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## Perfluorinated compounds



by Kristy Richardson, Ph.D., environmental toxicologist

Perfluorinated compounds (PFCs) are a family of human-made substances that do not occur naturally in the environment. They have been used for decades in various products including firefighting foams, coating additives, and surface protection products for carpets and clothing.

When PFCs are released into the environment, they move into water and do not break down easily. These chemicals may enter rivers and underground aquifers, contaminating drinking water sources.

In 2013 and 2014, the U.S. Environmental Protection Agency required large public water systems across the country to collect water samples and test for six PFCs as part of the third Unregulated Contaminant Monitoring Rule (UMCR 3). The UMCR 3 is a routine program where data are gathered to determine locations and amounts of unregulated substances in drinking water sources. The data are used to determine if EPA should regulate these substances under the Safe Drinking Water Act. During this, PFCs were found in 108 U.S. water supply sources. In Colorado, PFCs were found in the Widefield aquifer, located just southeast of Colorado Springs. This aquifer is an important water source

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# A culture of health (part 1)

by Ron Falco, P.E., safe drinking water program manager

Everyone has heard about the crisis in Flint, Michigan. But to learn more I suggest taking time to read the Flint Water Advisory Task Force Final Report available online at [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources). It's only 60 pages but not necessarily an easy read for those involved in assuring drinking water safety. Of particular importance is that the very first of 38 recommendations from the task force does not contain the word lead. The number one recommendation was for Michigan's drinking water program to "Implement a proactive, comprehensive cultural change program ... to focus on its primary mission to protect human health ..." This profound recommendation recognizes that the next drinking water problem or crisis will likely not involve lead and that establishing a broad cultural focus on health will ready the program for a wide variety of future issues.

I believe this recommendation should not only apply to state drinking water programs, but also extend to the entire water industry including water system owners and boards, operators, engineers and consultants. Colorado experienced a drinking water crisis in 2008 with the Salmonella outbreak striking Alamosa that sickened 1,300 people and killed one.

In response, together with stakeholders, we improved several key health protection aspects of our regulations and overall program to better protect public health. These changes involved:

- Reviewing all prior disinfection waivers and withdrawing waivers where needed.
- Tightening requirements for systems to maintain disinfection waivers.
- Correcting hundreds of deficiencies at storage tanks after sanitary surveys, and now implementing the new storage tank rule.
- Implementing a new cross-connection control rule.
- Establishing a minimum disinfectant residual of 0.2 mg/L throughout distribution systems, which was conclusively shown to lower the risk of bacterial contamination.

In addition to these items, we also developed a mandatory half-day training for all safe drinking water program staff regarding waterborne disease outbreaks.



The training helps us understand the history and causes of outbreaks and how every staff member in the program has a role in preventing them. We are now beginning to offer a two-hour external training on waterborne disease outbreaks for other drinking water professionals.

I did not have the foresight to label our process as establishing a culture of health, but I believe that is the path we have been on. We still have a long way to go and must take a much broader approach to look beyond our prior focus on pathogens. Look for more information on this topic in future newsletters.

I commend and thank you for your efforts to protect public health!

A handwritten signature in black ink, appearing to be "RF", located at the bottom right of the page.

# Collaboration and community engagement

by Margaret Pauls, grants and loans project manager

How do water utilities succeed when faced with limited resources, stakeholder opposition, treatment compliance challenges, and/or aging infrastructure? They plan, leverage, communicate and collaborate.

Mill Creek Park Water and Improvement Association is doing just that. Soon, the community will reap the benefits of its efforts. Mill Creek is a non-profit, public drinking water system located near Dumont, Colorado. The community has a mean household income of \$22,650, houses approximately 40 taps and about 100 residents. With limited taps and revenue streams, the association needed a team approach with more than one funding stream to mitigate long standing compliance challenges that resulted from insufficiently treated surface water.

With encouragement from Bob Pohl of the Water Quality Control Division's Compliance Assurance Section, the association board rallied community members to take action and apply for the Colorado Department of Public Health and Environment's Small Communities grant. The grant award plus a loan from the USDA provided the necessary budget to design and construct a new distribution system and treatment facility. The owners formed a diverse team which included the design engineer, the volunteer treasurer, board members and homeowners. All hands were needed to keep the design on track, within budget and to monitor construction progress on site. The team kept in regular communication with CDPHE, the U.S. Forest Service and general contractors.

### More is more - stakeholder participation

Sometimes organizations think less is more and choose to include only select individuals in capital construction project planning, aiming to save the expense and time of involving others. Yet the reverse is shown to accomplish more. An integrated design mindset means soliciting expertise and feedback from a broad group of stakeholders early in the process to plan and solve challenges holistically focusing on long-reaching and comprehensive solutions.

This collaborative approach fosters communication and shifts thinking from reactive to proactive measures. The change can be difficult at first, but with practice it creates broader participation, the ability for more voices to be heard, and the opportunity to solve more



than one issue. In the long run, this saves time and money. A more comprehensive dialogue with integrated solutions helps new improvements be the right fit - not too large or small to meet future needs. The dialogue also helps keep current budgets manageable from a maintenance standpoint. In the case of Mill Creek, teamwork and guidance from both the WQCD compliance assurance and engineering groups solve surface water treatment issues as well as provide anti-corrosion measures to meet lead and copper rule requirements.

The benefits of broadening stakeholder involvement also include spreading the workload and deepening the understanding of the issues within the affected community. This allows the opportunity to use talent from residents, such as accounting and project management expertise which in turn, helps to limit expenses and contribute to the local economy. An additional reward of wide participation is creating tangible relationships between managing ongoing user rates, planning for capital improvement and providing consistent safe drinking water.

### Tools for communication and collaboration

Luckily, as integrated design practices become more mainstream, many free facilitation tools have been created exist to foster engagement with stakeholders. A charette, or guided meeting, is where stakeholders work together to map out solutions, capture valuable insights from community members, and aid in the development of driving principles and objectives to guide a project. Tools are available on our website at [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources) to help you plan future capital construction improvements.

## Collecting additional samples ...

by Nicole Graziano, compliance assurance

Samples collected in addition to those required for compliance are considered “additional monitoring data” under the Lead and Copper Rule (LCR). Many water systems have special programs outside of their routine compliance sampling to test for lead in drinking water at the request of homeowners. Several water systems have also indicated they collect process control samples for lead and copper in the distribution system. There are specific regulatory requirements associated with additional samples collected under the LCR.

### Do additional samples collected under the lead and copper rule need to be reported to the department?

Yes. Customer requested samples and process control samples are considered additional samples under the regulations. All additional lead and copper tap samples must be submitted to the department.

### Do additional samples include water quality parameter and source water samples?

Yes. The regulations specify that the additional monitoring data includes lead and copper tap samples, water quality parameter samples and lead and copper source water samples.

However, additional water quality parameter and source water samples must be reported only if they are sampled as part of a supplier’s lead and copper sampling effort, specific to the LCR. The department is in the process of developing specific guidance regarding additional water quality parameter and source water samples and will notify water systems and operators once the guidance is completed.

### When do additional samples have to be reported (submitted) to the department?

For lead and copper tap samples, the system is required to submit the results no later than the 10th of the month following the end of the system’s specified monitoring period. However, due to potential complexities associated with evaluation of additional lead and copper tap samples, the department strongly encourages systems to submit the results and associated information for additional lead and copper tap sample results as soon as possible.

Remember, the monitoring period is the specific period



of months in which the department has specified that a water system must collect its routine compliance samples under the LCR. For lead and copper tap sampling, systems on a six-month, standard schedule have two monitoring periods per calendar year: January 1 through June 30 and July 1 through December 31. Results of any additional samples collected from January 1 through June 30 must be reported by July 10 and by January 10 for any additional samples collected from July 1 through December 31.

### What information is required with the submittal of additional samples?

Systems must submit a copy of the laboratory report and all information necessary for the department to evaluate whether the sample result is included in compliance calculations. Water systems are expected to put forth a good faith effort in providing as much of the indicated information as possible for each site sampled.

**Lead and copper tap samples:** At a minimum, water systems are expected to provide the physical street address, lab sample ID, structure type, date built, material verification method, sample collector (customer or water system), sample date and lead and copper results as well as attached laboratory report(s). If the water system has sufficient information to know that based upon construction date and/or other related information that a structure likely has a lead service line or specific internal plumbing material and the associated tier level, water systems are expected to include that information with the results submittal.

## ... Lead and Copper Rule

Suppliers must perform due diligence to verify the site’s plumbing materials. This includes interviewing the homeowner and/or reviewing local plumbing records and permits, inspection and maintenance records, distribution system maps, and/or meter installation records. The department’s Additional Samples Reporting Form (previously the customer-requested sample reporting form) is available on our website: [www.colorado.gov/cdphe/lcr](http://www.colorado.gov/cdphe/lcr), under the Sample Collection and Results heading, with the form title “Lead and copper - additional samples only (not part of sampling pool)”.

Water systems are not required to use the form, but should utilize the form for reference as it identifies information that needs to be submitted for each additional sample. The form is not intended to be filled out and printed, it’s meant to be used electronically with submission via the drinking water portal. The form is a Google Sheet (Google’s version of Microsoft Excel). The sheet can be utilized as a Google Sheet, Excel spreadsheet or a CSV file that water systems use for any number of additional samples. Samples that are submitted electronically using the form are the most efficiently processed by the department. The form is intended for electronic submittal via the portal.

### Will the results of an additional lead and copper sample be included in compliance calculations for my system?

Samples can only be included if all of the following criteria are met:

1. The sample is collected during the system’s department-specified monitoring period.



2. The sample is collected from a site that meets the site-selection criteria. This is defined as:

- The sample is collected at the supplier’s appropriate tier site.  
For example - A community water system serves a population of 75 people. The supplier is required to collect five lead and copper tap samples every year, between June and September. The supplier’s materials survey evaluation identified 10 Tier 1 locations in its distribution system. The supplier received three requests from local homeowners to test their water for lead and copper during the supplier’s collection period. The supplier interviewed the customers and identified that one of the samples was collected from the Tier 1 site and other samples were collected at Tier 3 sites. The supplier submitted the data and the program only included the Tier 1 site sample result in the supplier’s 90th percentile lead calculation.
- Samples are first-draw, where water has been motionless for at least six hours.
- Samples were not collected from sites that have point-of-use or point-of-entry treatment designed to remove inorganic contaminants (i.e., home reverse osmosis or ion exchange treatment system).

3. The department has not invalidated the sample for one of the following reasons (all require full substantiation and a written request from the system to invalidate):

- The certified laboratory establishes that improper sample analysis caused erroneous results.
- The department determines that the sample was taken from a site that did not meet the site-selection criteria.
- The sample container was damaged in transit.
- There is substantial reason to believe the sample was subject to tampering.

For example - A system serves a population of 3,500 people. The system’s distribution system includes a sufficient number of Tier 1 sites to complete its minimum pool of 40 sites. During its specified annual monitoring period of June 1 through September 30, the system collects two additional lead and copper tap samples, one at a

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# Collecting additional samples ... continued

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Tier 1 site and one at a representative site (e.g. a house with polyvinyl chloride (PVC) or cross-linked polyethylene (PEX) piping). The department has not received a request for invalidation of either sample and has no information that indicates the sample invalidation criteria apply to either sample. The sample collected at the Tier 1 site would be included in the system's lead and copper 90th percentile calculations.

### How can I estimate whether the department will determine that my additional samples meet the site-collection criteria?

Suppliers are expected to conduct a good faith effort to determine the year built date and plumbing materials for additional samples. The following tools may help determine if additional samples meet a system's site criteria:

- Interview the homeowner. Many times the homeowner will be able to identify the year built of the sampling address, provide a description of the home's plumbing and indicate if there is a home treatment system.
- Review local plumbing records and permits, inspection and maintenance records, distribution system maps, and/or meter installation records to determine the site's plumbing materials.
- To determine the year built date:
  - The local county assessor can often provide year built date for specific addresses.
  - Some systems have been creative and used web-based realty websites (e.g., Zillow.com or Realtor.com) when there is no local county assessor data available.

### What if we did not verify\* or confirm\* the lead and copper tier level (presence of a lead service line, plumbing and/or fixture materials for a home) for sample sites associated with the additional samples? (\*through the process used for those sites included in our compliance monitoring lead and copper sampling pool)

In its evaluation of the additional samples submittal, the department will consider year built dates and the indicated tier level for consistency with the regulations and for information in the supplier's lead and copper



sampling pool and distribution system materials evaluation of record with the department. In the event that the year built date and associated, indicated tier level information in the additional samples submittal does not align with that provided by the supplier for its lead and copper sampling pool, the department will modify the tier information that was provided in the submittal to align with those provided by the supplier for similar year built dates in its sampling pool.

### Do I need to modify my lead and copper sampling pool based on the results of these additional samples?

It depends. For a water system on a reduced sampling schedule (any frequency other than six-month), the department may require that the supplier make changes in sample site locations starting with the next monitoring period. If additional samples were collected at sites that align with the tier level for the supplier's lead and copper sampling pool and indicate lead levels above the action level, the department may re-evaluate the supplier's optimal corrosion control treatment designation and the supplier's sampling pool. The department strongly recommends that water systems include in their sampling pool, all sites that meet the site selection criteria and have test results with lead levels above 5 parts per billion.

### Questions?

Visit [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources) for related links and resources.

# Perfluorinated compounds ... continued

(Continued from page 1)

that provides approximately 12,000 acre-feet of water per year to residents in Security, Widefield and Fountain.

Because PFCs are unregulated substances, EPA has not developed maximum contamination levels (MCLs). MCLs are developed from information on the health effects from exposure to a particular chemical and other considerations under the federal Safe Drinking Water Act. What we do know about PFCs is mostly about two of them, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Exposure to these chemicals has been linked to developmental effects including low birth weight and accelerated puberty, as well as changes in blood cholesterol and liver enzymes. These effects can be linked to health issues such as diabetes and heart disease. Other studies show a possible link between levels of PFOA and PFOS in the blood and thyroid disease, some immune system effects, kidney cancer and testicular cancer.

Security Water and Sanitation District, Widefield Water and Sanitation District, City of Fountain, and other small water systems in the aquifer have worked in collaboration with the department, El Paso County Public Health, EPA and other agencies to provide information and reduce exposure to their customers. In early 2016, temporary provisional health advisory levels existed for two PFCs - PFOA and PFOS, so the public water systems identified groundwater wells that exceeded the EPA provisional health advisory levels and modified their system operations to reduce PFC levels. On May 19, 2016, the EPA issued a new health advisory for PFCs. The new health advisory decreased the level of PFOA and PFOS and also recommended that the two PFCs be added together when comparing to the health advisory. The state also included another PFC, PFHpA, because its structure is like PFOA and PFOS and therefore it could possibly have health effects similar to those associated with PFOA and PFOS.

The new health advisory changed the situation for the three large systems dramatically. Previously, turning off a few wells allowed systems to maintain levels below the temporary provisional advisory values. Now a majority of the wells exceed the new health advisory. Data from the Widefield aquifer shows that generally, PFHpA did not impact the overall level of PFCs in comparison to the health advisory value.

Water demand changes by season creating a dynamic situation for water systems to manage.

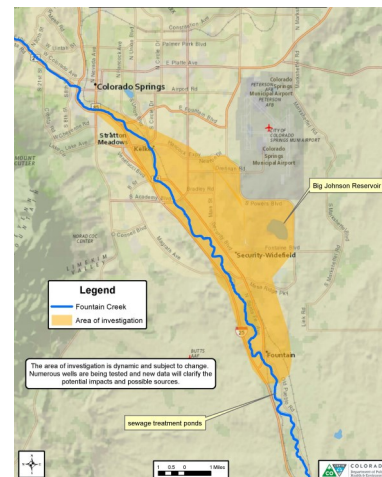
In summer months, water demand is higher. During this time, one large system was able to reduce water demand via conservation measures and rely on surface water. The other two large systems were able to reduce the

number of customers being served water that exceeded the health advisory. As we move into winter, demand is reduced. An additional large system was able to switch to surface water as a source for their customers. Some small water systems also switched to surface water supply sources. The remaining small systems and private well owners that could not switch water supplies were advised to consider other sources of water, such as bottled water, for drinking and cooking.

The U.S. Air Force, which operates the Peterson Air Force base bordering the aquifer, is investigating potential sources from firefighting training and operations on the base. They have invested more than four million dollars to provide alternate water sources and aid in the installation of treatment for private homes and water systems. Additionally, water systems are exploring permanent solutions, including infrastructure changes, treatment technologies and greater reliance on alternate water supply sources. The department will continue its collaboration with local, state and federal agencies to better understand the source and extent of groundwater contamination, minimize risk to public health and provide information to local stakeholders.

Monitoring for UCMR 4 will be conducted in 2018 through 2020. Depending upon their size, systems may be required to monitor for up to 30 contaminants which includes ten cyanotoxins, two metals, eight pesticides, one pesticide byproduct, three brominated haloacetic acids, three alcohols, three semivolatiles and four indicator parameters.

More information on PFCs and UCMR 4 can be found online at [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources).



# Harmful algal blooms - need to know



Cyanotoxin	Health advisory values	
	Bottle-fed infants and children less than six years old	Children six and older through adults
Microcystins	0.3 µg/L	1.6 µg/L
Cylindrospermopsin	0.7 µg/L	3 µg/L

by David Dani, local assistance

In August 2014, the city of Toledo, Ohio made national headlines by declaring a state of emergency and placing half a million people on a “Do not drink” advisory due to elevated microcystin levels in their treated water. Microcystin is an unregulated and largely unheard of contaminant, and the incident had drinking water providers nationwide scrambling to find more information.

Warm, slow moving water high in nutrients can cause harmful algal blooms to form in surface water. Certain types of cyanobacteria, also known as blue-green algae can produce unpleasant taste and odors. They are also capable of producing cyanotoxins such as microcystins. In June 2015, Congress was under pressure to protect the public from cyanotoxin exposure. Subsequently, the EPA released nonregulatory drinking water health advisories for two types of cyanotoxins (microcystins and cylindrospermopsin) based on studies showing liver, kidney and reproductive toxicity.

In response to Toledo and the recent health advisories, Colorado drinking water providers partnered with water organizations and state agencies to form the Colorado Harmful Algal Bloom Workgroup. The goal of the workgroup is to provide cost effective tools and

guidance for drinking water providers of any size to manage risks from cyanotoxins. The workgroup recently released guidance titled “Harmful Algal Bloom Monitoring Guidance for Colorado Drinking Water Providers with Surface Water Sources.” This document is available at [www.rmsawwa.org](http://www.rmsawwa.org) under the Training/Resources tab.

Here’s a brief overview of the monitoring steps:

1. Visually inspect source waters for algal blooms at least weekly during bloom season (typically late summer through early fall).
2. Complete microscopic examination or jar and stick tests along with a field identification guide to determine presence of blue-green algae which could produce cyanotoxins.
3. Monitor raw water intake for presence of cyanotoxins using a field test.
4. Monitor finished water at entry point for presence of cyanotoxins using a field test.
5. Send finished water sample to lab for quantification of the cyanotoxin(s) detected in finished water and compare to EPA health advisory levels.



# Requesting invalidation of samples



by Nicole Graziano compliance assurance section

The department has been receiving numerous questions about the drinking water lead and copper sample invalidation process. Pursuant to the National Primary Drinking Water Regulations, 40 CFR 141.86(f), and the Colorado Primary Drinking Water Regulations, 5 CCR 1002-11, lead and copper tap samples can only be invalidated by the safe drinking water program within the department. Lead and copper tap samples cannot be invalidated by certified laboratories.

The department can only invalidate drinking water lead and copper tap samples for the following reasons:

- The laboratory establishes that improper sample analysis caused erroneous results.
- The department determines the sample was taken from a site that did not meet site selection criteria.
- The sample container was damaged in transit.
- There is substantial reason to believe the sample was subject to tampering.

The department will not invalidate a lead or copper sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

### Requesting invalidation of a tap sample

If a system believes that a sample meets one or more of the invalidation criteria, the system must submit a written request for sample invalidation that includes all of the lead and copper tap sample results (not just those

associated with the invalidation request) along with supporting documentation for the sample(s) for which invalidation is requested. The department recommends that water systems utilize the department's invalidation request form that is available online. In response to receiving a written sample invalidation request, the department will provide its decision and rationale for the decision in writing to the system.

### What about samples collected by a customer?

The lead and copper rule is unique because customers often collect the lead and copper tap samples. The rule specifies that if customers are allowed to collect samples, they must be provided instructions on proper sampling procedures. Systems are responsible for properly training customers on appropriate sampling protocol, reviewing sample containers and documentation prior to analysis. Systems should not transmit samples for analysis if:

- The sample container was damaged.
- Samples were collected from inappropriate sites (e.g., new plumbing, the addition of a water softener, etc.).
- The system believes there may be other issues with the sample collected (e.g., incorrect sample volume or the homeowner certification form was incomplete).

A template for the homeowner sample collection instructions and certification form is available through [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources).

# Storage tank security

by Paul Kosik, P.E., field services

Recently in the Town of Hugo, there was a scare that THC (the main psychoactive component in marijuana) was introduced into the town's finished water. No one was clear on how or why this may have happened. Turns out, it was an error with the sample and there never was THC in the water. Thankfully, this incident did not result in a serious situation where people got sick or poisoned by drinking water. However, the incident is a great opportunity to learn and a timely reminder of how vulnerable all public water systems are from contamination especially if it happens as a result of intentional tampering or unauthorized access. The multi-barrier protection of water concept helps to reduce or minimize contaminants that can enter the water supply passively but it may not protect against intentional contamination of finished water by individuals with malicious intent. While all water sources are potentially vulnerable to contamination, storage tanks may be the most vulnerable component of a water system due to their obvious presence and accessibility.

Confirmed reported incidents of direct, intentional tampering with water sources or storage tanks continue to be rare but water systems must persist in their constant vigilance to prevent potential incidents from occurring. Nearly all public water systems with finished water storage tanks use locks to ensure their tank hatches are secure, most have not considered additional security measures such as intrusion alarms, removed/locked access ladders, cameras, or even lock covers to render the use of bolt cutters extremely difficult, if not impossible.

Storage tanks are not always in conspicuous locations where water system staff and concerned citizens can easily observe suspicious activities. Often storage tanks are located in remote or hidden areas simply because the location may be the most affordable or available parcel of



land for placing a storage tank while also providing finished water to where it is needed in the distribution system at a desired pressure range.

Storage tanks are often isolated and hidden from the public, so operators do not expect anyone but water system staff to know of their existence. Some water systems may argue against the use of fences around the perimeter of their storage tanks because fences don't deter access by determined trespassers. Fences may also make a hidden storage tank more noticeable. While a fence may not completely deter unauthorized access, it can prevent vehicular access to the tank site, discourage individuals with mischievous intentions, clearly define private property boundaries, and may help apprehend trespassers simply by impeding their entry and exit. Furthermore, a fence may warn unsuspecting water system personnel that potential tampering at the site may have occurred by offering additional clues or evidence such as destroyed gate locks or damaged fencing. In this information age, even a well hidden tank without a fence does not remain hidden or unknown for long since technology allows even a novice internet surfer to search for easily discernible

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## 2017 Rulemaking update

by Jennifer Robinett, compliance assurance section manager

During the stakeholder meetings for the Revised Total Coliform Rule (RTCR) and Colorado Initiatives rulemaking held in 2014, the department indicated it would initiate a rulemaking with the Water Quality Control Commission to remove outdated portions of the Colorado Primary Drinking Water Regulations 5 CCR 1002-11 (Regulation 11). Since then, the department has become aware of corrections that need to be made to some areas of the RTCR and more broadly throughout the Lead and Copper Rule (LCR). These corrections will align with language in the federal National Primary Drinking Water Regulations (NPDWR) and also meet our primacy requirement from the EPA to have regulations that are not less stringent than the federal regulations. Because of structural changes to Regulation 11 that were put into place with the November 2013 Increased Readability Rulemaking (IRR), some of the necessary corrections will impact other parts of the regulation outside of the RTCR and the LCR.

The department scheduled a rulemaking with the commission for August 2017. The rulemaking intended to remove the old Total Coliform Rule and Cross-



Connection Control Rule language that is no longer applicable as a result of the RTCR and Backflow Prevention and the Cross-Connection Rules adopted by the commission in the January 2015 rulemaking.

The department's proposal will also be consistent with commission guidance and procedural rules. The department is working with the commission administrator and the Attorney General's office regarding the proposed revisions.

Stay tuned for more information. If you are interested in receiving notices of commission hearings visit [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources).

## Storage tank security ... continued

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tanks. Even completely buried tanks that may appear camouflaged at the ground level may still reveal the distinct and telltale characteristics of a circular storage tank footprint in an aerial map view.

Section 7.0.4 of the Colorado Design Criteria for Potable Water Systems states that all finished water storage tanks, with the exception of tanks less than 11,000 gallons or those stored in buildings must have fencing, locks on access manholes, lock covers on padlocks, intrusion alarms and other necessary precautions to prevent trespassing, vandalism and sabotage. Security is ultimately the responsibility of the supplier, operator and all other qualified personnel of the water system. This is evaluated during sanitary surveys.

Ultimately, there is no fool-proof design or security system that can prevent unauthorized access by

individuals with malicious intentions. Consider that vandals may be deterred from attempting to access a storage tank with a locking hatch, lock cover and/or alarms but they may still be able to partially access or contaminate the tank through other means such as a vent clamped only with a 24-mesh screen covering.

In the event that sabotage or intentional contamination has allegedly occurred to a finished water supply, please contact law enforcement. Also, these events must be reported to the department, which can be done by calling the department's environmental incident hotline at (877)-518-5608 to report the incident and receive further guidance. The public water system may also contact the Colorado Information Analysis Center of the Division of Homeland Security and Emergency Management even if it doesn't appear that the water system's finished water supply has been contaminated or compromised.

# New resources for Consumer Notice of Lead Sample Results under the LCR

by Jennifer Robinett, compliance assurance section manager

As you may know, the requirements pertaining to water system consumer notification of lead tap sample results have been included in the federal drinking water regulations since 2007 and in Colorado's regulations since 2009. Although these requirements have been in place for several years, we understand that it can still be challenging for water systems to ensure that they are fully complying with the requirements. We want to let Colorado water systems and operators know about two new resources the department created to assist water systems with meeting the lead sample result consumer notice requirements.

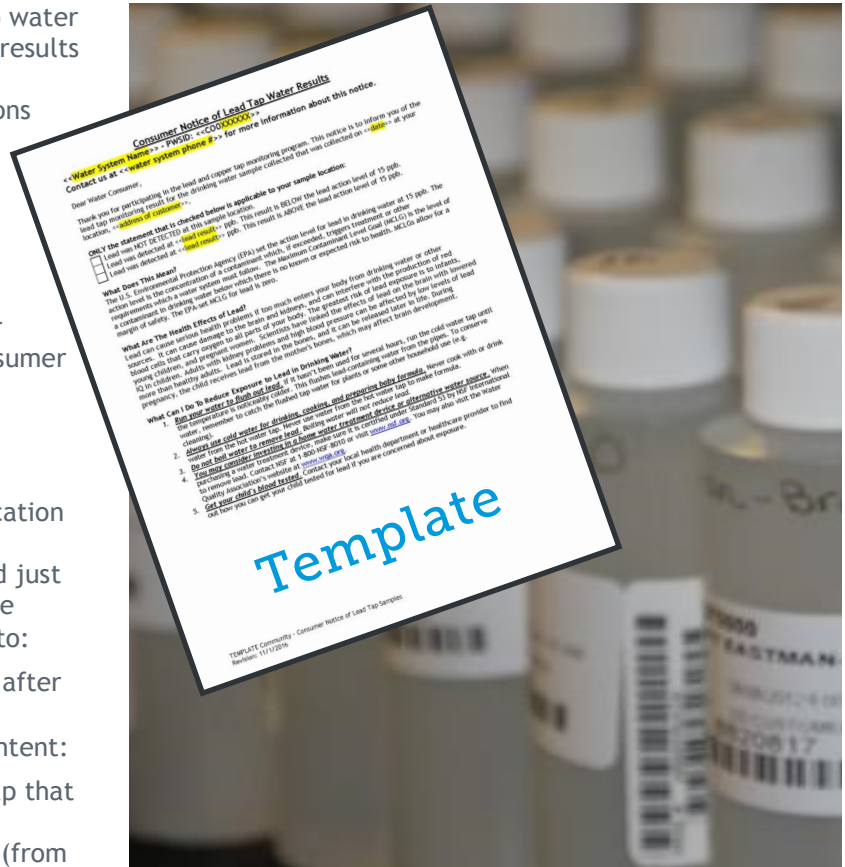
## How will these new resources help water systems?

The regulatory requirements for consumer notification of lead tap sample results falls under the public education requirements in the LCR and go beyond just providing consumers with the just the lead sample results. Specifically, water systems are required to:

1. As soon as practical, but no later than 30 days after learning of the tap monitoring results, provide consumer notice that includes the following content:
  - a. The results of the lead tap sample for the tap that was tested.
  - b. An explanation of the health effects of lead (from public education language).
  - c. A list of steps that consumers can take to reduce exposure to lead in drinking water (from public education language).
  - d. Contact information for the water utility.
  - e. The maximum contaminant level goal (MCLG) and action level (AL) for lead.
  - f. Definitions for MCLG and AL included in the drinking water regulations.

While the regulations allow for 30 days after learning the results, the department recommends completing this activity as soon as possible, especially for locations with elevated lead levels.

2. Provide the consumer notice to the occupants of the residence where the tap was tested either by mail or by another method approved by the department. The notice must also be provided to those consumers who are occupants where samples were collected, but do not receive water bills.



3. No later than 90 days following the end of the water system's monitoring period, submit to the department a sample copy of the consumer notice that was provided to consumers and a certification that the notification was distributed in accordance with the requirements in the drinking water regulations.

## What are these new resources?

The department developed templates for the required customer notification content and a form for the required certification submittal. Water systems can utilize these resources to help ensure that they are not missing any of the consumer notice requirements.

## How can water systems access the new resources?

The resources are available on the department's web site via our resource page [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources).

## Ask Aqua Man

Dear Aqua Man,

I just want to confirm my understanding of the small water system certificate. The single certificate is the same as having both a Class 1 distribution and a Class D water treatment separately, correct? And, if the system I work for was reclassified as a Class C treatment, can I keep the small water certificate to continue as the ORC for the Class 1 distribution system and then test up to the Class C water treatment level?

Sincerely,  
S. Class, Jr.

Dear Mr. Class,

In 2012, the small water certificate was renamed Class S water for consistency and clarification because other regulations define small systems differently than Regulation 100.

The Class S water certificate was specifically created to make it easier for an owner of a certain type of water facility to serve as their own ORC. In general the Class S certificate is not recommended for anyone other than owners of certain small facilities who intend to serve as the ORC of their facility.

Finally, the Class S Water certificate is only valid for operating facilities that serve no more than 3,300 persons and would be classified as a “D” water treatment facility and/or as a “1” water distribution system. Therefore, the Class S certificate allows an operator to qualify to be an ORC for a Class 1 distribution system, even if the operator qualifies for and holds a higher level water treatment certificate.

It’s important to remember that an operator cannot uncouple the Class S certificate into separate Class D treatment and Class 1 distribution certificates for purposes of maintaining or renewing the certificate. An operator is subject to the renewal and maintenance requirements of the Class S not the requirements of a D treatment or 1 distribution.

### Your turn: Ask Aqua Man

Have some time saving helpful hints or tips to share with fellow operators? Can Aqua Man answer your question? Is there a topic you would like discussed?

- ◆ email: [cdphe.wqdwtraining@state.co.us](mailto:cdphe.wqdwtraining@state.co.us)
- ◆ phone: 303-692-3619
- ◆ fax: 303-782-0390
- ◆ mail: WQCD, 4300 Cherry Creek Drive South, Denver, CO 80247

## Pursuing Excellence

by Kaitlyn Minich, local assistance unit

Rainbow Lodge and Grocery in South Fork, Colorado is the first system accepted into the Pursuing Excellence Program’s System Improvement pilot program. The pilot has funding up to \$25,000 available for systems to undertake an improvement project and participate in the Pursuing Excellence Program.

Rainbow Lodge and Grocery, a transient, non-community system serving a little over 350 people, identified a need to upgrade their disinfection systems. The system has four wells, four chlorinators and four distribution systems. There are plans to upgrade two chlorinators to improve performance, increase contact time and improve redundancy throughout their entire operation.



In order to receive funding, Rainbow Lodge and Grocery will participate in agreed upon improvement activities, such as completing operations and maintenance training, updating their monitoring plan and completing a cross-connection control program. As the system documents their improvement activities and meet selected criteria, they will move through program tiers and receive funding towards their overall project. For more information about the program visit [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources).

# Test your knowledge

Think you know everything about drinking water? Prove your drinking water knowledge with our interactive quiz.

Please go [online](#) to record your answers. Answers will appear in the next issue. You can find the link to the online quiz at [www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources).

Enjoy!

1. A charrette is a guided meeting for stakeholders.
  - a. True.
  - b. False.
2. Involving more stakeholders early in the design making process can help project teams when seeking integrated and holistic solutions.
  - a. True.
  - b. False.
3. Mill Creek was able to solve their treatment challenges while also providing for \_\_\_\_\_.
  - a. Future growth.
  - b. Recent lead and copper requirements.
  - c. Road improvements.
4. Certified laboratories can invalidate lead or copper tap samples.
  - a. True. Since they are certified they can invalidate lead or copper tap samples.
  - b. False. Only the department has the authority to invalidate lead and copper tap samples.
5. What are some additional ways to prevent trespassers from directly contaminating a finished water storage tank that only has a candy cane vent and clamped screen covering?
  - a. Remove the candy cane vent and upgrade the access hatch to one with built in vents
  - b. Replacing the candy cane vent with a more secure mushroom-type cap vent.
  - c. Add surveillance system.
  - d. Add a thicker screen or larger mesh cover with lock to the candy cane vent.
  - e. All of the above.



## Answers to the summer 2016 drinking water quiz

1. Basic operator training will cover which of the following topics: (Answer: F)
  - a. Regulations.
  - b. Filter media reclassification.
  - c. Sampling techniques.
  - d. Sanitary surveys.
  - e. A, b, and c.
  - f. A, c and d.
2. What up-to-date information regarding lead and copper can be found at [www.colorado.gov/cdphe/lcr](http://www.colorado.gov/cdphe/lcr): (Answer: F.)
  - a. Guidance information.
  - b. Regulatory clarifications.
  - c. Sampling instructions.
  - d. Sample site information.
  - e. Reporting forms and templates.
  - f. All of the above.
3. Which of the following Colorado cities is displaying their “Drinking Water Protection Area” sign in this issue of Aqua Talk? (Answer: A)
  - a. Durango.
  - b. Boulder.
  - c. Cortez.
  - d. Lamar.
4. Adding copper sulfate in the source water is a treatment change that requires a review of lead and copper corrosion status by the department. (Answer: B. False)
  - a. True.
  - b. False.

## Resources and more information

# Visit us on the web

Links and resources from this issue of Aquatalk

[www.colorado.gov/cdphe/aqua-talk-resources](http://www.colorado.gov/cdphe/aqua-talk-resources)

Follow safe drinking water program on Twitter!

[twitter.com/WQCD\\_Colorado](https://twitter.com/WQCD_Colorado)

The Water Quality Control Division's home page web address is

[www.colorado.gov/cdphe/wqcd](http://www.colorado.gov/cdphe/wqcd)

For training opportunities, please visit the division's website at

[www.colorado.gov/cdphe/dwtraining](http://www.colorado.gov/cdphe/dwtraining)

To access Aqua Talk online, go to

[www.colorado.gov/cdphe/aquatalk](http://www.colorado.gov/cdphe/aquatalk)

To access inspection services go to:

[www.colorado.gov/cdphe/wqinspectionsservices](http://www.colorado.gov/cdphe/wqinspectionsservices)

To access the contact list for drinking water regulations go to:

[www.colorado.gov/cdphe/wqcd](http://www.colorado.gov/cdphe/wqcd)

# Aqua Talk

## Newsletter Information

Editorial team: Doug Camrud, Ron Falco, Nicole Graziano, Armando Herald, Kelly Jacques, Kaitlyn Minich, Margaret Pauls, Meghan Trubee, Jackie Whelan and Heather Wilcox.

We welcome comments, questions, story ideas, articles and photographs submitted for publication. Please address correspondence to Armando Herald, Aqua Talk Newsletter, Water Quality Control Division, 4300 Cherry Creek Dr. S., B2, Denver, CO 80246,1530 or email [cdphe.wqdwtraining@state.co.us](mailto:cdphe.wqdwtraining@state.co.us). Enter "Safe Drinking Water Newsletter" as the subject. Past issues are available by contacting the editor or visiting the website at: [www.colorado.gov/cdphe/aquatalk.com](http://www.colorado.gov/cdphe/aquatalk.com)

UNSUBSCRIBE: if you would like to stop receiving this newsletter, please contact us at 303-692-3619.



**COLORADO**

**Water Quality Control Division**

Department of Public Health & Environment



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WQCD DRINKING WATER PROG, 2030

# Aqua Talk



A quarterly newsletter published by the  
Safe Drinking Water Program, Water Quality Control Division,  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Dr. S., Denver, CO 80246, 1530

[www.colorado.gov/cdphe/wqcd](http://www.colorado.gov/cdphe/wqcd)

DATE OF ISSUE: Summer 2016

Editor: Ron Falco

*Purpose: to communicate division drinking water-related issues to stakeholders.*