WATER TAP

WASHINGTON'S DRINKING WATER NEWSLETTER

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

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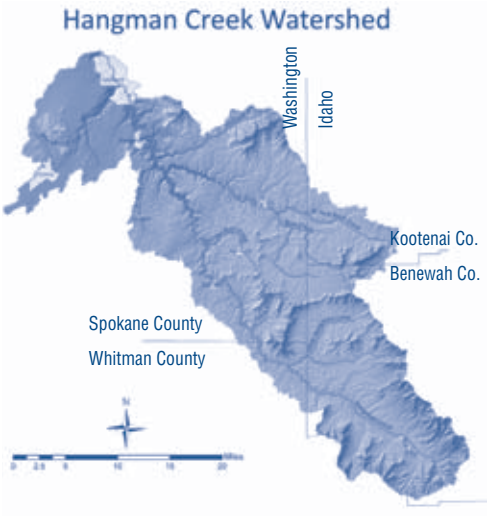
Patching a Leaky Watershed

A Small Town Leak Detection Program

By Walt Edelen, Water Resources Manager, Spokane Conservation District

The future of water in the Inland Northwest is clear. It will rise in value as populations grow and we will continue to abuse it until it is scarce. Groundwater resources are uncertain in many areas and depletion is a growing concern in some communities. In preparation for the inevitable, water conservation measures and efficiency will play key roles in management. In Spokane County, the Hangman Creek Watershed Implementation Team coordinates and implements programs and projects to improve water management and use.



The team represents various watershed stakeholders, including special districts, local residents, government agencies, and affected tribes. Their goal is to balance and protect the watershed's instream resources, associated habitats, and economic interests. They receive funding through the Department of Ecology to implement various projects the members chose to meet their goals for the watershed. The team completed its management plan for the Hangman Creek Watershed in 2005.

A concern for the watershed is water loss in the small towns. A 2004 assessment of

(Continued on Page 3)

How the City of Ilwaco is tackling its drinking water challenges

By Cathi Read, Program Manager, Small Communities Initiative, Department of Commerce

"Ilwaco's water treatment plant is in the best shape I have seen it since I started working for the Department of Health," said Teresa Walker, an engineer with more than seven years of experience at the Office of Drinking Water's Southwest Regional Office. Walker spoke at an October meeting of the Ilwaco Water Action Team.

Ilwaco's treatment plant has two types of treatment trains. Each treatment train has different flow rates and requires different chemical dosages. This, combined with a surface water source that has widely varying conditions during the year, makes it very difficult to produce consistently good water.

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Final Print Issue

We will no longer print *Water Tap*.

See Page 9 to learn how you can receive *Water Tap* by e-mail.

Inside This Issue

The Director's Column

by Denise Addotta Clifford

Water Tap enters the 21st century

If you're reading this column on paper, there's something you should know. You are holding the last printed edition of our *Water Tap* newsletter.

Before you choke on your coffee, note that I said, "printed edition." *Water Tap* isn't going away; it's going electronic.

Under the capable leadership of Editor Linda Waring and the *Water Tap* editorial board, the newsletter has attracted a devoted following in the drinking water community. We consistently hear that it is relevant, topical, and highly readable.

Rest assured, the newsletter may change in format and style, but its fundamental purpose will not. I am as committed as ever to communicating effectively with the people who own and manage the systems we regulate.

These days, we're constantly looking for less expensive ways of doing business. By converting *Water Tap* to an electronic newsletter, we will save as much as $40,000 a year in printing and postage costs. Although we printed *Water Tap* on recycled paper, we may save a few trees as well.

We all have mixed feelings about taking this step with the newsletter. Yes, it will save money and allow us to bring you more resources, yet there's a risk that we may leave a few of our valued readers behind. We will have to find ways to balance the needs of the person on a rural dial-up connection with the person who has lightning-speed access and wants a lot of interactive goodies. I expect you'll see the revamped newsletter evolve gradually as we get better at this.

One advantage of electronic communication is that it allows us to be more timely. My staff is exploring ways to get news out to you faster, without overwhelming your e-mail.

Converting *Water Tap* to an electronic newsletter isn't the only change you'll see. The state Department of Health is completely redesigning its website, including all Office of Drinking Water pages. (See page 8.)

The look and organization of our website will be very different. I think you'll find it more user-friendly once you take it out for a spin. Hint: The search tool will be greatly enhanced, and will help you find key information.

The agency's internet technology team is doing its best to make the transition seamless. In most cases, the new site should redirect you to an equivalent page when you click on an existing bookmark. If it doesn't, use the search tool to find the page you want. Be sure to update your bookmarks when you get to the new page.

I appreciate your understanding as we move into the 21st century. We're going to rely on the website as a primary communication tool. I hope you'll visit often, give us your feedback, and help us evolve as we enter this brave new era together.

Correction from the City of Walla Walla
Mill Creek Water Treatment Plant Lab remains open for business

There was an error in the article, "Water labs close; it's a sign of the times" that appeared in our December edition. We reported that both the county and city labs in Walla Walla are closed. Tom Krebs, treatment plant supervisor, and lab director for the City of Walla Walla, notified us in December that the City of Walla Walla's Mill Creek Water Treatment Plant Lab is not *closed.*

"Our city lab continues to be in operation," says Krebs. "We mainly focus on water analysis for our city-owned water system, but can and do provide outside analysis on a case-by-case, as-needed basis."

The lab is accredited for microbial water analysis including Fecal Coliforms SM 9222 D, Total Coli/*E. coli*-detect SM 9223 B Colilert, and Heterotrophic plate count SM 9215 B.

For more information, call the lab at (509) 522-3775 from 8 a.m. to 4:30 p.m. Monday through Friday.

We apologize for the error and any inconvenience it may have caused our readers. Editor

Leaky watershed... *(Continued from Page 1)*

seven small public water systems in the Hangman Creek Watershed showed average water loss of 20 percent. This represents 13 percent of annual water use or 103.74 million gallons (mg). The law requires less than 10 percent water loss.

These watershed systems have 1,343 connections and a combined annual water use of 794.4 mg. Water loss was adequate for three of the systems, moderate for two, and high to very high for two. Water loss can be a major challenge for small towns due to costs of locating leaks and completing repairs (Table 1).

Table 1: 2004 Summary of Water Loss (Public Water Systems)

Water System	# Connections	Water Loss
Fairfield	256	(10%) - Ok
Latah	88	(27%) - High
Rockford	225	(<25%) - Moderate
Spangle	141	(39%) Very High
Tekoa	375	(<25%) - Moderate
Waverly	55	(5%) - Good
Hangman Hills Water District	203	*Unknown

*No information was collected on Hangman Hills Water District prior to this work.

In the 2010–2011 funding cycle, the Implementation Team attempted to address the issue by developing a Water System Leak Detection Program. The team designed the program, which started in fall 2010, to provide leak survey and repair services to the small towns and utilities in an effort to conserve water use in their distribution systems. It was time to put a "patch" on this watershed.

In winter 2011, the Conservation District contracted with Patti and Joe Godwin of American Leak Detection to conduct the leak survey work. In addition to the surveys, the Godwins held a leak detection workshop for all the small towns in the Hangman Creek Watershed.

They offered the workshop to water operators, mayors, commissioners, and town council members. They also invited neighboring towns. The well-attended half-day workshop covered Washington's new Water Use Efficiency Rule, new digging laws, how to locate lines, and how to find leaks. At the end, they scheduled leak surveys for the towns.

American Leak Detection completed the first leak survey in February 2011, and continued work through April 2011. Field technicians used standard microphone equipment to test all AC, CI, metal, C900, ductile and PVC lines. They checked all meters, hydrants, and valves. If they detected and noted probable leak noises, they re-tested those areas to determine whether real leaks existed. They used an FCS Tricor Correlator to hone in on leaks where necessary.

The team and the small towns were surprised at the results of the leak survey. Conditions were much better than anticipated! The survey of seven small towns and utilities yielded only nine leaks (Table 2). Four leaks were on private residences, two were on main lines, one on a hose bib, one on a hydrant, and one on a wellhead.

Although the survey found many possible leak noises at each town, further investigation revealed few actual leaks. This was great news. It left a surplus of funds previously earmarked for repair costs.

The surveys exposed other interesting information, too. In one town, there were 25 broken or unreadable meters. In another, the survey helped locate 14 previously unknown gate valves. Some of the valves were under asphalt. Workers had to dig them out and relocate them so the particular line can be shut off if needed in the future. Several towns did not have source meters and were relying on residential meter reading practices.

Because they needed little to no funding for major repairs, the team members decided that it would be a good investment to purchase water meters for the small towns. They purchased and delivered more than 100 meters to help the small towns increase their efficiency and accuracy of water usage.

The next step is to monitor the efficiencies and water loss in the small towns. We are excited to see if our "patch" will really work and hold water.

Table 2: Summary of Small Town Leak Survey Results

Water System	# Areas Surveyed	# Leaks	Type(s) of Leak	System Rating
Fairfield	63	1	Residence	Very Good
Latah	32	1	Main line	Very Good
Rockford	67	1	Hydrant	Fair
Spangle	57	0		Very Good
Tekoa	76	2	Residence, main line	Good
Waverly	40	0		Very Good
*Hangman Hills Water District	54	4	Well head, hose bib, 2 residences	Good

*No information was collected on Hangman Hills Water District prior to this work.

City of Ilwaco... *(Continued from Page 1)*

The Ilwaco Water Action Team will keep meeting in 2012 to address issues of concern. From left are Dave McKee, public works supervisor; Cathi Read, Small Communities Initiative; Daryl Gardner, Ilwaco water treatment plant operator; Mayor Mike Cassinelli; Teresa Walker from the state Department of Health; Elaine McMillan, Ilwaco city treasurer; and Dennis Schweizer, Ilwaco water treatment plant operator.

The city's water system, especially its water treatment plant, hadn't been properly maintained. This was partly the result of under-investment in the system due to hard economic times in Pacific County.

For years, water customers complained to the city and the Department of Health about pink water or taste and odor concerns during the summer. Pink water was caused by a chemical overfeed at the treatment plant, associated with warmer temperatures.

The Ilwaco Water Action Team formed in January 2011 to address these problems. However, new Mayor Mike Cassinelli and new treatment plant operators Daryl Gardner and Dennis Schweizer began turning things around even before the team started meeting.

The new operators began by cleaning up the treatment plant, fixing broken equipment, painting equipment, replacing corroded siding, and installing new lights. They installed a new reservoir intake system to improve raw water quality going into the treatment plant. They also revived two filters that had been offline for three years. Due to their diligence and the purchase of a KMnO4 analyzer, there were only isolated complaints about taste, odor, or color last summer and fall.

The city applied for a Drinking Water State Revolving Fund (DWSRF) loan to replace two reservoirs and fix the backwash basin.

The Department of Health contracted with the Rural Community Assistance Corporation to have Skip Rand, rural development specialist, conduct a water rate analysis with the mayor, council, and treasurer. Together, they developed a new rate structure. The new higher rates will allow the city to maintain its water system properly, replace short-lived assets regularly, and re-pay the DWSRF loans.

At their early meetings, the Water Action Team identified remaining water system issues. By systematically working on those issues, the city's accomplishments so far include:

- Removing an old, leaky wooden reservoir from the system.
- Optimizing performance of existing filters.
- Applying for a Public Works Trust Fund (PWTF) loan to replace filters 1 and 2 with a new up-flow clarifier, so that all filters work the same way. This project is on the proposed PWTF funding list (awaiting legislative approval).
- Contracting with a company to implement the cross-connection control program.
- Developing standard operating procedures for the treatment plant and distribution system.
- Improving internal communication between elected officials and staff about the water system.
- Better updating and archiving of public works documents, drawings, and maps.

The city engineer will begin designing the DWSRF-funded projects this year.

Source water protection grants available

Without a permanent, perpetual, safe, reliable drinking water source, you would have no water and no water system. Recognizing that drinking water is critical for public health, and the importance of protecting drinking water sources for current and future use, we created the Source Water Protection Local Assistance Grant Program.

This program will provide grants to local governments for Group A source water protection projects. Source water protection is preventive and proactive—protecting water quality or quantity before there is a problem.

The Source Water Protection Local Assistance Grant Program has $340,000 available for 2012–2014 on a first-come, first-served basis. Eligible applicants are counties, cities, incorporated towns, and special-purpose districts that serve Group A water systems.

We can fund up to $30,000 for projects, such as:

- ***Investigations or studies*** to better understand, delineate, and quantify contamination and water quantity threats to public water systems, and to develop solutions.
- ***Third-party facilitation*** of source water protection problems, such as lack of watershed control or ownership, and persistent contamination.
- ***Implementation of source water protection plan priorities*** when other funding is available but insufficient to realize success.
- ***Data collection and data improvement*** to protect source water, such as creating or improving service area boundary or other GIS data used for water system emergency response and land use or planning purposes.

We will give priority to projects that:

- Emphasize source protection over source replacement.
- Strengthen water system capacity.
- Build on existing partnerships or create new ones.
- Leverage other funding or resources.
- Assist small Group A water systems seeking to protect high priority sources, such as surface water or high- to moderate-susceptibility groundwater.
- Support sustaining an existing water system population, not enabling future growth.
- Evaluate a regional problem.
- Include evaluation of water system consolidation with other potential solutions.
- Include evaluation of replacing a surface water source with a protected groundwater source.

Applicants: Work with your regional engineer to develop a two-page proposal describing the project purpose, benefits, expected outcomes and deliverables.

Southwest Region:	(360) 236-3030
Northwest Region:	(253) 395-6750
Eastern Region:	(509) 329-2100

For more information, call Kitty Weisman, Source Water Protection Program lead, at (360) 236-3114 or e-mail kitty.weisman@doh.wa.gov

How will you observe National Ground Water Awareness Week?

The National Ground Water Association wants you to help raise public awareness about the need to protect groundwater and water well stewardship.

National Ground Water Awareness Week, now in its 12th year, will be March 11–17. Utilities can help spread the word through websites, newsletters, or other education and outreach activities. Information and materials are online at http://www.ngwa.org/Events-Education/awareness/Pages/Get-involved.aspx

In Washington State, more emphasis is on protecting watersheds and groundwater supplies. In Spokane, for example, the Spokane Joint Aquifer Board has worked for several decades to protect the sole-source aquifer that serves some 500,000 Eastern Washington and Idaho residents. The group and its mascot, Aqua Duck, promote aquifer protection by encouraging wise land-use practices.

In the Quincy area, onion growers are voluntarily reducing use of the herbicide Dacthal because it is showing up in the aquifer that supplies drinking water.

Another source of groundwater contamination is pharmaceuticals. To help stop unsafe practices such as flushing unwanted prescription drugs, a national Prescription Take-Back Day will be held on April 28. Participating law enforcement agencies will accept and safely dispose of unwanted prescription drugs. To learn more about the event, visit http://www.deadiversion.usdoj.gov/drug_disposal/takeback/

Groundwater Rule: Raw Groundwater Sample Taps

The Groundwater Rule (GWR) requires triggered source water monitoring. That means all Group A water systems with groundwater sources must sample each groundwater source for *E. coli* within 24 hours after a distribution system sample is unsatisfactory for total coliform, unless the water system routinely does both of the following:

- Disinfects to meet the standard of 4-log virus inactivation (99.99 percent).
- Completes the associated daily compliance monitoring defined in the GWR.

To meet the triggered source monitoring requirements, we expect all water systems to have a properly designed and installed raw water sample tap at each groundwater source.

If your sample tap is poorly designed or incorrectly installed, you risk getting inaccurate raw groundwater sample results. According to the GWR, you will need to give public notice if a source sample is *E. coli* present and you most likely will need to take corrective action to resolve the contamination, **regardless of the sample tap location and condition.** For sources without disinfection to the 4-log standard, the most likely required corrective action will be to install disinfection. **The possible consequences of having a poor source sample tap are significant.**

The ideal raw groundwater sample tap

Ideally, a raw groundwater sample tap should be:

- Installed as close to the source as possible.
- Dedicated to one purpose—raw groundwater sampling—and not in use otherwise.
- Pointed downward.
- In a clean, accessible location.
- At least 12 inches above the floor or ground.

Often, it is a challenge to install a raw groundwater sample tap near a well with a pitless adapter. Do not use a nearby frost-free yard hydrant as the sample tap. Instead try:

- Installing a tap as part of a meter-setter if the well has a nearby source meter. (Kupferle and Water Plus Corporation both manufacture meter-setter sample stations. Other manufacturers likely exist.)
- Installing an above-ground sample station. You can purchase "off the shelf" stations from various manufacturers. You may also build your own for a lower cost option. (See photos below.)

Important additional points

Install the raw groundwater sample tap *BEFORE* all treatment. But, you should locate sample taps for chemical source monitoring *AFTER* all treatment.

GWR raw groundwater samples are intended to capture raw groundwater quality, but samples for chemical monitoring ('source monitoring') must represent water quality just before it enters the distribution system; that is, after all treatment. For more information about chemical source monitoring, see Page 11.

For more information on raw groundwater sample taps

Call the coliform program manager at our regional office.

Southwest Region, Tumwater:	(360) 236-3030
Northwest Region, Kent:	(253) 395-6750
Eastern Region, Spokane:	(509) 329-2100

See the Ground Water Rule, 40 CFR Part 141, primarily Subpart S (141.400 – 141.405).

A covered, locked sample station (left) protects the sample tap from contaminants. The opened sample station reveals the fitting and faucet. The pipe is wrapped with foam insulation to protect the tap from freezing. Do not directly pack fiberglass-type insulation around a sample tap because that material will attract rodents for nesting.

This sample station could be improved by replacing the threaded faucet with a smooth-nosed downward-facing faucet.

Results of the online capacity assessment

Last fall, we released a new online capacity assessment tool to help small water systems determine the managerial and financial health of their water systems. We invited systems with 100 to 1,000 connections to complete the 18-question assessment during a six-week period.

To encourage participation, we ran articles in *Water Tap*, sent e-mails, and made phone calls near the deadline. All eligible systems that completed the assessment by the deadline were entered into a drawing to win a free training or sanitary survey. We gave away 10 prizes. The list of winners is online at http://www.doh.wa.gov/ehp/dw/Programs/capacity3.htm

Voluntary participation impressive

Of the 562 systems invited, 304 (54 percent) completed the assessment. When it came to who responded, water system ownership type, size, and region didn't seem to matter—each of these categories participated equally. We encouraged decision-makers from the governing body to participate, and found that more than 80 percent either responded directly or provided input for the answers.

Systems recognize the importance of planning

Seventy-eight percent of systems indicated they had a complete water system plan or small water system management program they actively use to operate and manage their water system. Most of the remaining 22 percent said they had complete, current, and useful plans for operations and maintenance, component inventory and distribution map, wellhead or source water protection, and emergency response.

Capital improvements: Systems taking stock of their assets

Sixty-seven percent of respondents said they plan to make capital improvements in the next six years. Of the remaining systems, 22 percent said they need no improvements; 8 percent said they need improvements, but have no plans to make them in the next six years; and 3 percent said they have not assessed their facilities.

Whether or not a system had plans to do capital improvements, we asked what funding source would contribute the most to complete capital improvements. Fifty-seven percent said they would rely on water system funds, such as reserves; 8 percent said a private loan or line of credit; 23 percent said a government loan; and 12 percent said a government grant.

Results of all assessment questions are online at http://www.doh.wa.gov/ehp/dw/Programs/capacity3.htm

You can still participate

The assessment is now open to all community water systems with 1,000 or fewer connections. If you haven't participated, we encourage you to take the assessment. You'll get instant, customized feedback to help you build your system's managerial and financial capacity. Instructions and a link to the assessment are at http://www.doh.wa.gov/ehp/dw/Programs/capacity2.htm

What's Next?

We will analyze and discuss the results to support program goals and prioritize our efforts. We'll update the capacity website and run articles in our new, electronic *Water Tap*, so stay tuned.

Website gets new look. But it's all still there!

Remember how it feels when you get a new pair of shoes? Everything's great at first, but you probably have to wear them a few times before they're comfortable and feel familiar. That may be how you feel when the Department of Health unveils its redesigned website in April. Expect a "breaking-in" period.

Why the change?

When the agency started this project, it conducted tests to determine what users want from the Department of Health's website. One thing came through loud and clear: Users want the site to be organized by topic, not by the agency's internal organizational structure. The agency designed the new website with that feedback in mind.

For the Office of Drinking Water, almost all of our information has been available from our home page (www.doh.wa.gov/ehp/dw). Many of you probably bookmarked that site and never even went to the agency's main page to find drinking water information. Now, all that's going to change.

In most cases, when you click an existing bookmark, the website should redirect you to the new equivalent webpage. If it doesn't, use the search tool.

Improving the way you find information

The new site has easy drop-down menus with topic groups intended to guide users to the information they need. There will be eight main topics for the entire agency. They include:

- You and Your Family
- Your Home
- Community and Environment
- Licenses, Permits and Certificates
- Data and Statistical Reports
- Emergencies
- Rules and Regulations
- Newsroom

Community and Environment

Most of the information for water systems will be under "Community and Environment." From there, you'll get a drop-down menu with many environmental topics, including "Drinking Water."

When in doubt…SEARCH

The new site's search function is much improved. Use the search tool at the top right of each page if you don't find what you need using our drop-down menus. If you can't find a page, let us know so we can forge better links to make it easy.

Things to keep in mind

Changes to the site design are an improvement. While change is hard, the changes were needed based on user testing that showed people struggled to find content almost 70 percent of the time. We will arrange content on the new site using topics and terms the typical user understands.

Everything from the Office of Drinking Water will still be on the website. While our Web team edited or deleted some outdated content in the past year, everything from the existing site will be moved to the new one. Our online publications database will still be there, so you can easily download or order a publication. We encourage you to download publications. It's quicker and saves state resources.

Update your bookmarks. All our Web addresses will be different, so if you use any bookmarks or links to our site, you'll need to update your links. Many of our most popular pages will automatically redirect you to the new Web address, but only for a few months. It's easy to update your bookmarks. Just save the new page to your favorites list, and then delete the older bookmark.

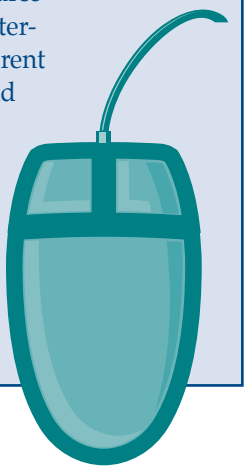
We invite comments! The new site is designed with you, the user, in mind. If something doesn't seem right to you, please tell us. Our goal is for the site to be an easy, useful source of information about keeping drinking water safe and reliable. Send your comments to dwinfo@doh.wa.gov

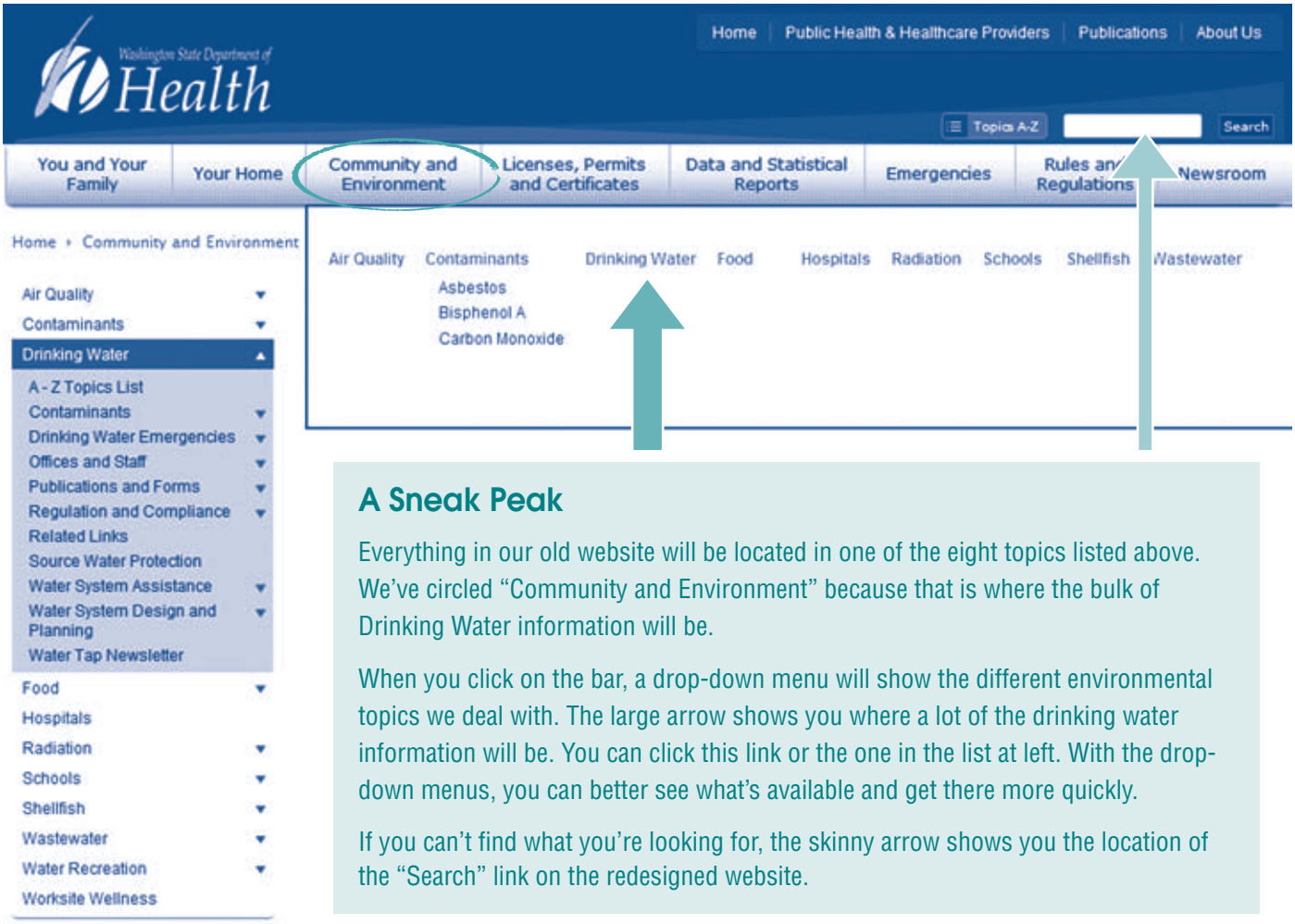
How to navigate the new website

Go to http://www.doh.wa.gov/

Start by clicking on Community and Environment, next click on the Drinking Water link. You'll find familiar links to information about water system assistance, system design and planning, and source water protection. A few drinking water-related webpages will be under different drop-down menus, such as "Data and Statistical Reports" for Sentry, and "Licenses, Permits and Certificates" for waterworks operator certification.

An important thing to remember is that there are many ways to find what you're looking for.





A Sneak Peak

Everything in our old website will be located in one of the eight topics listed above. We've circled "Community and Environment" because that is where the bulk of Drinking Water information will be.

When you click on the bar, a drop-down menu will show the different environmental topics we deal with. The large arrow shows you where a lot of the drinking water information will be. You can click this link or the one in the list at left. With the drop-down menus, you can better see what's available and get there more quickly.

If you can't find what you're looking for, the skinny arrow shows you the location of the "Search" link on the redesigned website.

We need your e-mail address!

This is the last *Water Tap* we will mail to you!

We will now publish *Water Tap* in electronic format, online or by e-mail. Please make sure we have your current e-mail address. If not, you may miss not only the next edition of *Water Tap*, but also important updates.

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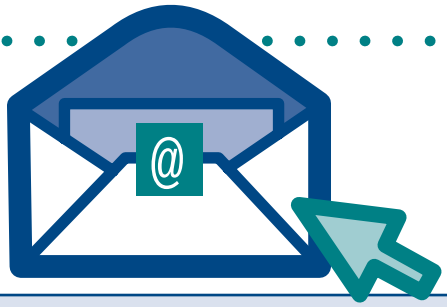


Protecting your e-mail address

Sentry Internet no longer displays e-mail addresses.

State law prohibits commercial use of e-mail addresses obtained through public disclosure.

Drinking Water Week May 6-12

Due to budget cuts, we will not be presenting Drinking Water Week awards this year. However, that's no reflection on the great work you do.

Get ideas for your own celebration at http://www.awwa.org/Government/content.cfm?ItemNumber=44766&navItemNumber=3863

Have questions about Stage 2 Disinfection Byproducts Monitoring?

Help is just a phone call away!

We developed the following answers to common questions water systems have about the transition from the Stage 1 to the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBP). If you have additional questions, please call us:

Eastern Region:	Russell Mau (509) 329-2116
Northwest Region:	Jolyn Leslie (253) 395-6762
Southwest Region:	Regina Grimm (360) 236-3035
DBP Program Coordinator:	Ethan Moseng (253) 395-6770

Please don't call the U.S. Environmental Protection Agency (EPA). EPA handled implementation of Stage 2 when the federal government adopted it in 2006, but it stopped when we adopted the rule on January 4, 2010 (chapter 246-290 WAC).

DBPs include total trihalomethanes (TTHM) and haloacetic acids (HAA5). The purpose of the Stage 2 Rule is to prevent potential cancer and reproductive and developmental health problems that may be linked with exposure to high levels of DBPs in drinking water. The rule applies to all community and nontransient noncommunity Group A water systems that deliver water treated with disinfectants other than ultraviolet light, regardless of the purpose for the treatment.

Implementation deadlines

We based the deadlines for implementation on the number of people drinking water systems serve. See dates in the table below.

Stage 2 Routine Monitoring for TTHM and HAA5

Schedule	Population Served[a]	Start Date[b]
1	≥ 100,000	April 1, 2012
2	50,000 – 99,999	October 1, 2012
3	10,000 – 49,999	October 1, 2013
4	< 10,000	October 1, 2013[c]

a. Systems with non-emergency interties (consecutive systems) must start during the same year as the largest system in their combined distribution system.

b. "Start date" means the first appropriate monitoring period after this date, not necessarily during this month. A Schedule 1 system on quarterly monitoring may actually start Stage 2 monitoring in May or June. Also, a Schedule 2 system on annual monitoring may be taking their first set of samples during the summer of 2013.

c. If you also monitored for *Cryptosporidium* under the Long Term 2 Enhanced Surface Water Treatment Rule, you may delay Stage 2 monitoring until after October 1, 2014.

Only water systems serving 50,000 or more people (plus interconnected systems) must begin monitoring in 2012. We will notify systems within six months of the date they need to start routine monitoring under Stage 2.

Systems must update and modify their routine compliance DBP monitoring plans before the routine monitoring start date. Systems that provide surface water (including systems that purchase surface water), or groundwater under the direct influence of surface water, and serve 3,300 or more people, must submit their monitoring plans to us by the start date. All other systems must update their plans and keep them until we ask to see them or ask systems to submit them.

Key differences between Stage 1 and Stage 2

The biggest difference is in the frequency and locations of TTHM and HAA5 monitoring samples required to reach compliance. For example, Stage 1 bases the number of required samples on population served, source type and number of treatment plants. Stage 2 bases the number of required samples on population served and source type, but does not consider number of treatment plants.

Under Stage 2, reduced monitoring for groundwater systems serving between 500 and 9,999 people will be an annual requirement instead of once every three years. For more information about the differences, see *Transition from Stage 1 to Stage 2 Disinfection Byproducts Rule Monitoring* (331-377) online at https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm

The Stage 2 Rule did not change the following Stage 1 monitoring requirements:

- Systems that provide water treated using chlorination or chloramination must monitor chlorine residuals within the distribution system.
- Systems that use ozonation to treat water must monitor bromate monthly at the entrance to the distribution system for each treatment facility. Stage 2 did change the way systems may qualify for reduced bromate monitoring. You must now use EPA-approved Method 317.0 Revision 2.0, 326.0, or 321.8 for analyses of bromate samples. And, the running annual average must equal 0.0025 mg/L or less.
- Systems that use chlorine dioxide to treat water must monitor chlorine dioxide residuals and chlorite daily at the entrance to the distribution system for each treatment facility. They must also take three additional chlorite samples per month from the distribution system for analyses by a certified laboratory. Monthly chlorite sampling may be reduced; however, daily chlorite and chlorine dioxide residual monitoring may not.

(Continued on Page 15)

Chemical source sample collection dos and don'ts

Chemical source monitoring requirements include various compounds and analytical tests, such as inorganic contaminants (IOCs), volatile organic contaminants (VOCs), synthetic organic contaminants (SOCs) and radionuclides.

You must collect all samples for compliance with chemical source monitoring requirements after all treatment, but prior to the first distribution connection. A good term for this is "finished water sample."

If you have no treatment, you can collect the chemical source monitoring samples from the raw water source tap. The water sampled should represent the water you serve to customers.

It may seem straightforward to collect a source chemical sample, but is it really? See the table for some general dos and don'ts for all chemical source sampling. Remember, carefully collecting your samples is worth the effort. It can save you time and money in the long run.

Dos and don'ts for chemical source samples

Do collect the sample:	Don't collect the sample:
• After all treatment (including the reservoir, if present) but before the first distribution connection • From a sheltered location • From a dedicated sample tap (if available) • From a downward-facing tap • After adequately flushing the tap (run at moderate flow for at least 5 minutes then reduce flow) • In a clean container provided recently by your laboratory	• Prior to treatment • Through a hose or other flexible plastic tubing • Until the sample tap is adequately flushed • Too close to the chlorine injection point • Just after the pumps come on • From a tap near the bottom of a pressure tank or on a reservoir drain line • From the distribution system • With improper sample preservation • In a sample bottle older than four months • From faucets with aerators or other devices • While smoking • In high winds or dusty conditions • After disinfecting or sanitizing the tap • Following recent painting, pump or plumbing work at the sampling site
Do fill the sample container to the proper level for the sample.	Don't overfill the bottle.
Do keep the sample cool until it reaches the laboratory.	Don't store gasoline or solvents in the pump house.

These dos and don'ts do not apply to samples collected for investigative purposes, such as pre-treatment samples needed to evaluate treatment or following construction. These samples are not for routine compliance.

More tips for specific analytical tests:

IOCs (including the complete IOC test panel and compounds such as nitrate, arsenic, and fluoride):

- High chlorine residuals (greater than 2 ppm) can interfere with nitrate results.
- Some systems must take raw water source samples to test for specific compounds prior to treatment in addition to post-treatment samples.
- Expand the cubi-container before filling it.
- Do not blow into a cubi-container if you have anything in your mouth (tobacco, gum, or food).

VOCs:

- Make sure you form a dome of water at the top of the vial before screwing on the cap.
- Don't wear clothes or gloves with grease or solvent.
- Don't submit the sample if the vial contains air bubbles.

Where to collect chemical source samples

You must collect all samples for compliance with chemical source monitoring after treatment but before the first distribution connection—at the finished water sample tap. Remember to include your water system ID and source number on your lab paperwork. If you have questions about your monitoring requirements, call your regional office.

If there is no treatment, you can use the raw water tap at the source to collect chemical source samples. This is the same raw water sample tap you would use to collect triggered source monitoring samples under the Groundwater Rule. See Page 6.

A new waiver model on the horizon

Check your 2012 Water Quality Monitoring Report

We are finishing our review of the way we grant waivers and assign monitoring requirements. As part of this process, we required many water systems to collect samples previously waived. Using information from this review and historic water quality data, we can show that overall drinking water exposure to EPA-regulated pesticides and volatile organic contaminants is low.

Our next step is to complete the waiver model and get EPA approval to implement. If approved, we can expand the state waiver program. Our proposed new waiver model will simplify chemical source monitoring for most water systems while still protecting public health.

Look for more details in your 2012 WQMR packet—coming your way this month.

Congratulations, Mountain View-Edgewood Water

Best-tasting water in the nation!

Mountain View-Edgewood Water Co. in Pierce County brought home the gold from the National Rural Water Association's Great American Water Taste Test, held February 8 at the Rural Water Rally in Washington, D.C.

If you ask Field Manager Mike Craig what makes the Cascade foothills community's water taste so good, he's quick to cite the source—a deep gravel aquifer that filters groundwater—and the company's development standards, practices, policies and procedures.

Mountain View-Edgewood Water Co. is a private, nonprofit mutual company formed in 1925 by a group of chicken farmers who tired of having their wells go dry in the summer. "They started with cast iron pipe from Day One," Craig said. "They were even kind of forward thinking back then. We've had meters since Day One."

So what's next for General Manager Marc Marcantonio and his crew?

"We're moving to complete premises isolation," Craig said, noting that each connection has a backflow assembly the company owns and regularly tests. "We know our water's good, and we want to make sure there's no backflow into it."

Joe Liles (left), president of National Rural Water Association congratulates Marc Marcantonio, general manager of Mountain View-Edgewood Water Co.

Oh, and a distiller is interested in buying water from the company to use in making vodka, Craig said.

"It's great bragging rights."

Associate of Applied Science in Water and Wastewater Operations

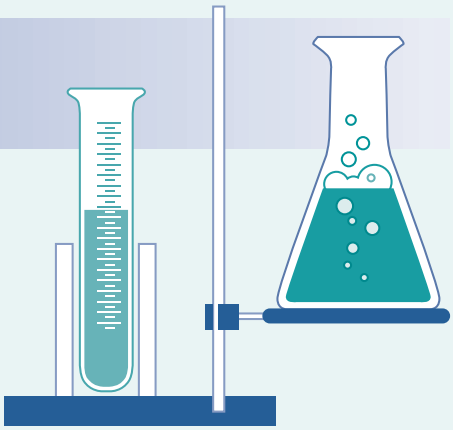
Spokane Community College (SCC) has a new Associate of Applied Science in Water and Wastewater Operations degree program. The first new classes will begin this spring. Students completing the Water and Wastewater Operations option will have core courses in water quality, groundwater systems, geographic information systems, GPS, and many hands-on field labs with specialized training in:

- Pumps, pipes, hydrants, and valves common to water and wastewater operations.
- Safe Drinking Water Act and National Pollution Discharge Elimination System (NPDES) permitting requirements and State Department of Health rules.
- Basic maintenance and repair common to water and wastewater systems.
- Construction inspection and management practices, including use of computerized systems and proper interpretation of system schematics.

The goal of the new program is to give students the education and on-the-job training needed to take the operator-in-training exams. SCC is seeking partnerships and internship opportunities with water and wastewater systems in Eastern Washington and North Idaho.

For information about the new program, or to inquire about student internships, call David Stasney at (509) 533-7278, e-mail david.stasney@scc.spokane.edu or visit SCC online at http://www.scc.spokane.edu/?waterres

LAB CORNER



Lab Rule on hold through 2012

The governor's rule moratorium was extended through 2012. We will continue to work in voluntary cooperation with our certified drinking water laboratories to collect accurate and defensible analyte reports. We appreciate what the labs have done to provide us sample data, so our work with water systems can continue protecting the public's health.

We expect to get back to work on the Lab Rule in 2013. At that time, we will provide information on the draft rule changes to the labs before the State Board of Health holds a public hearing.

Lab reporting templates online

In the last issue of *Water Tap*, we spoke of the changes coming to some of the lab slips water systems will see. Due to technical difficulties, it took a little longer than we expected to get the webpage up and running. By the time you read this, we will have sent an e-mail to all certified water labs asking them to change their processes. We anticipate the new reporting forms will be in use no later than May 1, 2012. The templates are online at http://www.doh.wa.gov/ehp/dw/lab-templates/default.htm

Predicting weather and anticipating how climate will affect your system

Patrick Alexander, a British aeronautical pioneer and contemporary of the Wright Brothers, used to say, "The trouble with weather forecasting is that it's right too often for us to ignore it and wrong too often for us to rely on it." As an aviator and balloonist, he had more than a passing interest in the evolving science of meteorology.

In a water system manager's world today, understanding and tracking the weather and climate trends is just another set of calculations to consider while keeping the water flowing to customers. Dry seasons carry the risk of drought. Cold, early winters often bring storms and power outages. Weird springs can flood some areas and bury others in late snow.

Any of these weather phenomena can wreak havoc on water system operations. Being prepared in the weather-weird Northwest requires a completely new appreciation of the term "normal."

Sometimes it feels as if the science of weather forecasting and climate prediction hasn't improved much since Mr. Alexander's time. However, asking the right questions—and knowing where to look for answers—is part of being a well-grounded climate-ready utility.

Weather vs. climate

Weather is what we experience on a daily basis. It includes temperature, precipitation, humidity, sun, and short-term weather phenomena such as storms, highs, lows, clear and cloudy conditions.

Climate considers the trends and weather patterns that occur over time and across broad landscapes. It starts with seasonal and yearly weather patterns and considers how the local environment influences them. However, like a coin with two sides, climate also considers how changes in weather patterns can influence local environments.

If weather is about the here and now, climate is about the past and the future.

Climate is what we expect, weather is what we get. *Mark Twain*

Here are some resources and links to help you predict the weather and anticipate how climate will affect your water system.

- **Office of the Washington State Climatologist** http://www.climate.washington.edu/ *Sign up for the monthly E-newsletter*
- **National Weather Service** http://weather.noaa.gov/weather/WA_cc_us.html *Washington home page*
- **NOAA Climate Center** http://www. climate.gov/ *Interesting stories and great pictures about everything weather and climate*
- **Climate Impacts Group** newsletter http://cses.washington.edu/cig/outreach/newsletter.shtml *The Northwest's own*

RULEMAKING

Drinking Water State Revolving Fund Loan Program Rule

We adopted the final rule on December 19, 2011, and it went into effect February 1, 2012.

The rule includes new federal requirements for infrastructure improvement loans to eligible water systems. The changes include:

- Subsidizing some eligible loans by forgiving part of the principal loan amount.
- Including eligibility requirements and addressing rating and ranking criteria for green projects.
- Clarifying that loans are for water system infrastructure improvements to protect public health.
- Adding potential subsidies for disadvantaged communities and restructuring system ownership.
- Adding requirements to address a new U.S. Environmental Protection Agency sustainability policy.
- Improving overall clarity and simplifying rule language.

Final rule changes are online at http://doh.wa.gov/ehp/dw/RULES/dwsrf-rule.pdf

Visit the DWSRF website at http://www.doh.wa.gov/ehp/dw/our_main_pages/dwsrf.htm

For information about the DWSRF, call Karen Klocke at (360) 236-3116 or e-mail karen.klocke@doh.wa.gov

Drinking Water Operating Permits – Fee Increase

We adopted the final rule February 16, 2012, and it is effective March 18, 2012. The rule includes:

- A new fee structure that changes the fee categories and amounts. The fee increase will phase in over three years to help water systems plan their budgets.
- A new base fee of $100 for all Group A public water systems, regardless of how many connections are served.
- Eliminating the monitoring waiver fee in the Group A rule (chapter 246-290 WAC) to help offset the cost of this fee increase.
- A change in the way we count service connections for the purpose of charging the fee.

For more information, and to see what your fee will be, visit http://doh.wa.gov/ehp/dw/fees/default.htm

Final rule changes are online at http://doh.wa.gov/ehp/dw/RULES/dwsrf-rule.pdf

Visit the operating permit website at http://doh.wa.gov/ehp/dw/fact_sheets/oper-permits.htm

For information about the Operating Permit Program, call John Aden at (360) 236-3157 or e-mail john.aden@doh.wa.gov

Public Hearing: Correction to the Lead and Copper Rule – Short-term Revisions

We are making a correction to WAC 246-290-72010, Report contents—Required additional health information. The current rule requires water systems to include an informational statement about lead in their annual consumer confidence report (CCR) only if the water system monitored for lead within the reporting period. This requirement is not consistent with the federal rule. We are making a change to require all water systems to include the lead informational statement in the CCR, whether the water system monitored for lead or not.

On March 8, 2012, we held a public hearing on the proposed rule changes. This rule correction will go into effect June 12, 2012.

Final rule changes will be online June 12, 2012 at http://www.doh.wa.gov/ehp/dw/our_main_pages/regula-2.htm

For Lead and Copper Rule requirements, visit http://www.doh.wa.gov/ehp/dw/our_main_pages/lead-copper.htm

For information about the Lead and Copper Rule, call Denise Garrett at (360) 236-3099 or e-mail denise.garrett@doh.wa.gov

Get automatic up-to-date information

To subscribe to our rulemaking e-mail list, go to our home page at http://www.doh.wa.gov/ehp/dw/ Scroll down to "Join our E-mail Lists" at the bottom of the page and click "Drinking Water Rules."

Other rulemaking information

The following rulemaking activities are online at http://www.doh.wa.gov/ehp/dw/our_main_pages/regula.htm

- Group B Public Water Supplies, chapter 246-291 WAC
- Water Works Operator Certification, chapter 246-292 WAC
- Basic information on the rulemaking process
- Rulemaking moratorium
- Links to the Department of Health and Division of Environmental Public Health rulemaking websites

Questions?

For information, call Theresa Phillips, rules coordinator, at (360) 236-3147 or e-mail theresa.phillips@doh.wa.gov

All drinking water rules are online

We no longer format rules into publications. Instead, we have links to all our drinking water rules at http://www.doh.wa.gov/ehp/dw/our_main_pages/regula-2.htm

EPA approved my IDSE report. Does the state need to approve anything?

If EPA already approved your Initial Distribution System Evaluation (IDSE) report, we will honor EPA's approval, as long as there are no significant changes to your sources, treatment, or distribution system. However, when EPA approved IDSE reports, it did not necessarily confirm that systems met all compliance monitoring plan requirements. Nor did EPA approve the IDSE reports as routine compliance monitoring plans unless the system specifically requested it.

So, even if EPA approved your IDSE report, you may need DOH to approve your routine compliance monitoring plan (details below).

Keep a copy of your IDSE report for at least 10 years from the date you submitted it to EPA. If we modify the Stage 2 Rule compliance monitoring requirements that you recommended in your IDSE report, or we approve alternative monitoring locations, you must keep a copy of our notification on file for 10 years after the date on the notification.

What if I did not do an IDSE?

Some systems were not required to do an IDSE, including:

- NTNC systems serving fewer than 10,000 people.
- Community systems serving fewer than 500 people that have a "very small system waiver."
- Systems that received a 40/30 Certification Waiver.

These systems will need to:

1. Identify monitoring locations that represent the highest values (averages) of TTHM and HAA5, respectively, found during routine DBP monitoring under Stage 1. Alternate between highest TTHM and HAA5 sites until you identify the required number.
2. If the number of monitoring locations required under Stage 2 is greater than the number of sites you used under Stage 1, you will need to use your best judgment to determine additional locations. Please include justification for each site selected in your monitoring plan.

We provide some guidance for selecting monitoring locations when we notify systems of the date they need to start routine monitoring under Stage 2. Additional guidance is on EPA's Stage 2 website at http://www.epa.gov/safewater/disinfection/stage2/compliance.html

What should be in a Routine Compliance Monitoring Plan?

Revise or develop your DBP Compliance Monitoring Plan according to 40 CFR 141.622.

a. If you did an IDSE, your monitoring plan should conform to your EPA-approved IDSE report unless changes in your system occurred since then. Changes in your system would require plan modifications.

b. Include sample dates, locations, and compliance calculation procedures. Many systems didn't include these procedures in their IDSE reports. Compliance calculations changed significantly from the Stage 1 Rule to the Stage 2 Rule because compliance is based on DBP averages at specific monitoring locations within your distribution system. For help, see pages 23-24 of EPA's *Complying with the Stage 2 Disinfectant and Disinfection Byproducts Rule: Small Entity Compliance Guide* (815-R-07-014) online at https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm

c. You may revise your DBP monitoring plan to reflect changes in treatment, distribution system operations and layout (including new service areas), other factors that may affect TTHM or HAA5 formation, or for ODW-approved reasons.

If you included all the information above along with your IDSE report, your IDSE report may meet this requirement. If so, a revised DBP monitoring plan may not be necessary. Ask your regional DBP specialist if he or she needs to review your IDSE report.

Eastern Region:	Russell Mau (509) 329-2116
Northwest Region:	Jolyn Leslie (253) 395-6762
Southwest Region:	Regina Grimm (360) 236-3035
DBP Program Coordinator:	Ethan Moseng (253) 395-6770

If you did not include all the information above, you will need to develop and submit a separate compliance monitoring plan to us.

Resources

- A monitoring plan template is online at http://www.doh.wa.gov/ehp/dw/forms/forms.htm
- Call Evergreen Rural Water of Washington at (800) 272-5981.
- Call Rural Community Assistance Corporation at (509) 927-6748 (limited to rural communities serving fewer than 3,300 people).

Department of Health
Office of Drinking Water
PO Box 47822
Olympia, WA 98504-7822
(800) 521-0323

Visit the Office of Drinking Water online at <http://www.doh.wa.gov/ehp/dw/>

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Water Tap *is going electronic! Do we have your current e-mail address? We will automatically e-mail* ***Water Tap*** *to all water system owners, operators, local health jurisdictions, labs and backflow assembly testers. Others can subscribe at* http://listserv.wa.gov/cgi-bin/wa?SUBED1=WA-WATERTAP

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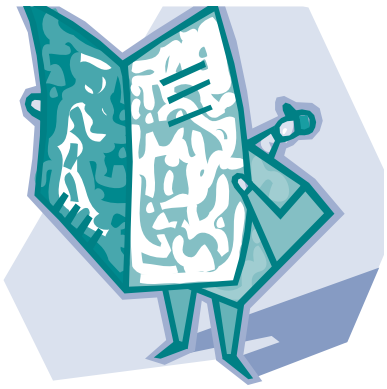
Publications: Check the date on your Water System Design Manual

We made significant changes to the *Water System Design Manual* in December 2009. If you're using a copy older than that, it's time to toss it into the recycle bin. To view or print a copy of the revised *Water System Design Manual* (331-123), visit our publications database at https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm



You can view a 10-page summary of significant changes we made to the design manual online at http://www.doh.wa.gov/ehp/dw/publications/331-123-summary.pdf

Nation's best-tasting water - Page 12

In This Issue

The following people contributed to the production of this issue of *Water Tap*:

Stephanie Christel, Dave Christensen, Denise Clifford, Carolyn Cox, Mike Dexel, Walt Edelen, Larry Granish, Steve Hulsman, Tom Krebs, Donna Lynch, Chris McCord, Mike Means, Ethan Moseng, Dick Pedlar, Sophia Petro, Theresa Phillips, Cathi Read, Ingrid Salmon, Tim Schlender, Bryony Stasney, Ginny Stern, Carol Stuckey, Loralei Walker, Teresa Walker, Linda Waring, Kitty Weisman, Chris Wilson.

The Department of Health Office of Drinking Water publishes *Water Tap* quarterly to provide information to water system owners, waterworks operators and others interested in drinking water.

Mary Selecky, Secretary of Health

Maryanne Guichard, Assistant Secretary of Health, Environmental Public Health Division

Denise A. Clifford, Director
Office of Drinking Water

Comments, questions, story ideas, articles and photographs submitted for publication are welcome. Please address correspondence to Linda Waring, Water Tap, Office of Drinking Water, P.O. Box 47822, Olympia, WA 98504-7822, or e-mail linda.waring@doh.wa.gov. Past issues are available by contacting the editor or visiting the website at <http://www.doh.wa.gov/ehp/dw/our_main_pages/watertap.htm>