

## Plan Now for Emergency Responses

Tom Fridirici, Chief, Operations and Monitoring

Drinking water-related emergencies were front and center in 2014; the Elk River chemical spill in WV; the toxic algae bloom in Toledo, Ohio. Those were grand scale disasters that received a lot of media attention and outside support. Consider the potential for an emergency situation to occur closer to home and how that emergency might affect your water system.

Focus for a minute on your source locations and vulnerability to transportation-related contamination incidents. Every surface intake is downstream from somewhere. And, although the pathway for contamination is less obvious, wells can be equally as vulnerable to contamination.



Pennsylvania's Safe Drinking Water regulations, 25 Pa. Code § 109.707, outline the requirements for a community water supplier to plan for providing safe and adequate drinking water under emergency situations. Your Emergency Response Plan (ERP) needs to outline the steps you'll take to respond to a contamination event. How will you handle an event the best way possible unless the lines of communication between water supply owners, operators and the emergency responders at the local and county levels are clearly established? One of the key components of an ER plan is to develop a list of appropriate contact persons.

Local and county Emergency Management Agency (EMA) personnel are the first to be involved in a transportation-related emergency. If the county EMA knows the location of a surface intake or a well, they can alert the PWS to the potential danger in enough time to implement the emergency response plan.

THE POINT: Review your ERP and update the contact information to include the EMA personnel. Go to: [www.pema.state.pa.us](http://www.pema.state.pa.us). Click on "ABOUT PEMA" at the top of the page on the left hand side. Click on "CONTACTS" then click on "COUNTY EMA." Contact those people. Introduce yourself to your local and county responders. Identify your sources and discuss what vulnerabilities your water system might have in the event of a transportation-related emergency. Those open lines of communication can help you ensure that "...safe and potable water is continuously supplied to the users." You'll be glad you did.



In this issue:

|   |   |
|---|---|
| Plan Now for Emergency                      | 1 |
| Loss of Positive Pressure (LOPP) Situations | 2 |
| Small System Source Water                   | 3 |
| Lab 24-Hour Postcard Being                  | 4 |
| 2015 Operator Certification Exams           | 4 |
| EPA Tool on Flood Resilience                | 4 |

|   |    |
|---|----|
| Standard Operating Procedures (SOPs)                | 5  |
| LT2 Round Two Monitoring                            | 6  |
| Avoiding Monitoring Violations                      | 7  |
| Why Well Pits Can Be Bad                            | 8  |
| Cross-Connection Control/Backflow Prevention Corner | 9  |
| We're Glad You Asked                                | 10 |

# Evaluating Potential Loss of Positive Pressure (LOPP) Situations in Your Distribution System

Jill Anderson, Compliance Assistance Specialist, SC Region

All water systems experience disturbances in their distribution system from time to time that may result in reduced operating pressure, including main breaks, fire flows, power outages, etc. If such a disturbance causes the distribution system to lose positive pressure, contaminants can enter the pipes through backflow, joints, cracks or fissures, creating a public health risk. Chapter 109.701(a)(3)(iii)(G) requires public water suppliers to report to DEP within one hour of discovering a situation that causes a loss of positive water pressure (LOPP) in **any portion** of the distribution system where there is evidence or a suspected high risk of contamination.



Distribution system operators should be familiar with the guidance document titled “Policy for Determining When Loss of Positive Pressure Situations in the Distribution System Require One-Hour Reporting to the Department and Issuing Tier 1 Public Notification,” that is available [here](#). As its name implies, this policy is intended to help operators evaluate a LOPP situation to determine the level of risk to public health, and to clarify Chapter 109.701(a)(3)(iii)(G) regarding when one-hour notification is required. It is important that a *properly certified distribution system operator* with a Class E license be involved in the decision making during a potential LOPP situation.

When responding to a main break, it is essential to consider that LOPP may not be limited to the immediate area surrounding the break. Any point in the distribution system where positive pressure is not maintained represents a potential risk for backflow or intrusion via pipe joints and cracks. In the event of a main break, an operator may successfully repair the break while maintaining positive pressure at the site of the break. The portion of the distribution system within the same pressure zone as the break will experience lower than normal pressure, but positive pressure may still be maintained throughout that zone. However, it is critical for the operator to also consider the impacts to other areas of that distribution system. In particular, adjoining *lower pressure zones*, such as those located at *higher elevations*, must be considered. **Whenever pressure is reduced in a high pressure zone, operators should always investigate if a LOPP has occurred in a lower pressure zone.** Remember, if **any location** in the distribution system experiences LOPP, a potential public health threat may exist.

Make sure your Emergency Response Plan (ERP) includes up to date information related to LOPP. All community water systems are required to have an ERP and to update it annually. LOPP in the distribution system is one of many emergency situations which must be addressed in your ERP, including likely corrective actions. Those corrective actions should be consistent with guidelines in the LOPP policy. Making sure your ERP is up to date should help you be better prepared to respond in an emergency situation.



Remember, regulations require *one-hour reporting* for a LOPP where there is evidence or a suspected high risk of contamination. If in doubt, it is always better to err on the side of caution and report a situation by contacting your local DEP office within one hour.

Finally, it is important to consider the benefits of conducting routine in-house staff training relative to evaluation of LOPP, proper response and repair of main breaks in your distribution system.

# New Program to Help Small Water Systems with Source Water Protection

Patrick Bowling and Joseph Hebelka,  
Facility Permits & Source Protection Section, Central Office

## **Regional Source Water Protection Facilitators**

**NWRO - 814-332-6410**

### **Christopher Berkey**

(Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren Counties)

**SWRO - 412-442-4212**

### **Tom McCaffrey**

(Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland Counties)

**NCRO - 570-327-3422**

### **Mark Stephens**

(Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union Counties)

**SCRO - 717-705-4913**

### **Cathy Port**

(Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York Counties)

**NERO - 570-830-3101**

### **Andrew Augustine**

(Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming Counties)

**SERO - 484-250-5131**

### **Kevin Smith**

(Bucks, Chester, Delaware, Montgomery and Philadelphia Counties)

During 2014, several incidents in other states involving drinking water contamination received national media attention. As a result, there is a renewed emphasis to call on community water systems across the nation to implement local source water protection (SWP) efforts to safeguard the quality of their drinking water sources.

Over half of the community water systems in Pennsylvania serve 1,000 people or less. Many of these small and very small systems, which include mobile home parks, homeowner associations, apartment buildings, nursing homes, residential treatment facilities and small communities, are the least-equipped to develop a comprehensive SWP plan as they lack the resources that larger systems have. Many of these systems may not have any direct municipal affiliation or involvement, but some may actually own the property around their drinking water sources and could apply some degree of oversight regarding land-use activities in order to protect source water quality.

DEP is pleased to announce the **Small System Source Water Protection Program** to help expand the number of smaller systems involved with voluntary SWP activities. The program is geared towards the needs of smaller systems, especially those serving 500 people or less, and is designed to provide a plan in a much faster timeframe than a traditional comprehensive SWP plan. Plus, there is no fee to take advantage of this service. The Small System Source Water Protection Plan includes the following essential information that will help small systems to protect their sources:

- A description of the raw water sources that supply the water system;
- An inventory of potential sources of contamination that could affect the system;
- A map of the key protection areas for the water supply;
- A checklist that guides facility owners, managers or system operators with suggested SWP action steps; and
- Free education materials to customize and use to raise awareness among residents to help them be part of the solution and prevent accidental contamination of the water supply that serves them.



Managing land uses, spills and human-caused sources of contamination are key to preventing pollution before it enters the drinking water supply at the source. Protecting drinking water supplies at the source can lessen potential health issues for the people served by the system, reduce the high costs associated with water treatment, and can help avoid the cost of new source development. Prevention can also reduce the complexity of operating a water system, which helps to keep costs down and maintain compliance. Having a science-based Small System SWP Plan gives a small system an important management tool for safeguarding the sustainability of their water supply.

DEP will consider systems using this approach to be substantially implementing local SWP efforts. To get started on this quick-turnaround, no-cost program, contact the Regional SWP Facilitator in the appropriate regional DEP office or a source water technician from the Pennsylvania Rural Water Association at 800-653-7792. Additional information including a template of the Small System SWP Plan is available at [www.sourcewaterpa.org/](http://www.sourcewaterpa.org/).

# Lab 24-Hour Notification Postcard Replaced

**24-HOUR NOTICE (check one)**  
**MCL, MRDL or AL Exceedance** \_\_\_\_\_ **PLR Violation** \_\_\_\_\_  
**Check or Confirmation Sample Required** \_\_\_\_\_

Name of Supplier \_\_\_\_\_  
PWS ID Number \_\_\_\_\_  
LOC/EP ID Number \_\_\_\_\_  
Contaminant \_\_\_\_\_  
Sample Date \_\_\_\_\_  
Analysis Date \_\_\_\_\_  
Analysis Method \_\_\_\_\_  
Analysis Result \_\_\_\_\_  
Lab Name \_\_\_\_\_  
Lab Contact \_\_\_\_\_  
Lab Phone No. \_\_\_\_\_



3800-CD-WSFR0061 Rev. 5/2010

The postcard traditionally used by laboratories to report an MCL, MRDL or AL exceedance or a PLR violation is being replaced with a new form for laboratories to make their required notifications to DEP. The new document is a full-page, 8½ X 11-inch form that can be mailed or faxed to the DEP sanitarian who works with the water system that is experiencing monitoring results with one of the situations listed above. Mailing addresses and, when available, fax numbers for DEP district offices and appropriate county health department offices that are part of Pennsylvania's Safe Drinking Water Program are listed on page two of the new form.

The new form will improve communications between sanitarians, public water systems and laboratories. It addresses the same information as the postcard, but will allow the information to be delivered in a more timely manner to meet the 24-hour requirement. The form's document number is 3930-FM-BSDW0061 and it's available online at [www.elibrary.dep.state.pa.us](http://www.elibrary.dep.state.pa.us) under "Forms." The postcard will remain available in DEP's eLibrary and can still be used through the first quarter of 2015. Starting April 1, 2015, the postcard will no longer be available online.

# 2015 Operator Certification Exams



DEP's Operator Certification Program has finalized the statewide 2015 exam schedule. The schedule is available on DEP's website at [www.dep.state.pa.us](http://www.dep.state.pa.us). On the left side of the site, click on "DEP Programs A-Z," select "O," and click on "Operator." A link to the certification exam schedule is posted at the top of the web page. Contact the exam provider listed next to the exam date and location if you are interested in scheduling an exam. Please contact DEP's Safe Drinking Water training section to obtain study materials and training advice at 717-705-6347 for wastewater and 717-705-6348 for drinking water.

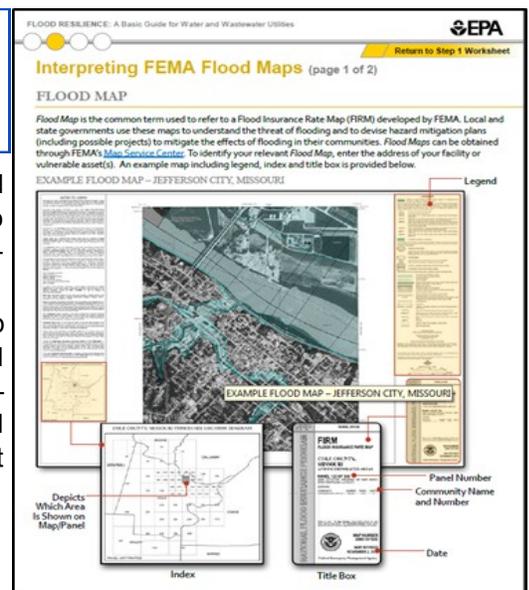
# EPA Releases Tool for Water Utilities on Flood Resilience

EPA has recently released "Flood Resilience: A Basic Guide for Water and Wastewater Utilities." Drinking water utilities are particularly vulnerable to flooding, which can damage pumps, disconnect chemical tanks, break distribution lines, and disrupt power supply.

Targeted to small and medium utilities, the guide outlines a simple, four-step process to help any water utility assess their potential flooding threat and identify practical mitigation options to protect critical assets. With a user-friendly layout, the guide provides worksheets, instructional videos, and flood maps to help utilities through the process. Water systems can learn more at <http://water.epa.gov/infrastructure/watersecurity/emergplan/upload/epa817b14006.pdf>

<http://water.epa.gov/infrastructure/watersecurity/emergplan/upload/epa817b14006.pdf>

Source: Water Headlines from EPA, 10/8/2014



# Basic Requirements for Standard Operating Procedures

Justin Blashaw, Water Program Specialist, Central Office

Your primary operator is on a well-deserved vacation. Your backup operator is bedridden with a particularly nasty case of the flu. Forecasts are calling for severe weather, including several inches of rain and high winds. The borough wastewater operator is capable of getting to the filter plant but has no drinking water experience and limited familiarity with the treatment processes. Maintaining continuous operation of your treatment plant is essential, but temporary staffing shortages and weather conditions have created a nightmare of a situation. What do you do?

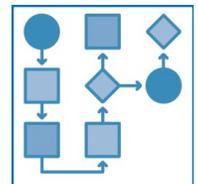


One option in this type of situation is the use of Standard Operating Procedures (SOPs) for key treatment processes. When properly designed, SOPs can allow uncertified personnel to operate a treatment plant in the absence of the Operator in Responsible Charge (ORC). While SOPs are commonly employed at drinking water treatment plants across the State, many owners and operators are unaware of what is actually required in such a document. The goal of this article is to provide a brief overview of the key elements of an SOP.

So what actually constitutes an SOP? According to 25 Pa. Code § 302.1204, an SOP is a written document that allows operators who may not be appropriately certified, but are under the direct supervision of the ORC, to make process control decisions. A process control decision is any decision that maintains or changes the quality or quantity of water in a manner that may affect public health. An SOP must be based on quantitative and qualitative parameters specific to the treatment plant for which they are designed. SOPs may be developed for an entire system or individual treatment processes.

In order to qualify as an SOP, there are a number of elements that must be included in the document. Four basic requirements for any SOP are:

1. The name and contact information of the operator in responsible charge;
2. The operators that are authorized to utilize the SOPs for process control decisions;
3. The treatment processes that are covered by the SOP; and
4. The trigger parameters for each treatment process and the appropriate actions to be taken in the event a trigger is reached.



For any treatment processes that are not specifically covered by an SOP at a treatment plant, the operator must be instructed to contact the ORC in order to make any process control decisions.

The ORC must date and approve, in writing, all SOPs. The SOPs must be available at the system at all times and for DEP review upon request. Furthermore, it is the responsibility of the ORC to make the facility owner aware of any SOPs that are being utilized at a facility.

Development of SOPs for critical treatment processes and analytical procedures may allow for continuous operation of the treatment plant in the event the certified operator is unavailable due to an emergency situation. It is essential, however, that SOPs be readily available, up to date, and include all required elements if they are to be used for process control decisions. Additionally, instituting a training program to ensure uncertified operators are familiar with treatment processes and understand the SOPs can further prepare your system for unforeseen staffing shortages that may arise.

Additional information regarding SOPs, as well as an example template, can be found in the Drinking Water and Wastewater Systems Operator Systems Certification Program Handbook. This document can be found by going to [www.dep.state.pa.us/](http://www.dep.state.pa.us/) and making the following selections:

Click "DEP Programs A - Z" on the left side of the screen.

Click "Water Operator" under "W."

Click the link under the "Operator Handbook" heading in the middle of the screen.



# LT2 Rule – Round 2 Source Water Monitoring Begins

Dawn Hissner, Operations & Monitoring Division,  
Central Office

## LT2 Source Sampling Schedule Deadlines

**Schedule 1 systems —  
December 2014**

**Schedule 2 systems —  
June 2015**

**Schedule 3 systems —  
June 2016**

**Schedule 4 systems —  
June 2017**

**Schedules should be sent to  
the following regional office  
contacts:**

**SERO — Dennis Harney  
2 E. Main Street  
Norristown, PA 19401**

**NERO—Todd Ostir  
2 Public Square  
Wilkes-Barre, PA 18701-1915**

**SCRO — Ed Chescattie  
909 Elmerton Ave.  
Harrisburg, PA 17110**

**NCRO—Tina McCafferty  
208 W. Third St., Ste 101  
Williamsport PA 17701**

**SWRO — Kay Frederick  
400 Waterfont Drive  
Pittsburgh, PA 15222-4745**

**NWRO—Lisa Baughman  
230 Chestnut Street  
Meadville, PA 16335-3481**

The Long Term 2 Enhanced Surface Water Treatment (LT2) Rule requires public water systems using surface water (SW) or groundwater under the direct influence of surface water (GUDI) sources to monitor their source water and calculate an average *Cryptosporidium* concentration to determine whether more treatment is necessary. Most public water systems have begun their LT2 compliance monitoring based on the results of their initial round of source water monitoring.

The LT2 Rule also requires water systems to conduct a second round of source water monitoring at least 6 years after submitting their initial bin classification. For the large, Schedule 1 systems, the second round of monitoring begins no later than April 2015; Schedule 2 systems begin monitoring no later than October 2015; Schedule 3 systems begin monitoring no later than October 2016; and Schedule 4 systems begin monitoring no later than October 2017.

All systems required to conduct source sampling for the LT2 rule need to develop and submit a sampling schedule that includes their sampling location(s). Here are some tips to consider when developing your sampling schedule:

- All SW and GUDI sources identified in the operations permit should be sampled. Unfiltered systems should sample their SW and GUDI sources that are (or plan to be) used.
- Each *Cryptosporidium* sample must also be paired with an *E. coli* and a turbidity sample.
- The sampling location must be prior to any chemical treatment and the filter backwash recycle return (if the plant recycles water).
- The sampling location for treatment plants supplied by multiple sources should be representative of all sources used under normal operating conditions; two or more sources may be blended as long as the blending is prior to any chemical addition.
- EPA's *Source Water Monitoring Guidance Manual for Public Water Systems* provides detailed information on sample locations. It's on EPA's website at [www.epa.gov/ogwdw/disinfection/lt2/pdfs/guide\\_lt2\\_swmonitoringguidance.pdf](http://www.epa.gov/ogwdw/disinfection/lt2/pdfs/guide_lt2_swmonitoringguidance.pdf).
- DEP has developed a sampling schedule template for water systems that have not developed their own schedule form. The template is available at [www.elibrary.dep.state.pa.us/dsweb/View/Collection-12167](http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12167).

Your completed sampling schedule needs to be submitted to the contact person identified in the column to the left in the appropriate DEP regional office at least three months prior to the required sampling begin date. If you are not sure which regional office covers the county your system is located in, visit the DEP website at [www.portal.state.pa.us/portal/server.pt/community/regional\\_resources/13769](http://www.portal.state.pa.us/portal/server.pt/community/regional_resources/13769).

*Cryptosporidium* samples collected for LT2 Round 2 monitoring must be analyzed by a DEP-accredited laboratory using EPA Method 1623 or 1623.1. The DEP website has a feature that water suppliers can use to find laboratories currently accredited for *Cryptosporidium* or *E. coli* monitoring. It is online at [www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/LABS/LAB\\_CERTIFICATION](http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/LABS/LAB_CERTIFICATION). The sampling schedule template has tips on using this database to find accredited labs. Results of the Round 2 monitoring must be reported to DEP via the Drinking Water Electronic Lab Reporting (DWELR) system by the accredited laboratory that conducted the analysis.

# Avoiding Monitoring Violations

John Cairnes, Compliance Assistance Specialist, SE Region

Remaining in compliance with drinking water monitoring regulations requires some due diligence by public water systems. DEP currently regulates approximately 90 primary contaminants, with the likelihood of more being added in the future. Periodic monitoring by public water systems, in the form of sample collection and laboratory analysis, is a system's first line of defense in protecting its customers from the health risks resulting from the consumption of these contaminants.



The number and frequency of drinking water samples will vary according to the size and structure of the system, its past sampling history, the source water environment, and the system's eligibility for monitoring waivers. These requirements may also change, triggered by individual results and cumulative sampling. So the task of keeping track of monitoring requirements and maintaining compliance with them may be daunting to system managers and operators.

Most potential and valid violations incurred by Pennsylvania's public water systems are monitoring violations. The Pennsylvania Drinking Water Information System (PADWIS), DEP's primary tracking tool for monitoring compliance, is programmed to receive sample results submitted by DEP-registered laboratories through the Drinking Water Electronic Reporting

System (DWELR). If PADWIS does not receive data corresponding to a system's monitoring requirements, it generates potential violations. Systems are notified of these violations by email, and DEP field staff must determine if the violations are valid or invalid. Systems lacking a dedicated sampling program can accumulate many violations quickly; for instance, a single missed sample for Volatile Organic Compounds (VOC) will generate 20 potential violations.

Most monitoring violations have one of three root causes:

1. The samples were not collected within the required sampling period.
2. The samples were collected and analyzed, but were not reported by the accredited laboratory.
3. The samples were collected and reported, but the reporting process was done incorrectly, such as when results contain data entry errors, are reported after reporting deadlines, etc.

Ultimately, the public water supplier is responsible for ensuring that the correct number and type of samples are collected within the required sampling periods and reported in a timely manner. And while a public water supplier has limited control over drinking water samples once the laboratory assumes custody, there are some practical controls operators and managers may employ to minimize the occurrence of monitoring violations:

- Be aware of your monitoring requirements. The DEP periodically provides public water suppliers with monitoring calendars. They may also be obtained from DEP's Drinking Water Reporting System (DWRS) at [www.drinkingwater.state.pa.us](http://www.drinkingwater.state.pa.us). They are an excellent tool for tracking monitoring requirements. But system managers should know that *monitoring calendars provide only part of what you need to know to remain in compliance*. You should also be aware of what circumstances and results can trigger increased monitoring. This includes the need for check samples and changes in routine monitoring, either of which may be triggered by an analytical result in excess of a contaminant's Maximum Contaminant Level (MCL).
- Be aware of monitoring periods. Whether you are using the latest version of Microsoft Office or a coffee-stained sheet calendar on your desk blotter, you probably already have a method in place to keep track of important dates. Use whatever method works for you to keep track of monitoring periods, and make sure you arrange collection dates with your accredited lab.
- Maintain good communication with your accredited lab. Make sure they have a copy of your monitoring calendar, even if you have to deliver it personally. Don't take for granted that the lab keeps track of your system's monitoring requirements and changes. That's your responsibility. You will be notified if your monitoring requirements change, but your lab will not be, so it will be up to you to keep them informed of changes.



Continued .....

- Your lab should be providing you with written documentation of all drinking water analyses they perform. Most importantly, if they discover a primary MCL exceedance, they will attempt to notify you within one hour of discovery. Make sure they know who to call if that happens. They should be able to talk to a representative of your system in real time during their business hours, rather than leaving a voicemail.
- Be proactive in dealing with your lab. Remember, your accredited lab is working for you; and you have an expectation of good service. They should be planning their sampling dates around your timetable, not the other way around. Laboratory accreditation means they have agreed to adhere to state regulations on sample collection, analysis and reporting, just as public water suppliers and certified water operators have their own regulations. Don't hesitate to arrange in advance specific collection dates on which they can gain access to sample sites, confer with operators if necessary, and return for check samples within 24 hours if the need arises.
- Avoid scheduling pitfalls. Be aware of regulated time limits when check samples are to be collected. Check samples following a routine coliform positive should be taken within 24 hours of discovery. DEP may extend check sampling for up to three days under certain circumstances, but don't assume this will be approved under all circumstances. If a *routine* coliform sample collected on the Friday before a three-day holiday weekend tests positive, your lab may not be able to collect the check samples in time to avoid additional violations. You should also be aware of the time it takes for a laboratory to analyze a sample. A full suite of Synthetic Organic Chemicals (SOC) may take 10 to 14 days to analyze – or longer if the lab sub-contracts a portion of the analysis to another lab. If your lab is collecting SOC samples on the last day of the monitoring period, it is guaranteed to produce potential violations.



While monitoring violations may seem minor compared to other violations, they will become a part of a water system's public record and can undermine the public's confidence in that public water supplier's ability to deliver good quality water. Addressing monitoring violations creates a cost in work hours to the supplier and adds to the workload of the DEP field staff investigating them. A well-planned strategy for sampling and monitoring can greatly reduce the incidence of these violations and the expenditure of resources to correct them.

## Why Well Pits Can Be Bad

Tom Blair, Sanitarian Supervisor, NW Region

Per community system design standards, wells in pits are not permitted and are strongly discouraged in non-community systems. The picture to the right demonstrates how well pits that are not well-drained can result in the potential for contamination from surface water. They can also pose the possibility of electrocution to an operator. When this picture was taken, there was approximately 3 feet of standing water in the well pit - even though the property owner claimed the pit was *always* dry.



Well pits also tend to be collection spots for various unnecessary and unwanted items, including water. The rust line on the sidewalls in this picture indicates standing water had been in the pit.

# Cross-connection Control/ Backflow Prevention Corner

Steve Flannery, Former Compliance Assistance Specialist, SE Region

**Editor's Note:**

This is the fourth and final article in a series exploring the subject of cross-connection control and backflow prevention. Check out past editions of Drinking Water News for the other articles in the series.

|               |                   | Indirect<br>Backsiphonage Only |                                       | Direct<br>Backsiphonage &<br>Backpressure |
|---------------|-------------------|--------------------------------|---------------------------------------|---|
|               |                   | Continuous Use                 | Non-Continuous Use                    |   |
| Health Hazard | Health Hazard     | PVB/SVB<br>RP<br>Air Gap       | AVB<br>PVB/SVB<br>RP<br>Air Gap       | RP<br>Air Gap                             |
|               | Non-Health Hazard | PVB/SVB<br>RP<br>DC<br>Air Gap | AVB<br>PVB/SVB<br>DC<br>RP<br>Air Gap | DC<br>RP<br>Air Gap                       |

This will be the final installment of this series, and it will be kept as simple as possible. Shown above is a diagram that can be used to determine what type of device or assembly is appropriate to protect your system from backflow or backsiphonage at service connections. For the vast majority of your service connections, you will want to select a Residential Double Check Valve Backflow Prevention Assembly (DC).

Keep in mind that there are two types of cross-connections: (1.) Direct (conditions always present), which can involve both back siphon backflow and backpressure backflow; and (2.) Indirect (conditions not always present), which will only be able to back siphon. Indirect cross-connections can also be divided into continuous use and non-continuous use.

Also keep in mind that there are two types of hazard levels that will guide your selection: health hazard and non-health hazard. One more thing to note is that devices are not testable and assemblies are testable. Testing should be done on an annual basis.

Key to above graphic:

Air Gap: Provides a physical disconnect of the potential source of contamination from the water supply.

AVB: Atmospheric Vacuum Breaker Device – non-testable device, simple, inexpensive mechanical backflow preventer, often used on lab sink taps.

Hose Bibb Vacuum Breaker Device: Can be installed on an outlet to which a hose can be connected in order to provide protection. This non-testable device provides protection against backsiphonage only.

PVB: Pressure Vacuum Breaker Assembly – Is testable, provides protection against backsiphonage only, under constant pressure, wet-locations.

SVB: Spill-Proof Pressure Vacuum Breaker Assembly – Same as above, can be used in internal locations with minimized water spillage.

DC: Double Check Valve Backflow prevention assembly - Is testable and can provide protection against backsiphonage and backpressure conditions under constant pressure.

Residential Dual Check: Provides reliable and inexpensive backflow protection for your residential service connections. These devices are non-testable. Appropriate for non-health hazard locations.

RP: Reduced Pressure Principle Backflow Assembly – Maximum protection against backsiphonage and backpressure conditions; to be installed in the Health Hazard connection locations (i.e. hospitals, medical facilities, nursing homes, funeral parlors, chemical plants).

## 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: The month after a positive coliform sample, I collected five routine samples on one day. I was told this was wrong. Why?**

A: Per 109.303(a)(2), samples for determining compliance with the total coliform MCL shall be taken at regular intervals throughout the monitoring period at sites which are representative of water throughout the distribution system. Collecting all five follow-up samples in one day from one location is not "at regular intervals throughout the monitoring period." As another consideration, collecting all five samples one after another runs a substantial risk of all or most samples being TCR positive, triggering many check and raw samples. Coliform is not distributed evenly through the water column and if the first sample is positive, it is likely samples taken a few minutes later could also be positive.

**Q: What is the difference between a "monthly" monitoring frequency and a "monthly, every 30 days" monitoring frequency?**

A: It depends on the parameter being monitored. For coliform monitoring, "monthly" means the samples can be taken any time in the months of sampling (e.g., samples taken on Jan. 2, Feb. 28 & Mar. 17 would be in compliance). For the Stage 2 Disinfection Byproducts Rule parameters (TOC, bromate, TTHM/HAA5), "monthly, every 30 days" means that the samples should be collected at approximately the same time each month, so that there is an equal interval between sampling (e.g., the second week of each month). This same intent applies to "quarterly, every 90 days." Samples should be collected at equal intervals each calendar quarter (e.g., the second week of the third month each quarter).

**Q: What should I do if I get a positive sample for Total Coliform or E. coli on a holiday? Is it OK if I just document the occurrence in our logs and then report it as soon as the local DEP office opens?**

A: The water supplier is responsible for notifying DEP (or the local health department) within one hour, and the water supplier is responsible to consult with DEP within 24 hours. Don't make the mistake of not notifying and consulting because your laboratory has notified DEP of the water test result. Laboratories have their own notification requirements which they are required to meet. Some systems leave it to the labs to contact DEP, but it's a requirement for the system to call within one hour.

**Q: I'm a Certified Operator. How do I find out how many training hours I currently have?**

A: If you have access to a computer, log onto [www.dep.state.pa.us](http://www.dep.state.pa.us) (Keyword: Operators). If you don't have access to a computer, you can call the DEP staff that track operator certification requirements at 717-787-5236 or FAX them your questions at 717-772-3249. You may also find it useful to visit the Earthwise Academy at [www.earthwise.dep.state.pa.us](http://www.earthwise.dep.state.pa.us) for continuing education training information.

**Q: What public notice requirements can be fulfilled using our annual CCR?**

A: Only Tier 3 public notices required for monitoring or reporting violations that occurred in the calendar year can be reported in a public water system's Consumer Confidence Report (CCR). Tier 3 PN must occur within a year of the violation so be sure that the CCR will be distributed within a year from the violation date, otherwise separate public notice is required.

**Q: My chlorine residual readings disagree with the lab's and sanitarian's readings. How can I improve the accuracy?**

A: Here are some of the potential causes of inaccurate chlorine readings: Dirty sample bottles - scratches, chemical or rust film on the sample bottles affect the reading. Dedicated chlorine sample bottles - if you use one set of bottles to take many types of tests, there will be a reaction with the chemical residue that affects the accuracy of the reading. Expired powder pillows - the reagent has an expiration date printed on the packet. Using expired chemicals can reduce the accuracy of the reading. Wrong size powder pillow - you need the right pillow for the size sample you take. (e.g., a 10 ml sample needs a 10 ml pillow.) Cold meter - let the photometric meter warm up to room temperature for a half hour before use. Cold temperatures result in condensation on the bulb and photo sensor, affecting the accuracy. The calibration may be outdated - recalibrate the instrument following the manufacturer's instructions.

**Q: When I try to enter information into the DEP Consumer Confidence Report template online, it won't work. What am I doing wrong?**

A: Be sure you are opening the Word version of the template (the one with the  symbol). This version of the template is designed to allow you to tab through gray "fields" where you can enter information that is specific to your water system. Save your completed CCR on your computer before printing it. The template that is part of a ".pdf file" (with the  symbol) won't allow you to edit or enter any information.