you meet this criterion. However, if your system conducted either a System Specific Study or Standard Monitoring for the IDSE, then you do not meet this criterion and you may not begin Stage 2 on reduced monitoring.

**2. Monitoring results meet the Stage 2 DBPR reduced monitoring criteria:** This refers to the criteria to *qualify for* reduced monitoring under the Stage 2 rule. Those criteria are:

- For systems conducting quarterly TTHM and HAA5 monitoring: After 4 consecutive quarters, each *locational running annual average* (LRAA) is less than or equal to  $\frac{1}{2}$  of each MCL (i.e. TTHM  $\leq$  0.040 mg/L and HAA5  $\leq$  0.030 mg/L).
- For systems conducting annual (or triennial) monitoring: After four consecutive quarters, *each sample result* is less than or equal to  $\frac{1}{2}$  of each MCL.

- There is an additional requirement for SW/GUDI systems: Source water TOC running annual average (RAA) is less than or equal to 4.0 mg/L. If your PWS is on *routine* TTHM/HAA5 monitoring, the monitoring frequency for source water TOC is *monthly* to meet this requirement; if your TTHM/HAA5 monitoring status is *reduced*, the source water TOC frequency is *quarterly*.

If your most recent Stage 1 monitoring results adhere to the above bulleted guidelines, then your PWS meets this criterion to remain on reduced monitoring.

### Compliance Tip

***If a system is required to begin Stage 2 compliance monitoring on a routine status, it needs to conduct routine monitoring for at least one year. After four consecutive quarters, if the monitoring results meet the above criteria, the system may qualify for reduced monitoring at that time.***

**3. Not adding or changing any monitoring locations from Stage 1 to Stage 2:** If your system is conducting Stage 2 compliance monitoring at the *same location(s)* that it used for Stage 1, then you meet this criterion. However, if you *add* any monitoring locations, or *change* from one location to another, you do not meet this criterion, and all monitoring locations must be monitored on a routine status for at least one year before your system can qualify for reduced.

One group of systems affected by this is GW systems serving a population of 500 to 9,999 who were only required to collect one maximum residence sample under Stage 1. Routine monitoring under Stage 2 for this group of systems consists of two dual samples on an *annual* frequency. These systems need to add a second monitoring location, and therefore they do not meet this criterion to remain on reduced monitoring. They need to conduct routine monitoring at both sampling locations for at least one year; then if their results meet the criteria to qualify for reduced, they can reduce their monitoring to one dual sample on an annual frequency.

- In this example, the reduced monitoring frequency under Stage 1 for those systems was *triennial*; however, for Stage 2, the reduced monitoring frequency is annual.
- **Important note:** Even if your system meets the criteria for a reduced monitoring status, the frequency or the number of samples required for reduced monitoring may be different under Stage 2 than under Stage 1!

continued .....

### Compliance Tip

*Check your monitoring requirements on the Drinking Water Reporting System (DWRS) website. You should know whether you are monitoring on a routine or reduced status. You also need know the correct monitoring frequency, number and locations of required samples. The DWRS website is at: <http://www.drinkingwater.state.pa.us/dwrs/HTM/SectionCriteria.html>.*

**One other important note:** Schedule 3 and 4 systems were reset to routine monitoring for Stage 2 as of Oct. 1, 2013. If a system qualifies for reduced monitoring, their sanitarian must manually make that change. If you think that your system qualifies for reduced monitoring based on the criteria outlined here, contact your DEP sanitarian to discuss whether your monitoring status may be updated.

### A PWS Question on Stage 2 Monitoring

**As a Schedule 2 SW system with conventional filtration, we began routine TTHM/HAA5 monitoring for Stage 2 in October 2012 (quarterly dual samples at 8 locations). After 4 quarters, all 8 LRAAs are less than half of each MCL, which meets the criteria to qualify for reduced. Our quarterly source water TOC results required for compliance with the enhanced coagulation treatment technique have a RAA of < 4.0 mg/L. Why hasn't our monitoring calendar on the DWRS website been updated to show reduced monitoring?**

In addition to having TTHM/HAA5 results that qualify for reduced monitoring, your source water TOC RAA must be  $\leq 4.0$  mg/L to qualify for the reduced status. You may use the same TOC results required for a conventional system to show compliance with the Enhanced Coagulation Treatment Technique, but *only if they meet the same minimum frequency*. Because you have been conducting TTHM/HAA5 monitoring on a routine status, the minimum frequency for source water TOC is monthly. This is considered *optional* TOC monitoring; the only consequence to not monitoring (or monitoring on an incorrect frequency) is that you will not be able to qualify for a reduced TTHM/HAA5 status.

If you increase your source water TOC monitoring to *monthly*, you may be able to qualify for reduced TTHM/HAA5 monitoring after you have four consecutive quarters with results meeting the criteria. Once reduced monitoring is granted, you must continue to demonstrate source water TOC RAA  $\leq 4.0$  mg/L in order to remain on the reduced status, but the frequency for TOC sampling then reduces to *quarterly*.

## Additional Monitoring Under Stage 2 D/DBPR

Sabrina Haydt, Water Program Specialist, Central Office

By now many of you have taken compliance monitoring samples under the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2) which went into effect for the majority of Pennsylvania systems on Oct. 1, 2013. Prior to your Stage 2 compliance begin date, you were required to submit a monitoring plan to the Department which outlined when and where you intended to collect compliance samples for Stage 2. It is extremely important that you sample in accordance with that monitoring plan. In order to remain in compliance with this rule you must collect your samples within the time frame outlined in your plan **and** at the sites you identified in the plan. It is expected that compliance monitoring will occur at **ALL** sampling locations listed in your monitoring plan and the results will be used in compliance calculations. But what if you want to collect extra disinfection by products (DBP) samples?

In regards to additional monitoring under Stage 2 there are a couple of key questions that arise:

**"What if I want to take additional 'operational/process monitoring' samples at sites that I have not identified in my plan?"** If you would like to gain a better understanding of what is occurring in your distribution system, it is acceptable to collect additional DBP samples at other locations. However, these samples should be marked as special (S sample type) and will not be used in compliance calculations.

**"I had a high result which caused a locational running annual average (LRAA) MCL exceedance at one of my compliance monitoring locations, can I take additional samples throughout the quarter to 'dilute' the result and get it back under the MCL?"** The answer to this question is **NO**. If you exceed one of your LRRAs due to an elevated sample result, you'll be placed on increased monitoring and need to sample as such for a year before you may qualify to reduce your frequency again. There is no way to escape an MCL violation by taking additional samples at that location. This goes along with "sampling in accordance with the schedule outlined in your monitoring plan." If you indicated in your monitoring plan that you are on a quarterly sampling schedule and you chose to sample Aug. 10 (plus or minus three days), then that is the only time period in which you should be taking compliance samples.

DEP's reporting system looks for what you told us you intended to do in your monitoring plan, so take a moment to look at your plan and confirm that you are sampling when and where you should be.

# Pennsylvania American Water Honors Cindy Hitz

*Submitted by Paul Zielinski and Dan Hufton, PA American Water Company*



Cindy Hitz in front of Pennsylvania American Water's West Shore Regional Treatment Plant

In late September, friends and colleagues honored recently retired production supervisor Cindy Hitz for her years of dedication and service to the company. Cindy started her career with Pennsylvania American Water 19 years ago as a water quality supervisor for Mechanicsburg and Hershey. After several promotions throughout the central Pennsylvania region, she was named production supervisor for the then-newly constructed West Shore Regional Water Treatment Plant in 2006, and remained in that position until she retired earlier this year.

The celebration was highlighted by stories from friends and colleagues of meeting, working with and simply knowing Cindy. Everyone who spoke told stories of her passion for the water business and how she truly enjoyed sharing her knowledge with anyone who wanted to learn – from state legislators to Girl Scout troops. The event was capped off by a

surprise from Pennsylvania American Water President, Kathy Pape, who unveiled a plaque to officially dedicate the treatment plant in Cindy's honor.

Since 2006, Cindy has invested her time, energy and expertise into the new plant. Prior to its design, Cindy conducted numerous pilot studies on the Yellow Breeches Creek raw water to determine the best chemical treatment and filtration process to use to produce finished water of excellent quality. After the plant was constructed, she was instrumental in the successful start-up of this new treatment facility. She cared passionately about the quality of water produced from the plant and the training and development of the plant operators.



Cindy has hosted many tours of the plant and numerous external presentations to teach the public, PA American Water customers and regulators about the water treatment process and the importance of safe drinking water. Her leadership, along with the dedication of the plant operations staff, led to recognition by the American Water Works Association with the Partnership for Safe Water Directors Award in April 2012. This award is given to select water purveyors who demonstrate continued achievement of voluntary optimization efforts that lead to improved water quality and reliable plant operation. That certainly describes Cindy.

Pennsylvania American Water President Kathy Pape (left) unveils a plaque dedicating the West Shore Regional Treatment Plant in Cindy Hitz's (right) honor.

## Operator Certification Training Module Revisions

*Deb Rotz, Water Program Specialist, Training, Technical and Financial Services, Central Office*

DEP is revising the training modules that operators can use to prepare for the operator certification exams. The modules that have been revised to-date are shown below. To access the modules electronically, go to: [http://www.portal.state.pa.us/portal/server.pt/community/training/21408/dep\\_training\\_modules/1522737](http://www.portal.state.pa.us/portal/server.pt/community/training/21408/dep_training_modules/1522737).

| Training Module                                       | Applicable Exam Title (Code) and Applicable Water System Class or Subclass |
|---|--|
| General Overview: Volume I, Volume II, and Volume III | Part I General (WGEN) - All classes except E (distribution)                |
| Distribution  | Distribution (WE) - E  |
| Conventional Filtration                               | Conventional Filtration (W1) - W1  |
| Chemical Addition                                     | Chemical Addition (W8) - W8  |
| Hypochlorite  | Non-gaseous Chemical Disinfection (W12)* - W12                             |

\*DEP also created "Basic Math Principles and Chemical Feed Process Control Calculations Job Aid" to summarize each type of math calculation performed in the Non-gaseous Chemical Disinfection module.

## WATER SYSTEM THREATS

*Lynne Scheetz, Operations Chief, Southcentral Regional Office*

A public water supplier in the South-central Region recently received a frightening threat to their water system. The local newspaper received an email that indicated that the water supplier's source water, treatment plant and transmission main had been contaminated. The newspaper immediately notified the PWS, which immediately issued a "Do Not Consume" advisory.

DEP and the water system took emergency samples and performed water quality parameter testing. Luckily, in this case, it turned out that the threat was not realized, and no one had actually contaminated the water. The threat came from an inmate in the local prison who was ultimately found and charged by the police. The charges included an SDWA tampering allegation. The "Do Not Consume" advisory was in place for approximately 48 hours.

This threat and the ensuing emergency response resulted in major expense on the part of the water system, the emergency responders, DEP and the local community. The local police seek to hold the person allegedly responsible for the threat liable for the response costs to abate the threat. It's important for all public water suppliers to think through what you would do in this scenario and to include appropriate procedures in your Emergency Response Plan. It is a lot easier to come up with procedures now than it is when a threat has been received. Here are just a few of the items every water system should address:



1. Is your Emergency Response Plan up-to-date and easily accessible?
2. Has the operator introduced themselves to your local emergency responders and given them a tour of your facilities? It's helpful for them to know where your facilities are located and what hazards they might face (chlorine gas, bulk chemical storage, etc.) during a response.
3. When a threat is received, your first call should be to the police and then to DEP. Make sure all of the contact information you might need is readily available/posted, and that DEP has the most current 24/7 contact information for a responsible person at your facility.
4. Are your security systems adequate? Do they deter, delay and detect intruders?
5. Can certain portions of your distribution system be isolated to limit the extent of any potential contamination? How would you do that?
6. What monitoring capabilities are there in-house that could help identify possible contamination—chlorine residual, pH, alkalinity, TOC, etc.?
7. Can the operator get a representative sample of water from the source, clearwell and each storage tank? Think through exactly how you would need to do that.
8. Can the operator get a sample from the storage tank without flushing a large main for several hours?
9. Can individual components of your system be drained and flushed, if necessary?
10. How would your system issue Public Notice to your customers?
11. If you need to issue a "Do Not Consume" advisory, how will you supply alternative water to your customers? Make sure you think about where the water will come from, the trucks to haul the water, and where the trucks will be located for easy consumer access.

No water supplier is too small to consider these issues. As DEP has seen, threats, vandalism and contamination can occur at any size system from large communities to small transient systems. While DEP hopes it never happens, the reality is that it happens to a few unfortunate water suppliers each year. Good preparation is the key to protecting public health and surviving the incident with the least disruption possible.

## PaWARN Can Provide Valuable Assistance During Major Storms

*Tom Fridirici, Program Manager, Operations and Monitoring, Central Office*



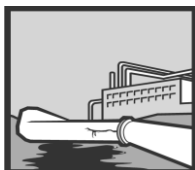
Pennsylvania made it through the 2013 hurricane season without a significant weather-related drinking water interruption, but that doesn't mean you shouldn't be prepared. Is your utility ready to recover from a hurricane or tornado or a winter ice storm? PaWARN can help. PaWARN is a Water/Wastewater Agency Response Network of utilities helping utilities during times of need. PaWARN can facilitate emergency communication among utilities and can help provide the resources to respond and recover more quickly from a natural or manmade disaster. For more information contact: Mike Snyder, PaWARN coordinator at 717-774-8870, [mikesnyder@pawarn.org](mailto:mikesnyder@pawarn.org) or visit the website at [www.pawarn.org](http://www.pawarn.org). You'll be glad you did.

## Tracking and Accounting for Your Water

*Renee Diehl, Compliance Assistance Specialist, Southwest Regional Office*

Water utilities always work towards distributing high quality water while meeting the Pennsylvania Drinking Water Standards, but what about water efficiency? Utilities should also be accountable for the volume and quantity of water they are losing. Controlling a system's water loss minimizes lost volumes of treated water, which leads to a reduction in unnecessary source water withdrawals, and reduces the need for excess infrastructure capacity, chemicals and operating costs.

A major contributor of unaccounted-for-water is water leaks. An estimated 850 water main leaks occur each day in North America at an annual cost of 3 billion dollars. Over 2.6 trillion gallons of water, or 17 percent of all water pumped in the U.S., is lost each day to leaking pipes. Some water-loss perpetrators are outside of our control (including extreme seasonal fluctuations and drought). There are some water loss causes, such as poor or incorrect pipe materials, corrosion, and poorly maintained valves that are within our control.

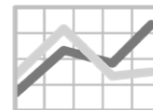


Major contributors of water loss are not always large main breaks. Large breaks are easily identified, fixed, and usually only account for 1 percent of water loss from leaks. Small breaks are of much more concern when dealing with water loss. A chronic service line leak of 1 gallon per minute, for example, can go unnoticed for years and result in a loss of 525,000 gallons per year. The water was treated and purified only to be lost.

For many years, there was no standardized way to calculate water loss or unaccounted-for-water. American Water Works Association (AWWA) has now created an unaccounted-for water survey tool that is a useful and easy way to compile a basic audit of water supply and billing operations. The survey features sound and consistent definitions for all the major forms of water consumption and loss. The output of the survey gives performance indicators that allow utilities to benchmark themselves to other suppliers and set their own performance targets. Since a cost is placed on each volume component in the audit, it gives a system an idea about each type of loss and how much that loss type costs the system.

The water audit software can be downloaded at no cost by individual users and is designed to be used without outside support. It is programmed with basic proofreading checks to flag any illogical data. The software tool can be found at: [www.awwa.org/resources-tools/water-knowledge/water-loss-control.aspx](http://www.awwa.org/resources-tools/water-knowledge/water-loss-control.aspx).

Water loss affects more than revenue. DEP reviews water loss when renewing allocation permits. Asking for an increased allocation without first addressing excessive water loss problems may affect your system's ability to obtain an increase in your allocation



permit. The department does offer one-on-one assistance to small water suppliers serving fewer than 10,000 people through the Technical Assistance Section (TAS). A request for assistance through the TAS can be made by contacting Kevin Anderson at 717-783-9764. Another option for help is the Environmental Finance Center Network (EFCN). The EFCN can assist small water systems at no cost, on a one-on-one level on various topics including water loss reduction. A request for assistance through the EFCN can be made at <http://efcnetwork.org/one-on-one/>.

Knowing a system's water loss by using audits can help a system focus limited resources toward the most critical needs in the most cost-effective manner.



## A PENNVEST Refresher

*Dennis Harney, Environmental Group Manager, SE Region*

As a result of the 1996 federal Safe Drinking Water Act (SDWA) amendments, EPA set up the Drinking Water State Revolving Fund, which enabled states to provide low-cost loans to public water systems to further health protection under the SDWA. The fund is supported by annual grants from EPA, state funds and repayments from past loan recipients. In Pennsylvania, DEP is the "technical expert" that works with loan applicants on their projects, and PENNVEST works as the "banker" to manage the funds.

Since its inception, PENNVEST has served the communities and citizens of Pennsylvania by funding sewer, storm water and drinking water projects. These projects not only contribute to improving Pennsylvania's environment and the health of its people, they also provide opportunities for economic growth and jobs for Pennsylvania's workers. PENNVEST's low-cost financial assistance helps make the water that is consumed every day by thousands of Pennsylvanians safe to drink. Funding comes primarily in the form of low interest loans (some grant funding is available) to pay for costs associated with design, engineering and construction of publicly or privately owned drinking water systems.

PENNVEST can help systems with financial needs in many ways, such as: new facilities, consolidations, source water, treatment, transmission, distribution, storage and security measures.

To get more information, visit [www.pennvest.state.pa.us](http://www.pennvest.state.pa.us) or contact the PENNVEST specialist in your DEP regional office.

## Standard Operating Procedures – It's Worth Taking the Time

*Lynne Scheetz, Operations Chief, Southcentral Regional Office*

Many PWSs count on the services of an uncertified operator to perform daily testing. If you do, it's important that, as a public water supplier, you make sure the individual is following a Standard Operating Procedure written by a certified operator for your system. Even if you operate a transient Noncommunity PWS which is not required by the SDWA to have a certified operator, you need to be sure that the people doing daily testing are following the correct procedure.



One system in the Southcentral Region recently experienced the consequences of an employee's failure to test properly. The transient PWS was having on-site personnel take daily chlorine residual samples in order to be sure their chlorinator was operating properly. However, the person tasked to take the residuals was not actually doing the residuals test, but was falsely recording a daily result in the log book. When a DEP inspector arrived at the facility to do a full inspection, they took a sample, found no detectable chlorine residual, and subsequently found that the chlorinator had stopped working. When the on-site person was questioned, they initially showed the DEP inspector the false daily log showing an

acceptable residual. The person later recanted and admitted that they had not actually performed residual monitoring for the entire preceding week and admitted falsely recording results for each of those days. This caused a public health threat because water that was not properly disinfected had been served to the public for an unknown period of time.

The system was immediately placed on a Boil Water Advisory, which lasted until the chlorinator was repaired and two consecutive days of good sample results were received. The consequences of the falsification were felt by both the owner of the water system and the uncertified operator. The owner of the facility is the responsible party, and therefore, is responsible for the actions of the staff. DEP's enforcement action taken against the owner resulted in a penalty against the corporation. The uncertified operator, by falsifying chlorine residual results, was guilty of a summary offense. DEP initiated a summary prosecution with the local magistrate. The uncertified operator pled guilty to this crime and paid a fine.

Don't let this happen to you. Ensure that everyone who works with your water system is monitoring properly and informing you whenever there is a problem. And remember to call your DEP Sanitarian or the Emergency Response number at your DEP regional office within one hour whenever there is a problem with your water system.

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## Campground Owners Beware

*Lynne Scheetz, Operations Chief, Southcentral Regional Office*

Many campground owners have one or more wells on your property. They also have one or more sanitary dump stations on their property. Recently DEP has received reports of campers attempting to empty their RV's sewage holding tank directly into the campground's water supply well. In one of two recent incidents, the camper was successful in emptying their holding tank into the well. In the other case, the camper was stopped prior to beginning the dump.



Can you imagine the impact such an action would have on your water system and your business in general? The campground would be placed on a Boil Water Advisory. Multiple samples would be required. There would be costs to disinfect your well and distribution system, most likely repeatedly until the contamination cleared. If you do not currently chlorinate your system, installation of 4-log chlorination

would likely be required. The economic costs to your business from cancellations and negative publicity could be significant.

This scenario can be avoided. Take some time now to secure and protect your well!

- Install a locking, sanitary seal well cap. If they can't take the cap off, they can't dump sewage or other materials into your well.
- Protect your well from vehicle traffic by installing posts or curbing.
- Put up warning signs. Your local DEP district office has free signs available to Public Water Suppliers
- Make sure campers know where to properly dispose of their holding tank contents.

Wellhead protection is not just a community water system issue. Non-community water systems should look around their wellhead and eliminate possible sources of contamination. And if the worst should happen and your well is contaminated, remember call your DEP Sanitarian or the Emergency Response number at your DEP regional office within one hour.

## Stage 2 DBPR – Operational Evaluation Level (OEL) Report Tips

Justin Blashaw, Compliance Assistance Specialist, Southcentral Region

An article in the Spring/Summer 2013 edition of *Drinking Water News* summarized the Stage 2 Disinfection Byproduct Rule (DBPR) requirements for public water systems on a quarterly DBP monitoring frequency to calculate an Operational Evaluation Level (OEL) for each DBP sampling location. (A reminder on how to calculate OEL is on the next page.) If an OEL exceedance occurs, water suppliers are required to notify DEP in writing, via the OEL Exceedance Notification Form, **within 10 days of the end of the quarter in which that exceedance occurred**.

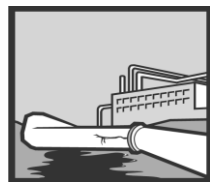


It is important to note that an OEL exceedance also requires water systems to develop and submit an OEL Report **within 90 days of receiving the DBP sample results**. The OEL Report templates on DEP's website provide a framework for water system personnel to examine the circumstances throughout the system which may have contributed to elevated DBPs. The goal of this article is to provide tips for completing the OEL Report and a brief example OEL case study to help assure that you experience the full benefits of this important compliance assistance tool.

The OEL Report consists of five sections: OEL Reporting Form, TTHM and HAA5 Sample Collection and Handling Checklist, Distribution System Evaluation Checklist, Treatment Process Evaluation Checklist, and Source Water Evaluation Checklist. Each of the checklist modules consists of a series of "Yes" or "No" questions designed to evaluate the possibility of a given factor contributing to DBP formation. The first decision that must be made in this process is "who will answer the OEL report questions?" While the final report should be written and organized by one person, it is advisable to involve multiple individuals for the purposes of investigating the potential causes of the exceedance and answering the associated questions.

When completing the checklist for a specific segment of the system, it is crucial that each question is addressed based on the most accurate system-specific information available (e.g. raw water chemistry, treatment plant performance, sampling data, operator logs, system maintenance records, etc.). Accurate system-specific data is a powerful investigative tool which should ultimately aid staff in determining whether a given portion of the system is contributing significantly to DBP formation and the subsequent OEL exceedance. The most important parts of the report are the conclusion sections. These sections are where you should provide a detailed summary of your **system-specific** findings and proposed corrective actions to reduce future DBP levels.

Remember that the overall purpose of the OEL Report is to identify all significant factors contributing to the OEL exceedance. Only when all causes are recognized can they be remedied, thereby preventing future violations. While possible, it is rare that one factor alone will contribute to elevated DBPs. Even when a cursory glance at a situation suggests an obvious cause for an OEL exceedance, it may still be very beneficial to perform a thorough examination



of other possible contributing factors. For example, a surface water system experiences a main break that causes a loss of positive pressure to a portion of the distribution system, requiring a Tier 1 Public Notice. Treatment plant operators have increased the chlorine residual leaving the plant to provide an added level of public protection from potential increased pathogen loading until bacteria samples are taken and the advisory can be lifted. When quarterly Stage 2 DBPR samples are taken at a monitoring location downstream of where the main break occurred the following week, the results trigger an OEL exceedance for TTHMs.

Based on this scenario, it may seem obvious to attribute the OEL exceedance solely to the presence of increased DBP precursors entering distribution in the form of the elevated disinfectant residual leaving the treatment plant; however, the possibility exists that other, less apparent factors also contributed to the elevated TTHMs. A standpipe located upstream of the incident normally operated in a narrow fill/draw cycle range likely has water with a high water age and a significant degree of thermal stratification. Under these circumstances, this standpipe would be a probable source of DBPs, but may contribute very little to the levels detected in routine sampling due to the operating conditions. As a result of the main break, a large volume of stagnant water could have been pulled into distribution from this standpipe during the main flushing and restoration of water service.

In this example, the elevated entry point chlorine residual significantly contributed to the OEL exceedance; however, focusing only on the treatment plant portion of the system would fail to address water age issues in distribution storage tanks which also were a major contributing source of the high TTHM levels.

continued on next page.....

Identification of one, but not both principal causes creates a situation where additional OEL exceedances and possible regulatory issues may arise in the future.

Additional information including the EPA's Operational Evaluation Guidance Manual, OEL Report templates and other Stage 2 DBPR resources can be found by going to <http://www.dep.state.pa.us/> and making the following selections:

- Click "DEP Programs A - Z" on the left side of the screen.
- Click "Drinking Water" under "D."
- Click "Drinking Water Management" on the right side of the screen.
- Click "Regulations" on the right side of the screen.
- Click "Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 D/DBP)."

### **REMINDER**

The OEL calculation is:

$$\text{OEL} = \frac{[(\text{result from 2}^{\text{nd}} \text{ previous quarter}) + (\text{result from previous quarter}) + 2(\text{current quarter result})]}{4}$$

An OEL exceedance occurs if either the TTHM OEL value is > 0.080 **or** the HAA5 OEL value is > 0.060. If an OEL exceedance occurs at one or more sampling locations, the water system is required to notify DEP within 10 days of the end of the quarter in which the OEL exceedance occurs.

The following table captures these details for two sampling locations and can be used to report OEL exceedances until DEP has a form available.

| <b>OEL Exceedance Notification Details</b>  |  |  |  |
|---|--|--|--|
| PWS ID#:  |  |  |  |
| PWS Name:   |  |  |  |
| DEP Sample Location ID#<br>(3-digit # starting with "7")  |  | DEP Sample Location ID#<br>(3-digit # starting with "7") |  |
| Sample Location Name  |  | Sample Location Name                                     |  |
| Sample Date<br>(most recent quarterly sample)   |  | Sample Date<br>(most recent quarterly sample)            |  |
| Sample Received Date<br>(date result received from lab)   |  | Sample Received Date<br>(date result received from lab)  |  |
| Monitoring Period (Qtr)   |  | Monitoring Period (Qtr)                                  |  |
| TTHM: Calculated<br>OEL Value   |  | TTHM: Calculated<br>OEL Value                            |  |
| OEL Calculation: [(     ) + (     ) + 2(     )] / 4   |  | OEL Calculation: [(     ) + (     ) + 2(     )] / 4      |  |
| HAA5: Calculated<br>OEL Value   |  | HAA5: Calculated<br>OEL Value                            |  |
| OEL Calculation: [(     ) + (     ) + 2(     )] / 4   |  | OEL Calculation: [(     ) + (     ) + 2(     )] / 4      |  |
| Limited Scope Evaluation Requested?: <input type="checkbox"/> No <input type="checkbox"/> Yes (if yes, include reason for exceedance below) |  |  |  |
| Reason:   |  |  |  |
| Responsible Official's Name (printed):  |  |  |  |
| Responsible Official's Signature:   |  |  |  |
| Date:   |  |  |  |

## Consumer Confidence Reports – Reminders and an Update

Dawn Hissner, Operations and Monitoring, Central Office

The Consumer Confidence Rule requires each community water supplier to mail or otherwise directly deliver their annual Consumer Confidence Reports (CCRs) to each bill-paying customer **and to DEP** by July 1 each calendar year. In January 2013, EPA issued new guidance with additional options that water suppliers may use to meet the direct delivery requirement to bill-paying customers.

- **Mail or hand delivery:** The water supplier mails or hand delivers a paper copy of the CCR to each bill-paying customer.
- **Mail – notification that CCR is available on website:** The water supplier mails to each bill-paying customer a notification (e.g. postcard, water bill insert, statement on the water bill) that the CCR is available and provides a **DIRECT** URL to the CCR where it can be viewed.
- **Email – CCR sent as an attachment to the email:** The water supplier emails the CCR as an electronic file email attachment.
- **Email – CCR sent as an embedded image in an email:** The water supplier emails the CCR text and tables inserted into the body of an email.
- **Email – direct URL to CCR:** The water supplier



emails a direct URL to the CCR on a publicly available site on the Internet. **NOTE 1:** To meet the intent of direct delivery, the URL has to take the customer directly to the CCR. The URL cannot be provided before the CCR is actually available at that site.

**NOTE 2:** For subsequent CCRs, water suppliers must use a separate URL for each year OR the CCR content must be replaced on the same URL site with each new year. To fulfill the direct delivery requirement the CCR must be updated for the current year (i.e. the new URL is active or if using the same site, the current CCR content has been posted) *before* the availability notice for the new CCR is mailed to customers.

Water suppliers must still mail a **paper copy** of their CCR to DEP and make a good faith effort to get the reports to non-bill-paying consumers. Additionally, community water systems serving 100,000 or more people must still post their current year's report to a publicly-accessible site on the internet. A copy of the report should be kept on file for three years and made available to the public upon request.

**Important Update:** Beginning with the CCRs delivered in 2014, water suppliers should mail one paper copy of their CCR **to their local DEP office** by July 1. Water suppliers are no longer required to submit a copy to the central office in Harrisburg. A list of the DEP district office addresses is available at:

[http://www.portal.state.pa.us/portal/server.pt/community/about\\_dep/13464/office\\_locations/585263](http://www.portal.state.pa.us/portal/server.pt/community/about_dep/13464/office_locations/585263)

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## CCR Certification – What is Required?

Dawn Hissner, Operations and Monitoring, Central Office

On or before Oct. 1 of each year, community water suppliers must deliver a CCR Certification Form to DEP. There are content requirements specified in both state and federal regulation. The certification of delivery must include **all** of the following elements:

- A statement certifying both that the CCR was distributed to all bill-paying customers, and that its information is correct and consistent with the compliance monitoring data previously submitted to the state;
- The date the CCRs were distributed;
- A description of the good faith efforts used to distribute CCRs to non-bill-paying customers.

To assist water suppliers in fulfilling CCR certification requirements, DEP has developed a CCR Certification

Form (publication 3900-FM-BDSW0084), which is available on DEP's website at:

<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-10962>.

Many water suppliers choose to use a cover letter as the certification of delivery when they mail the CCR to DEP. Water supplies may develop and use their own certification form or they may use a cover letter, provided all the required information is included.

**Important Update:** Beginning with the CCRs delivered in 2014, water suppliers should mail one paper copy of their CCR **to their local DEP office** by July 1. Water suppliers are no longer required to submit a copy to the central office in Harrisburg. The CCR certification forms are due by Oct. 1. A list of the DEP district office addresses is available at:

[http://www.portal.state.pa.us/portal/server.pt/community/about\\_dep/13464/office\\_locations/585263](http://www.portal.state.pa.us/portal/server.pt/community/about_dep/13464/office_locations/585263)

## Cross-connection Control/ Backflow Prevention Corner

Steve Flannery, Compliance Assistance Specialist,  
Southeast Region

**Editor's Note:** This is the second in a series of articles exploring the subject of cross-connection control and backflow prevention.

### Part 2: Breaking Down Backflow

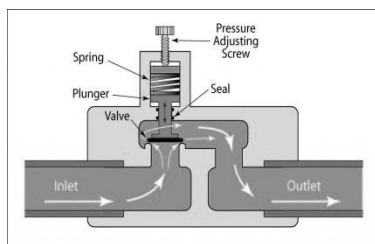
In this article in the series, the types and causes of backflow will be discussed. Backflow events are caused by either back-pressure or backsiphonage, which is when external forces either push the water back or non-potable contaminants are suctioned into distribution pipes. Approximately 75 percent of all backflow events fall into the backsiphonage category and a high percentage of those occur at hose-bib connections where a hose has been left connected to an unprotected water spigot. The simple fix for this situation will be discussed in a future article dealing with backflow prevention devices.



Consider what can cause backpressure and backsiphonage in water systems. There are three causes of pressure in water lines which can lead to backpressure situations. The first is that pressure can be built mechanically by turning on a pump in the water system. This can occur at your main water treatment plant, a booster station in your distribution system, or at the base of an elevated water tank in the water system.

The next potential cause of pressure in the water system is thermal expansion, which is a result of a change in temperature of the water inside the pipelines.

Finally, gravity causes pressure to build in elevated water lines. Essentially, the higher the water is pushed up from ground level, the greater the pressure



measurement when taken at ground level in that particular line. Taking these factors into consideration, backpressure will be generated any time pressure is applied to the water in your

distribution system resulting in water flow in the opposite direction of normal operating conditions.

Backsiphonage, on the other hand, is caused when a partial vacuum is applied to the water system. This happens when the water pressure in the main lines

drops below the atmospheric pressure naturally found outside of the pipes. When this occurs, non-potable substances can be easily suctioned or siphoned into water lines and compromise the safety of the water supply.

The major causes of backsiphonage are: flow restriction, water main breaks, improper system flushing, and firefighting. Backflow can be caused mechanically by pumps, naturally by gravity acting on water in elevated systems or elevated water storage vessels which normally would be receiving water. When external forces stop this normal flow, the result will be some form of backflow, as the water seeks to re-balance its pressure levels.

It's important to note that water pressure in the distribution system is easy to measure and monitor and can provide an early warning sign that something is going on in the water system that needs to be addressed. Also remember, the farther water is pumped into the distribution system, the more water pressure will naturally drop without booster pumps. We all know that water systems have unique qualities and, like snowflakes, no two water distribution systems are alike, so this pressure drop could be smaller in a system with twenty miles of main than in a system that is confined to a single building.

This means that, if you operate several individual water supplies, your response to backflow occurrences should be tailored to the specific set of circumstances present at each particular water supply. What may correct the situation at one system may actually cause more problems than it fixes at a second water system. Be careful about addressing these incidents in a routine manner.



It is important to note that pressure measurement is the key to testing backflow prevention assemblies. Lastly, backflow prevention appurtenances fall into two groups: backflow prevention devices and backflow prevention assemblies. The difference between the two is that any appurtenance called an assembly can be tested, and should be on an annual basis, and those called devices are not testable.

Backflow prevention devices, assemblies and their appropriate applications will be covered in the final article in this series. Before that topic, cross-connections will be addressed in the next edition of *Drinking Water News*.

**Last Edition's Topic - Part 1: Uncovering the Basics**  
**Up Next - Part 3: Cross-connections**



## We're So Glad You Asked



*DEP receives a lot of good questions from water system operators and officials, so we thought we'd share some of the most common questions in hopes of helping more water systems and certified laboratories.*

**Q: When my lab collects the monthly distribution coliform sample at my facility, it collects a bottle for me so I can sample for the chlorine residual later. Isn't this OK?**

A: No. Distribution chlorine samples are to be taken at the same point and time the distribution coliform samples are taken. Based on the BOL manual and the Hach Instrument Manual, a chlorine sample needs to be analyzed immediately. Waiting to analyze the chlorine later will produce an inaccurate result.

**Q: At a recent inspection, I was issued a violation due to not operating a piece of equipment specified in the permit. I quit using this treatment years ago and the water is better without it. Why should this be a violation?**

A: Operating that is not in accordance with the permit is a violation. Failing to use a piece of permitted equipment may have unintended consequences with another process or piece of equipment. If you believe your system will be better off without a certain process or piece of equipment, contact the DEP technical services section for permission before stopping the use.

**Q: The lab notified me on a Friday that my system had a positive coliform sample. It was a long holiday weekend and the lab couldn't resample until the next Tuesday. Why did I receive a violation?**

A: The groundwater rule requires a triggered raw water sample within 24 hours of notification of the positive

distribution sample. This can be extended to 72 hours but there are no circumstances where the deadline can be extended past 72 hours. The 72 hours refers to regular time so there is no extension for weekends or holidays. It is the responsibility of the water supply to meet the time requirement by sampling so a weekend will not prevent follow up sampling, having the correct bottles for more samples or contracting with a lab able to meet the follow-up requirements. Also, if a facility is only open a few days a week, there is no extension if the 72 hour deadline falls on a closed day. The facility must be able to obtain the sample within 72 hours of notification even if that means collecting the sample when the facility is typically closed.

**Q: My chlorine readings are always at 2.2. This is well above minimum, so what is the problem?**

A: The most common colorimeters have a maximum reading of 2.2. If you are routinely getting this reading, you probably have a chlorine level that is much higher. The meter probably also displays MAX or a similar warning. Use a high level analysis method to determine an actual reading and then adjust the chlorine level accordingly.

**Q: My coliform sample came back positive but I know it must have been sampled incorrectly. Why wouldn't the DEP invalidate the sample?**

A: There are only a few instances where a coliform sample can be invalidated: a) the lab established it used an incorrect analysis method; b) results of repeat samples suggest the problem is associated with a domestic or other non-distribution system plumbing problem; c) a condition that does not reflect water quality in the distribution system such as a broken sample bottle. It is the responsibility of the water system to ensure samples are taken correctly and not to attempt to dismiss a positive sample as a sampling error. Additionally, a sample taken for compliance purposes must be reported regardless of the results.

**NOTE:** The DEP Safe Drinking Water Program is now part of the **Bureau of Safe Drinking Water**. Please update your records with the contact information for our central office:

**400 Market St., 10<sup>th</sup> floor, Harrisburg, PA 17105-8467**  
**Phone: 717-787-9633**  
**FAX: 717-772-5630**

For more information, visit DEP's website at [www.dep.state.pa.us](http://www.dep.state.pa.us), Keyword: "Drinking Water."

3900-NL-DEP4193 2/2014