IS YOUR CORROSION CONTROL WORKING?

BY STEVE HULSMAN, REGIONAL SOURCE WATER QUALITY PROGRAM MANAGER

If your water system has corrosion control treatment, you should monitor regularly to ensure it works properly. That includes checking the physical components and measuring the appropriate water quality parameters.

- Make sure chemical feed pumps are operating and delivering the proper amount.
- Verify there are no kinks or plugs in the chemical feed lines or injection points.
- Ensure adequate levels of treatment chemicals in the feed tanks.

You should also monitor specific water quality parameters, which vary depending on the type of treatment.

At minimum, measure alkalinity and pH. If you use an inhibitor such as orthophosphate, you should monitor for the inhibitor as well. For accurate results, you must measure pH in the field using a calibrated pH meter, and a lab must analyze samples for alkalinity and inhibitor concentrations.

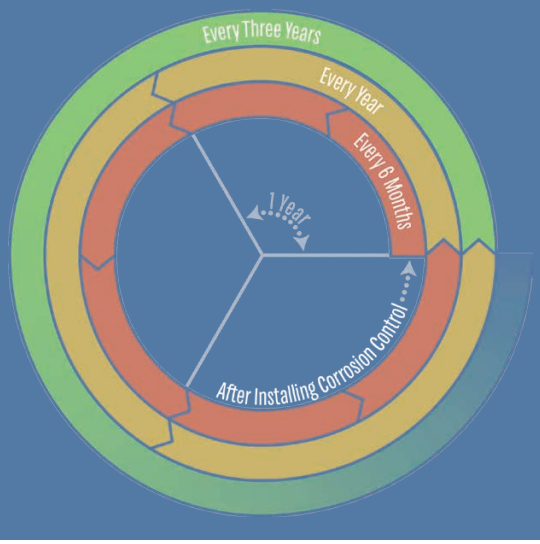
If your water system serves more than 50,000 people, you must monitor water quality parameters at the locations and frequencies in the chart at right. If your system serves fewer than 50,000 people, we recommend that you monitor pH and alkalinity. The frequencies and number of locations in the chart at right are minimums. Certain conditions and treatments, such as using an inhibitor or exceeding an action level, require more monitoring.

For more information about water quality parameter monitoring, see EPA's *Lead and Copper Rule: Monitoring and Reporting Guidance for Public Water Systems (816-R-10-004)*. We included a link to the publication in our database at https://fortress.wa.gov/doh/odwpubs/Publications.

WHEN & WHERE TO MONITOR

If you are using corrosion control treatment, you should test your water at least every two weeks at the entry point to distribution for each corrosion treatment plant. Additionally, at a number of sites within the distribution system, you should test every six months for three years after installation, annually for three years after that, and then once every three years from then on.

Minimum no. of sites within distribution system by population				
<500	501-3,300	3,301-10,000	10,001-100,000	>100,000
1 site	2 sites	3 sites	7 sites	10 sites



Community Systems	Nontransient Noncommunity Systems
Tier 1 sampling sites are single-family structures. When multiple-family residences represent at least 20% of the structures the system serves, the system may count them as Tier 1 sites.	**Tier 1** sampling sites are buildings.
Tier 2 sampling sites consist of buildings, including multiple-family residences.	**Tier 2** sampling sites are buildings.
Tier 3 sampling sites are single-family structures.	

Representative sample: If a system cannot collect enough samples from tiered sites, it must collect samples from sites where plumbing is similar to that used at other sites served by the water system.

- Structures with copper pipes and lead solder installed after 1982, but before June 19, 1986
- Structures with copper pipes and lead solder installed before 1983

HOW WERE YOUR SAMPLE SITES CHOSEN?

BY SOPHIA PETRO, REGIONAL SOURCE WATER QUALITY PROGRAM MANAGER

Community and nontransient noncommunity (NTNC) public water systems sample for lead and copper from a limited number of locations. Did you know these locations were selected because your system identified them as most susceptible to lead corrosion? Nearly 25 years ago we required community and NTNC water systems to assess their distribution systems to identify high-risk sample sites. If you weren't around then, now is a good time to review your records to ensure the sampling locations are still accurate.

Each water system used its assessment to develop a pool of targeted sites where it needs to collect lead and copper tap samples according to the tiered criteria at left. Sampling sites may not include faucets with point-of-use or point-of-entry treatment devices that remove inorganic contaminants. Review your lead and copper sample site locations to ensure you are sampling according to your approved list of sites.

Make sure your sampling pool consists entirely of the highest priority sites. If you have insufficient Tier 1 sites, identify Tier 2 sites, then Tier 3 sites, and finally sites with representative plumbing materials. If you're not sure why certain sites are in the sampling pool, some research is necessary. If you need help, contact one of our regional offices.

PO Box 47822
Olympia, WA 98504-7822

H_2Ops is a publication of the Washington State Department of Health Office of Drinking Water, publication #331-500. If you need this publication in an alternative format, call 800.525.0127 (TDD/TTY call 711). This and other publications are available at www.doh.wa.gov/drinkingwater.

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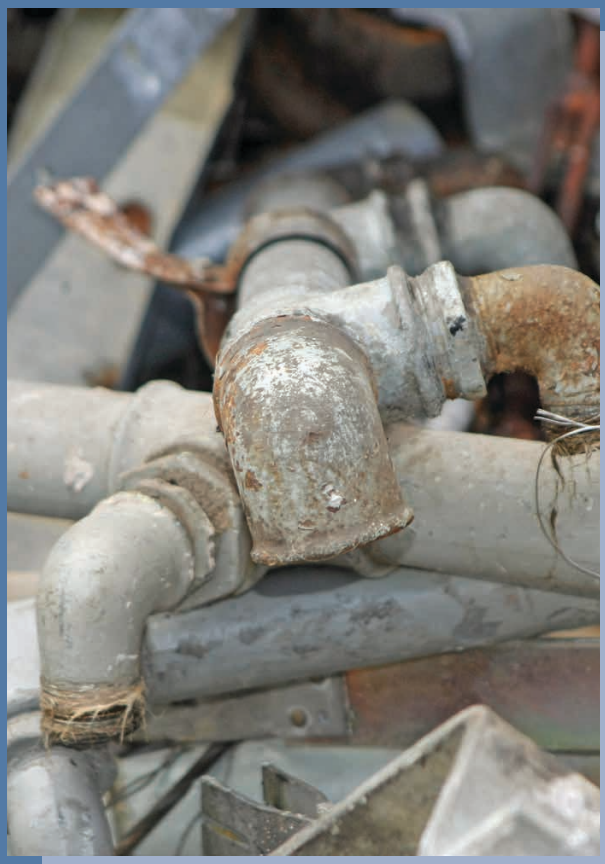

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LEAD SURVEY: YOUR RESPONSE MATTERS

This fall we will ask each Group A water system to take a short online survey about the presence of lead materials in their drinking water system. We will use the responses to develop budget and policy recommendations designed to help public water systems remove lead service lines and other lead components.

In May, Governor Inslee directed the Department of Health to identify and reduce all sources of lead exposure to the people of Washington State. Recent news stories about lead in drinking water reminded all of us that one route of exposure can be through corrosion of lead pipes and plumbing components that are made of lead.

Even if your utility operates within existing standards for lead, we know that any exposure to lead is harmful to human health, and we want to minimize exposure through drinking water. Removing lead materials that contact drinking water will result in lower lead exposure for current and future generations. We are committed to helping public water systems and the communities they serve rid their systems of lead service lines and other lead components.

We look forward to your input and on-going partnership in this important effort. If you have any questions about this upcoming survey, please call Sam Perry at 253-395-6755 or email sam.perry@doh.wa.gov.

H2Ops

GET THE LEAD OUT!

SEPTEMBER 2016

P4 A Word from the New Guy
Incoming ODW Director Garin Schrieve shares his thoughts on the work ahead.

P2 The Right Way Matters
Sampling procedures for testing lead in school drinking water systems.

P3 Get the Word Out!
Communicating with your customers about lead, in or out of the water.

BREMERTON'S EFFORTS TO REDUCE LEAD INCLUDE ONLINE CUSTOMER TOOL

BY CAROLYN COX

The City of Bremerton has an admirable goal of zero lead in drinking water.

Bremerton already has a good story to tell: no detectable lead in its sources and no lead service lines. The city has provided corrosion control treatment, which reduces the leaching of lead into water, since 1999. But they know there's more to do.

Since the problems with lead in drinking water in Flint, Mich., exploded onto the national news in late 2015, the city received a number of calls from customers concerned about lead exposure.

Bremerton's water system is more than 100 years old. About 40 percent of the distribution system was installed before 1950. Most of the older customer water service lines were connected to the water main with copper pipe, but prior to the late 1940s, the city sometimes used lead "gooseneck" pipe on galvanized service lines to connect water mains to water meters. Goosenecks are difficult to find because they are underground, usually under the street, and their locations were not routinely documented.

The public works staff decided to find all galvanized service lines and replace them with high-density polyethylene (HDPE) plastic piping because the aging pipes are at the end of their service life and can cause problems. Finding these pipes is a bit like looking for a needle in a haystack, said Kathleen Cahall, water resources manager for Bremerton Public Works and Utilities. City employees are reviewing scanned archive documents and frayed paper field books over 80 years old to find documentation of service line materials.

City of Bremerton employee Nik Price reads an old field notebook looking for information about lead goosenecks. Photo courtesy City of Bremerton.

"Each time a field service person documented in faded pencil, 'all services copper to the meter,' we felt like we won a prize!" Cahall said. "If we can't find documentation, we perform a field check to determine the service line material. This information is then updated into our Geographical Information System (GIS)."

Using this data, the city created an online tool that enables their customers to check for the possibility of a lead gooseneck: www.BremertonWA.gov/PbGN.

The tool is simple to use. Customers enter their street address, and they'll receive one of three answers: 1) "There is no lead gooseneck"; 2) "There is a possibility of a lead gooseneck – flush your cold water tap for two minutes before using the water for drinking or cooking after periods of six hours or more when the water has not been used at all"; or 3) "It is unknown whether there is a lead gooseneck – please call the water utility for more information." The web page also provides links to factsheets about lead.

Buildings with galvanized service lines built before 1949 have the greatest likelihood of a lead gooseneck. Bremerton already upgraded hundreds of galvanized service lines and steadily replaces lead goosenecks when they find them. Cahall estimates that several hundred may remain in the system – less than 3 percent of about 20,000 water connections. After working on this project for several months, the city has about 4,500 pre-1950 service lines left to verify.

Cahall said the goal of the new web tool is for customers to be able to get this information at their convenience. "Most customers are relieved to learn the risk is low in Bremerton and appreciate that we are able to provide specific information about their particular water service," Cahall said. "The tool will reassure Bremerton water customers that we are on top of this issue and can provide them the latest information to protect the community's health."

WHAT TO EXPECT FROM SCHOOLS IN YOUR SERVICE AREA

BY ELIZABETH HYDE

As the new school year gets under way, you may get requests for help with all aspects of testing for lead. You can rely on us for resources and technical guidance. Our new Lead in School Drinking Water FAQ page includes many questions we've received and provides answers and links to resources.

School administrators may have many questions about the intricate issues of testing their facilities for lead in drinking water. The U.S. Environmental Protection Agency's publication *3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance* contains detailed information on all aspects of testing for lead in school drinking water.

School personnel involved in testing may need help understanding their building's plumbing system. Start with a school's records: they contain information about previous tests and results and any corrective efforts by the school.

They also may need to know what help they can get from you or local health departments and which certified water-testing labs they can use.

The 3Ts publication contains a **Plumbing Profile Questionnaire**, which will help schools figure out whether lead could be a problem in their building. Encourage schools to fill out the questionnaire so they understand their buildings' plumbing and the way water flows through them. It will also help them develop a plan for tackling the lead testing process.

A successful plan will help schools identify the most important fixtures to sample, and how to prioritize remedial actions as needed. School personnel may need further support with some of the details of sampling, such as proper bottle size, repeat sampling, identifying whether any contamination is from the fixture itself or from interior plumbing, and any corrections they may need to make.

Testing for lead is complex, but with proper planning, schools can successfully navigate any challenges they may encounter.

Links to the FAQ page, the 3Ts, and other publications are on our Lead in School Drinking Water web page at doh.wa.gov/LeadinSchools.

SCHOOL LEAD TESTING PROTOCOL

Some schools are sampling to find water fixtures with high lead content, and they may contact you for help. Here is some guidance for schools in your service area. If the school has its own water system, the biggest procedural difference in sampling is the sample bottle size: 1 liter instead of 250 milliliters.

This guidance is from the *Testing for Lead in School Drinking Water Systems (331-251)* brochure. You can find the brochure at doh.wa.gov/LeadInSchools.

Select drinking water fixtures in the building. Prioritize fixtures based on how likely and frequently someone could drink from them. For example, people are more likely to drink from water fountains or kitchen faucets than bathroom sinks. The more drinking water fixtures you sample, the better you will understand lead levels in your building.

Pick a day to sample when school is in session. DO NOT sample the morning after a weekend, vacation, or holiday because this doesn't represent normal use.

Get "first-draw" samples. First-draw water must sit in the plumbing system at least 8 hours, but no more than 18 hours. The fixture should not be used during that time. It is easiest to collect samples first thing in the morning before school starts.

Only sample cold water. If you are testing fixtures that mix hot and cold water, make sure cold water is the last water to run though the tap before it sits overnight.

Do not remove the aerator from the fixture at any time during the sampling process.

First thing in the morning, place a sample bottle under the faucet and open the cold-water tap to a steady flow. Fill the bottle to the shoulder or the line marked "250 ml" and then turn the water off. Cap the bottle tightly.

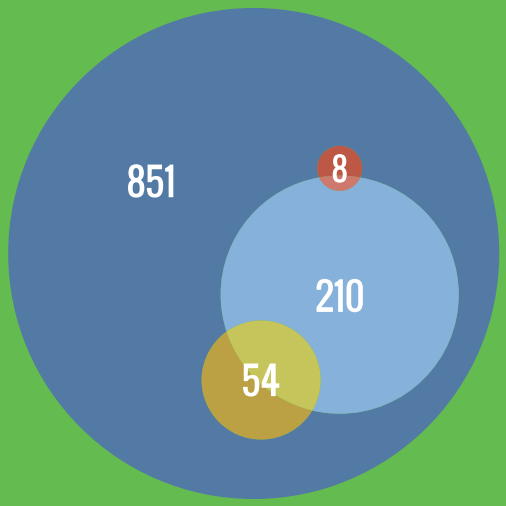
Fill out the lab and bottle label. Include the school or building name, sample type (first-draw), collection date and time, name of the person collecting the sample, sample location, and so on.

Repeat this process for each fixture you test, and send the samples to a state-certified laboratory for analysis.

LEAD MONITORING BY THE NUMBERS

We required 851 public water systems to monitor for lead and copper during the three-year compliance period that ended Dec. 31, 2015. Of those, 8 systems exceeded the action level for lead (15 parts per billion) in more than 10 percent of samples analyzed, and 54 systems didn't complete the requirements in their prescribed monitoring plan. About 24 percent use corrosion control treatment to reduce lead and copper.

- Systems monitoring for lead and copper
- Systems using corrosion control to reduce lead and copper
- Systems that didn't complete the monitoring requirement
- Systems that exceeded the action level for lead



TALKING ABOUT LEAD

BY DAVE STERNBERG, LEAD AND COPPER PROGRAM MANAGER

If you followed the news about lead in drinking water earlier this year, you know how important it is to keep customers informed about potential water quality or operational issues that may happen at your water system. A risk communications expert would remind you that there are two sides to an issue, actual risk and public perception of risk.

On one hand, people who hear about lead in their drinking water may assume the worst-case scenario—especially if they don't get adequate information from you. On the other hand, very few water systems in our state have lead problems.

If you ever find yourself looking at high lead levels, here are some ways to make sure your community is informed.

Public notification is the notice you send to each homeowner participating in your lead sampling pool. It includes specific, required language and you must submit it to each participant within 30 days after you receive the results. To help water systems with this requirement, we developed notices you can use (see below).

Public education is required only when you exceed the lead action level. While it also includes specific required language, it is more extensive because you must notify every customer on the system using multiple delivery methods. You must conduct initial public education within 60 days after the monitoring period when the system exceeded the lead action level, and then annually until the system returns to compliance. Each time you complete public education, you must send us a written description of your education campaign, including all written public education materials.

Consumer Confidence Reports are another great place to let your community know about your efforts to protect public health. Community water systems should always include the results of the most recent set of lead and copper tap samples in their annual CCR.

Our Lead and Copper Rule webpage contains consumer notification templates, certification forms, and links to EPA guidance documents. Check it out at doh.wa.gov/LeadandCopperRule.

CHANGE ON THE HORIZON FOR THE LCR

BY DERRICK DENNIS, WATER QUALITY AND DATA MANAGER

Even before the water crisis in Flint, Mich., EPA was considering major, long-term revisions to the Lead and Copper Rule (LCR).

Initially published in 1991, the LCR is one of the most revised rules in the Safe Drinking Water Act. In 2000, EPA revised it to address legal challenges and reduce the monitoring and reporting burden. In 2007, they published short-term revisions to improve monitoring, treatment, customer awareness, and lead service line replacement.

At that time, EPA researched other areas of the rule to address. They knew the next round of revisions would be substantial and have a bigger effect on states and water systems. So, as the ink dried on the short-term revisions, EPA gathered comments on proposed long-term revisions from states, tribes, and other stakeholders.

In November 2010, EPA met with stakeholders to discuss some of the changes under consideration. In 2011, EPA asked the Science Advisory Board to assess whether partial lead service line replacements would reduce lead levels in drinking water effectively. Then, in March 2014, EPA asked the National Drinking Water Advisory Council to develop a Lead and Copper Rule Working Group to advise EPA on changes to the LCR in these areas:

- Sample site selection criteria
- Lead sampling protocols
- Public education
- Optimal corrosion control treatment
- Lead service line (LSL) replacement

The working group's report to EPA included several recommendations for long-term revisions to the LCR:

- Require a proactive LSL replacement program to remove LSLs in all water systems.
- Establish more robust public education requirements. Create educational materials targeted to homes with LSLs and vulnerable populations. Develop a national clearinghouse for lead education materials so that everyone gets the same messages.
- Update the optimal corrosion control treatment guidance at least every 6 years. Require water systems to evaluate their treatment to determine whether improvements are possible.
- Tailor water quality parameter (WQP) monitoring to specific types of treatment. Increase the frequency of WQP monitoring for process control.
- Establish a health-based, household action level that triggers notice to the consumer and the applicable health agency to follow up.
- Separate copper monitoring from lead, and focus new copper requirements on systems with corrosive source water.
- Establish the appropriate compliance and enforcement mechanisms.

Using the working group's recommendations and stakeholder feedback, EPA is working on revisions to the LCR. It is unclear at this time when EPA will have a proposed rule, but with pressure from Congress and the public, it is on a very aggressive schedule.

You can get information about the LCR and EPA's efforts to update it at: epa.gov/dwreginfo/lead-and-copper-rule.

A NOTE FROM GARIN

BY GARIN SCHRIEVE

It's great to be part of the Office of Drinking Water (ODW) team! I've been on the job for a month now and very much appreciate the warm welcome I received from ODW staff and our drinking water partners.

It's truly an interesting time to be working in the drinking water field. Like no other time in recent memory, Americans are tuned-in to what comes out of their tap. Now more than ever it's important for all of us in this industry to pull together to tell the story about the work we do every day to protect the public's health.

There's a lot going on in ODW right now. Besides working hard on the Governor's Directive on Lead and fielding technical assistance requests about lead, our office is proposing changes to the Group A system rules and building the management systems needed to consolidate the Drinking Water State Revolving Fund (DWSRF) Program under one roof at ODW. We think both of these efforts will make a difference for water systems—enhancing clarity on disinfection, emergency sources and planning, and improving efficiency in getting DWSRF money out to the water systems that need it.

Washington's drinking water operators and utility managers are the front lines of public health protection. I look forward to meeting many of you in the months ahead and learning your perspectives on how ODW can support both your work and our shared mission to ensure safe and reliable water for Washington families.

RESOURCES FOR YOU!

By Elizabeth Hyde, Outreach Coordinator

There's gold in them thar hills! Well, OK, they're not hills, they're webpages; but, we can absolutely make a figurative case for treasure. Water system owners and operators will find many resources and information on our Drinking Water webpages, starting at **doh.wa.gov/LeadinDrinkingWater**.

From there, you can find links to the **Governor's Directive on Lead**, to our **lead testing guidance**, and to a new **Lead FAQ page**, among other helpful links. You can also download the Department of Ecology's **list of drinking water labs by county**.

And we have more resources available at **doh.wa.gov/LeadinSchools**. For instance, we have a new **Lead in Schools FAQ** page based on questions we've received from all of you, across the regions.

If you missed our May 20 **Lead Testing in School Drinking Water webinar**, you can watch it, complete with the question and answer session at the end. Just click the link and register to watch the webinar. You can also download the presentation slides.

You can find more detailed information on testing for lead in schools in several publications linked on our Lead in School Drinking Water webpage, which includes helpful links for schools as well as operators.

Just visit us at **doh.wa.gov/DrinkingWater** and start mining!

HIGH 5 AWARD

Big banners and bright balloons for Edge Analytical! Thank you for stepping up and helping out when lead in drinking water dominated headlines earlier this year.

The City of Everett wanted to sample as soon as possible, but the city lab didn't have enough bottles. After the city's vendor said it would be two weeks before the bottles shipped, Edge came to the rescue. The city sent staff to Edge that same day and Edge staff supplied them with all of the bottles they wanted at no charge.