



WATER TAP

WASHINGTON'S DRINKING WATER NEWSLETTER

A water victory for White Salmon

After years of battling problems with water quality, capacity, and water rights issues, officials at the City of White Salmon can see light at the end of the tunnel. In August, city officials celebrated the completion of a new slow sand filter treatment plant and transmission line capable of supplying about 1,000 gallons a minute to drinking water customers.



In August, officials at the City of White Salmon dedicated a new slow sand filter treatment plant that makes it possible to serve water from Buck Creek to its drinking water customers.

The dedication of Nathan Wellman Memorial Water Treatment Plant and Bill Locke Transmission Line followed many years of hard work and perseverance. City officials faced challenges and victories along the way.

Located in the southwest corner of Klickitat County, the city gets its drinking water from Buck Creek and two groundwater wells. The water system serves nearly 4,000 people with about 2,000 connections and has a storage capacity of 2.2 million gallons.

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State awards record funding for drinking water system loans

In September, the state Public Works Board approved 27 public water systems throughout the state to share in about \$72.5 million in low-interest loans to improve their facilities.

This is the largest amount of money awarded in a single year by our Drinking Water State Revolving Fund (DWSRF) Program. It's about 45 percent more than we distributed during the most recent funding cycle. The state-run, federally funded program, which began in 1997, provides low-interest loans to help water systems address public health problems and compliance issues.

The largest project is the Green River water treatment plant, which will serve the cities of Tacoma, Kent and Covington, and the Lakehaven Utility District. Collectively, they received \$12 million for the project at a 1 percent interest rate. The filtration plant will help protect public health by removing dangerous parasites such as *Cryptosporidium*, and will improve the water's clarity, smell, and taste.

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THE DIRECTOR'S COLUMN

BY DENISE ADDOTTA CLIFFORD



The 'low-down' on operating permit fees

Like most of you, we face the challenge of doing our jobs with fewer resources. There's no less work. If anything, the pile in my

"in box" keeps getting taller!

We face the twin realities of shrinking state funds and probably the last of the federal revenue increases. We've already reduced our costs by reorganizing to eliminate managerial jobs, implementing new rules with no new resources, and changing some of the ways we do business.

To keep our program on healthy footing, we need new revenue sources. That's why we've proposed a new fee structure for operating permits. If the governor agrees with our proposal, it will be a request to the Legislature during the 2011 session.

The Legislature enacted the current operating permit fee structure in 1991, and it has not changed since then. During that time, we've experienced 123.8 percent inflation.

In addition, there are inequities in the existing fee structure. For example, 1,400 water systems pay nothing for their operating permit fees; another 1,300 contribute very little funding to the Drinking Water program. Moreover, with only two tiers of per-connection charges, relatively small water systems pay a much higher per-capita rate than larger systems.

We're proposing a new fee structure that would reduce our reliance on state funds and be more equitable. The new fee structure would also allow us to:

- Pay for some of the recommendations in our 2009 Small Water Systems Report to the Legislature. This would include creating a tool to estimate small water systems' technical, managerial, and financial capacity, and offering more financial technical assistance.

- Determine chemical monitoring requirements for water systems and eliminate waiver fees that water systems currently pay. This would make Water Quality Monitoring Reports more accurate and easier to understand, and eliminating waivers would reduce the workload of water systems and our staff.
- Improve sanitary surveys and technical assistance by increasing the resources we devote to them.
- Enhance our ability to track water system performance with improved data system tools and share data with the public.

Currently, operating permit and waiver fees generate \$1.4 million a year. If the new fees are approved, we expect to generate \$1.5 million the first year (after state general funding is reduced), \$2.1 million the second year and \$2.3 million the third year.

Here's how it would work: All Group A water systems would pay a \$100 base fee and a variable per-connection charge ranging from \$1.15 to \$1.45 per connection, phased in over three years. The schedule would set a \$100,000 cap for systems with 100,000 or more connections. Satellite system management agencies would receive a break on the fee charged for systems they run.

If the Legislature approves our proposal, the new fee structure would proceed through the state rulemaking process where we'd work with water utilities on the details of the fee and how we'd collect it. If all goes well, it would take effect in January 2013.

Denise A. Clifford

Our approach: Position small systems to succeed

Last December, we told you about our report to the Legislature on small drinking water systems. Legislators, concerned about the growing amount of state funds spent to shore up failing water systems, asked us to study the situation and recommend changes to help small water systems be more successful.

For purposes of the report, we defined small systems as those with fewer than 1,000 connections. The problems we found tended to fall into one of three categories: technical, financial, or managerial. In addition to recommendations for the Legislature, our study included steps we could take to position small water systems to succeed.

We're taking steps now to find ways to better assess system needs and improve water systems' financial viability by providing technical assistance on rate-setting and financial planning.

Assessing small water systems needs

To better understand where small systems need help, and which systems could most benefit from our technical assistance, we're developing an on-line survey. The survey will include about 15 simple questions about your water system. Our goal is to get a basic understanding of the water system's needs. Your response will help shape our work with small water

systems. We'll keep you updated on our progress as we get closer to sending the survey out.

Improving our small system management program guidance

To help small systems plan for their long-term success and sustainability, we're revising the Small Water System Management Program Guide. The new guide will help you evaluate your system's physical, operational, and financial capability and identify areas for improvement. It will also offer advice and resources to help system owners, managers, operators, and customers create a joint plan for the future. Look for the new guidebook early next year.

Asset management training

We held three one-day workshops on asset management, rate setting, project development, and funding options. More than 60 water systems attended. Our goal was to help water systems understand and manage capacity—financial, technical, and managerial. We know that many small water systems in Washington are struggling with aging and failing infrastructure. Now we are trying to provide "business trainings" to help owners, operators, mayors, city clerks, and board members run their systems more like successful businesses.

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

Backflow assembly tester exam procedures changing in 2011

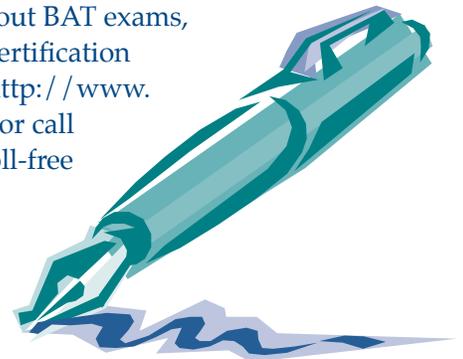
Beginning January 1, 2011, all backflow assembly tester (BAT) practical exams will change to follow the test procedures published in the University of Southern California's (USC) new **Manual of Cross Connection Control, 10th Edition**.

Washington Certification Services notified all BATs certified in Washington about the exam changes by mail in July 2010.

Training is not required prior to applying for a BAT exam. However, if you plan to enroll in BAT training to prepare for an exam, you should contact the training sponsor to make sure the course covers the new 10th Edition test procedures. We notified BAT training sponsors in Washington that the test procedures used to administer state BAT exams are changing.

USC's Foundation for Cross Connection Control and Hydraulic Research developed a worksheet that describes the differences between the test procedures published in the 9th and 10th Editions of the manual. It is online at <http://www.usc.edu/dept/fccchr/frd.html>

For information about BAT exams, visit Washington Certification Services online at <http://www.wacertservices.org> or call (253) 288-3357 or toll-free (877) 780-2444.



Federal Groundwater Rule adopted

We adopted the federal Groundwater Rule in chapter 246-290 WAC, Group A Public Water Supplies, on September 30, 2010, with an effective date of November 1, 2010.

The Groundwater Rule provides increased protection against viruses and bacteria in public water systems that use groundwater wells. The rule uses a risk-targeted approach for groundwater systems susceptible to fecal contamination, and establishes corrective action requirements to reduce the risk of waterborne illnesses or death. We also adopted other editorial changes for clarity, and corrected technical errors.

For more information about the new Groundwater Rule requirements, call our regional office:

Eastern Region: Spokane Valley (509) 329-2100

Northwest Region: Kent (253) 395-6750

Southwest Region: Tumwater (360) 236-3030

Group A public water supplies publication

We are updating the publication **Group A Public Water Supplies, chapter 246-290 WAC (331-010)** to include the new federal Groundwater Rule requirements. This publication will be available January 1, online only.

You can download the document from our website at <http://www.doh.wa.gov/ehp/dw/publications/331-010.pdf>

Governor suspends rulemaking

On November 17, 2010, the Governor issued Executive Order 10-06, Suspending Non-Critical Rule Development and Adoption. The executive order is effective through December 31, 2011. Please check our Rules Web page for information about which drinking water rulemaking activities will be suspended.

For up-to-date information on rulemaking, visit our website at http://www.doh.wa.gov/ehp/dw/our_main_pages/regula.htm

Other information on our Rules page

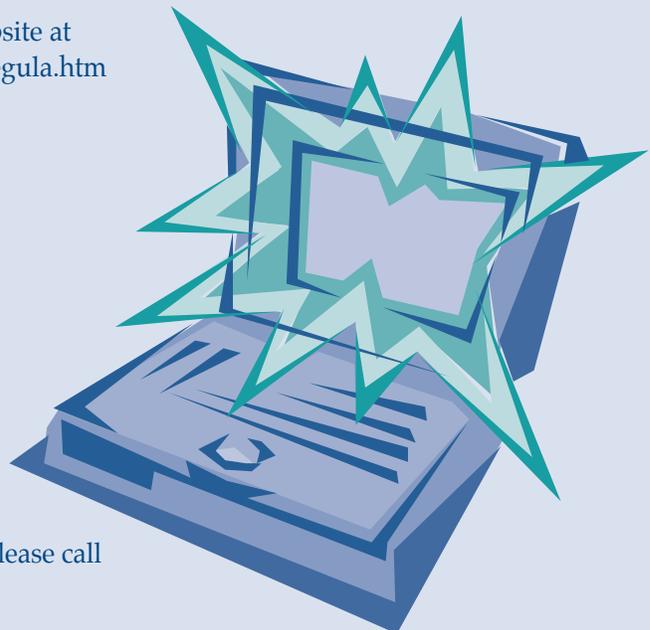
- Rule publications
- Link to the Department of Health's Rules website

Rulemaking E-mail List

We use e-mail lists to send information about our rules. You can sign up for our Drinking Water Rules list at <http://listserv.wa.gov/cgi-bin/wa?SUBED1=WADRINKINGWATERRULES&A=1>

We will still post rulemaking notices and supporting information to our Rules website on a regular basis.

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



Saving Money Top Reason to Conserve



The top reason consumers conserve water is to save money, according to a study the Water Research Foundation released this year.

Researchers surveyed 6,000 residential customers, interviewed water agencies, analyzed billing, and reviewed utility literature to measure the effectiveness of conservation communications campaigns in changing customer behavior.

Key findings of the report **Water Conservation: Customer Behavior and Effective Communication** include:

- The top reasons customers conserve are to save money, followed closely by the idea that it's the right thing to do, and then by concern about water availability.
- Many customers believe they are already doing all they can to conserve water.

- Only 9 percent of customers participate in utility rebate programs, but 60 percent said they would participate if they knew about them.
- Customers say they prefer getting information from bill inserts and television ads.
- Customers found water supply managers are the most credible source of information about water conservation. Customers distrusted elected officials, the media, and sales associates at retail outlets.

"These findings will help utilities promote their conservation programs and encourage more people to participate in water conservation," said Robert C. Renner, executive director of the Water Research Foundation.

The study found few customers were aware of conservation rebate programs, yet their desire for such programs was high. This provides an opportunity for utilities to promote cost-effective measures, such as repairing leaking plumbing and appliances and replacing water fixtures.

"Because many customers feel they are doing all they can with water conservation, it is important for utilities to clearly communicate an end goal, like reducing water use by 10 percent, so their customers feel like they are doing their part to achieve that goal," said Renner.

Protect your public water system infrastructure from freezing

From the editor: The weather forecast is calling for a colder winter with more snow. We hope these tips from our engineer will help you protect your water system.

Protect the reservoir. Operate an open reservoir in a way that maximizes movement of the reservoir water level (up and down) each day, without wasting water.

Keep the well house weatherproof. Check conditions in the well house each day during cold weather to ensure the temperature stays above freezing. In cold climate locations, a reliable heat source together with adequate roof and wall insulation, weather-stripping around doors, and tight-fitting vents and louvers are important to the reliability of your water system. When considering the adequacy of the heat source and weatherproofing, it's important to keep in mind the temperature needed to keep your water treatment chemicals flowing as designed. Certain water treatment chemicals may become thick and difficult to pump or unable to flow at near-freezing temperatures.

Bury water mains and water service lines below the frost line. Local building codes likely specify the depth for your area. If you know of water mains or service lines

buried too shallow, and subject to freezing, put them on your water system's list for replacement or reinstallation at a lower depth. In the meantime, add fill or rigid foam insulation over shallow pipeline segments and over shallow valve vaults and meter boxes (if practical).

Retrofit pipelines exposed to severe weather. Even temperate areas can have episodes of severely cold weather. Most pipelines located above ground or hanging off bridges should be insulated. If flow in the pipe is very slow at times (i.e., dead ends), consider installing heat tape along the pipe before covering with insulation. Be sure to check any insulated or heat taped pipelines in your system to ensure freeze-proofing measures are intact.

Check the drain line. Pump out or manually drain hydrants, air-vacuum relief valves, and truck fill station risers with inadequate drainage.

Keep facilities accessible. Structures with operational control and treatment facilities must remain accessible at all times. Keep the way in and out of these structures clear of ice and snow throughout the winter season.

The new ABC exam arrives next month

Beginning January 1, 2011, there will be only 100 questions on multiple entry certification exams for water distribution managers (WDM) and water treatment plant operators (WTPO). Currently, there are 120 questions on level 2 exams, 150 on level 3 exams, and 180 on level 4 exams.

The new exams should better show proficiency at the level tested. The current exams include material you need to know for lower levels. For example, a WTPO 3 exam includes material you need to know for levels 1 and 2.



An Association of Boards of Examination (ABC) committee recommended the change. An ABC study showed an operator could pass a WDM 4 exam, for example, by correctly answering enough lower level questions (WDM 1-3) and might not show true proficiency at the higher level. The new exams will better show your proficiency at the level tested.

We will continue to allow operators to test at the level at which they qualify. For example, individuals will not have to pass the WDM 1, WDM 2, or WDM 3 exams before they test for WDM 4 certification.

Time to renew your waterworks operator certification

Renewals are out. Did you receive yours? If not, call Larry Granish right away at (800) 525-2536, Ext. 1, or e-mail larry.granish@doh.wa.gov

Your renewal must be postmarked by January 20, 2011, or you will be assessed a \$35 late fee. If you fail to renew by February 28, 2011, you will lose your certification. You cannot appeal loss of certification because you failed to renew by the deadline!

Don't forget to let us know when you move. Call Larry Granish at (800) 525-2536, Ext. 1, e-mail larry.granish@doh.wa.gov or visit us online at <http://www.doh.wa.gov/ehp/dw/opcert/>



New lead for the operator certification program



Chris McCord, new manager of the Operator Certification Program

After a nationwide search, we found the next program leader for the Operator Certification Program here at home. Chris McCord stepped into the position December 1.

McCord has broad experience in our drinking water program. He has worked closely with the certification program, helping develop compliance strategies, dealing with compliance issues, and reviewing proposed training courses for relevancy. His extensive experience, sound judgment, and ability to work effectively with staff and stakeholders make him an outstanding fit.

McCord joined the program after completing a temporary assignment as manager of the Constituent Services Section. During the screening process, it was clear McCord was the only applicant who had the background and experience we sought.

The former manager of the program, Cheryl Bergener, retired recently after serving the state for more than 43 years. Bergener was with the certification program since its inception in 1978. She managed the program for 32 years.

Water Use Efficiency 2010 Annual Report Summary



This is the third year of annual water use efficiency (WUE) reporting for many municipal water systems, and the first year of mandatory online reporting. We are glad to say that most of those submitting WUE reports online did so with

ease. We continue to improve the new reporting system.

Municipal water suppliers must submit annual WUE reports. Under terms of a recent state Supreme Court ruling, municipal water suppliers are all Group A community water systems with 15 or more residential connections. Some Group A noncommunity systems may be considered municipal suppliers if they provide water for residential uses (such as bathing, cooking, and cleaning) to a non-residential population of 25 or more people at least 60 days a year.

Establishing goals for customers

Every municipal water supplier must establish goals for customers that identify both a specific water savings target and a timeframe for achieving that target. Last year, only 45 percent of water systems correctly fulfilled their WUE goal-setting obligations for customers. We sent notices reminding the other 55 percent about the

important requirement to keep their customers engaged in water efficiency by establishing benchmarks for achieving specific goals.

They listened and responded well. This year more than 80 percent of you established meaningful goals that meet the minimum requirements for promoting water efficiency within your communities.

Interesting trends and differences

- Many of you set 5-year target goals to reduce consumption by 1 to 3 percent. Some set reduction targets as high as 10 to 20 percent.
- Many of you established seasonal (summer) reduction targets to reduce peak irrigation or outdoor use. This will help avoid additional improvements to source or storage capacity infrastructure to meet those high demands.

We found some interesting differences in water use between water systems on the east and west sides of the Cascades. We attribute much of this difference to outdoor use. It's clear that a warmer, drier climate contributes to increased irrigation needs.

- Some systems on the west side established goals to maintain consumption levels at less than 250 gallons per day per connection.
- Systems on the east side set goals to maintain consumption levels at less than 500 gallons per day per connection.

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For certified operators and water system managers

Lessons from Waterborne Disease Outbreaks

Certified operators apply their knowledge, experience, and training to do their jobs well. Water system managers use their skills to oversee the financial, managerial, and technical aspects of the water utility. Thus each plays a critical role in preventing disease outbreaks from their drinking water system.

According to Steve Hruday, Professor Emeritus at the University of Alberta, operators and managers can "convert hindsight into foresight" and learn from the mistakes of others.

Hruday reviewed 98 drinking water related outbreaks that occurred in 15 affluent countries since 1974. With a focus on what failed and why, Hruday concluded, "each outbreak has its own unique features, but there are many factors in common," including:

- Complacency.
- Failure to understand the system from source to consumer.
- Failure to recognize warning signs (changed weather, raw water quality, treatment effects).
- Failure to respond effectively to changes or seek help.

In a presentation at the Association of Boards of Certification annual conference in January 2010, Hruday provided his analysis of four outbreaks (Walkerton, North Battleford, Milwaukee, Alamosa). Each outbreak caused more than 1,300 illnesses and one caused 50 deaths.

These numbers are eye opening for sure – and they motivate us to learn more from these events to avoid an outbreak. Here are some points Hruday suggests we consider.

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LT2 monitoring results

Cryptosporidium levels low in Washington surface water sources

The federal Long Term 2 Enhanced Surface Water Treatment Rule (LT2 Rule) requires monitoring for systems that use surface water or groundwater under the direct influence of surface water (GWI). The purpose of the monitoring is to determine whether the systems provide adequate treatment to protect consumers from *Cryptosporidium*.

In Washington, most systems using surface water or GWI sources have completed their required source monitoring. The findings show that *Cryptosporidium* levels here are relatively low compared to other regions of the country.

Cryptosporidium, a protozoan parasite, is the organism that caused more than 400,000 illnesses and 50-100 deaths in Milwaukee, Wisconsin in 1993. Under the LT2 Rule, the higher the levels of *Cryptosporidium* found in a source, the higher the level of treatment the systems must provide.

Filtered sources serving 10,000 or more people

The rule required systems with filtered sources serving 10,000 or more people to take at least one *Cryptosporidium* source sample per month for 24 consecutive months, along with *E. coli* and turbidity samples. Following the monitoring, filtered systems were required to calculate their “*Cryptosporidium* bin concentration” and report their “bin classification” to the Office of Drinking Water.

- **Bin concentration:** This is the highest average of all *Cryptosporidium* sample concentrations the system collected during any 12 consecutive months.
- **Bin classification:** The concentrations fall into bins that range from “existing treatment is sufficient” to progressively more stringent treatment requirements.

<i>Cryptosporidium</i> bin concentration	Bin Classification
<0.075 oocysts/L	Bin 1
0.075 - <1.0 oocysts/L	Bin 2
1.0 - <3.0 oocysts/L	Bin 3
≥3.0 oocysts/L	Bin 4

Nineteen filtered systems serve more than 10,000 people, and all reported classifications in Bin 1. Their mean bin concentration is significantly less than the Bin 1 threshold. Even the maximum reported bin concentration is only about two-thirds of the Bin 1 threshold. That means the risk of exposure to *Cryptosporidium* in drinking water in our state is low and that filtered systems will not need to provide additional treatment.

Cryptosporidium results for 19 large filtered systems

For Filtered Sources Serving ≥10,000	<i>Cryptosporidium</i> bin concentration, oocysts/L
Maximum	0.054
Minimum	0.000
Mean	0.012
Bin 1 Threshold	0.075

Unfiltered sources serving 10,000 or more people

The LT2 Rule requires systems using unfiltered sources to provide another treatment barrier to *Cryptosporidium*, either a second disinfectant or a filter. These systems also had to monitor for *Cryptosporidium* to determine the extent of additional treatment they must provide. Because they are unfiltered, the *Cryptosporidium* threshold is significantly lower at 0.01 oocysts/L.

Only seven systems in Washington meet the criteria to remain unfiltered. Their *Cryptosporidium* monitoring results are:

For All Unfiltered Sources	Mean <i>Cryptosporidium</i> concentration, oocysts/L
Maximum	0.009
Minimum	0.000
Mean	0.003
Treatment Level Threshold	0.010

Again, all systems reported *Cryptosporidium* levels below the level that requires more than minimal treatment. Unfiltered systems must have at least two disinfectants, one of which must inactivate 99 percent or more of *Cryptosporidium* by itself.

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WUE Water Use Efficiency



There was also an interesting distinction this year between the average leakage rate between small (fewer than 1,000 connections) and large (more than 1,000 connections) water systems. Statewide, small systems averaged 17.1 percent leakage and large systems averaged 9.3 percent.

Measures that help achieve the goal

You can't achieve your goal unless you implement measures to help your customers reduce water use. Some of the most common measures you reported implementing are:

1. Use new meter technology to better account for consumption, increase revenue, and monitor customer usage to notify customers of leaks.
2. Evaluate and implement a more effective conservation rate structure.
3. Educate customers (includes everything from bill stuffers to school programs).
4. Offer indoor or outdoor water saving kits.
5. Set up a general rebate program (such as high efficiency washing machines and toilets).
6. Offer free low-flow showerheads or faucet aerators.
7. Put consumption history on water bills.
8. Offer free leak detection dye tablets for toilets.
9. Pass ordinances to prevent waste or enforce water use restrictions.
10. Use reclaimed water.

Many water systems took advantage of regional programs to work with local water efficiency interest groups. Regional programs focus on cooperative efforts to increase WUE awareness among all water sectors and create a water use ethic for an entire area.

Collaboration creates shared common interest in reaching regional WUE goals and offers more opportunities for local water systems to participate in regional WUE efforts. The result often is a more comprehensive outreach program than a water system could do on its own. Together participants can offer more WUE measures, including toilet rebate programs and enhanced educational programs.

Here are a few regional programs in Washington:

- Saving Water Partnership (Seattle area)
- Everett Regional Program
- Cascade Water Alliance (Bellevue area)
- WaterPak of Kitsap County
- Whatcom County Water Alliance
- Spokane Aquifer Joint Board

Fixing leaks: Water loss performance

There is no doubt the state's 10 percent water loss standard drove water systems to look much more closely at their supply-side efficiencies than ever before. This is evident in the annual WUE reports over the first few years of implementation. Most of you indicated your priority is getting your own house in order so you can show the state, your customers, and other water users in your area that you are serious about reducing water loss and accounting for all water use.

Understand the data. Where do apparent losses occur?

This is often the first thing water systems do to understand what their data are telling them. It makes sense to analyze the cause of your high leakage values. Is it malfunctioning billing software? Theft? Old or improperly sized meters?

Solve the meter madness! You can't manage what you can't measure.

Water systems are making extraordinary efforts to meter services never metered before. This might include installing meters on fire hydrants used for temporary construction water needs and metering historically unbilled or unmetered accounts, such as the city pool or town hall.

Systems also are calibrating source meters for the first time. About 14 percent of water systems reported negative water loss. That means they sold more water than they produced. More likely, they have an under-registering source meter they need to calibrate or replace.

Do leak detection surveys and fix leaks.

Many of you have leak detection programs in place and you are conducting leak detection surveys more often. This will improve your chances of knowing where leaks are and how best to fix them. Replacing deteriorating mains and service lines are two activities we hear about frequently.

For more information

Call Mike Dixel at (360) 236-3154, e-mail michael.dixel@doh.wa.gov or visit us online at <http://www.doh.wa.gov/ehp/dw/Programs/wue.htm>

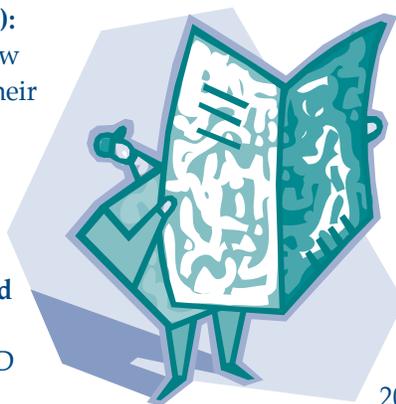
New & Revised Publications

Sanitary Control Area Protection (331-453): New! October 2010. Four pages explain how water systems must control and monitor their sanitary control area regularly to ensure land uses and activities do not pose a contamination threat to their drinking water source and distribution system.

Backflow prevention assemblies approved for installation in Washington State (331-137): Revised September 2010. This CD identifies the makes and models of DOH-approved backflow assemblies. It is based on the Approved Backflow Assemblies List published by the University of Southern California (USC) Foundation for Cross-Connection Control and Hydraulic Research. USC permits us to supply only one CD per person or organization per year. We send updates as needed throughout the year.

Troubleshooting Checklist for Coliform Contamination (331-180): Revised August 2010. 2-page fact sheet advises water systems what to look for in order to prevent coliform contamination of drinking water.

Coliform Bacteria and Drinking Water (331-181): Revised August 2010. 2-page fact sheet for consumers on the nature of coliform and what can be done about it.



Operating Permit Program Plan Adequacy Table (331-257): Revised August 2010. One-page guidance (in table format) that decision makers can use to determine the adequacy of Group A public water systems to provide acceptable drinking water to existing and future customers.

Groundwater Rule: Source Water Sample Taps (331-436): Revised July 2010. 4-pages explain how water systems can meet new monitoring requirements

by properly installing sample taps as close to each groundwater source as possible and before any treatment facilities, pressure tanks, or storage tanks.

Groundwater Rule (GWR): What you need to know (331-447): Revised October 2010. Five pages explain the basic requirements of the Groundwater Rule.

For copies of our publications, visit us online at <https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm> or call (800) 521-0323.

Get e-mail copies of new and revised publications. Sign up at <http://listserv.wa.gov/cgi-bin/wa?SUBED1=wa-drinkingwaterpub&A=1>

Cryptosporidium... (Continued from Page 8)

Systems serving fewer than 10,000 people

Systems serving fewer than 10,000 people only had to monitor for *Cryptosporidium* if their source mean *E. coli* levels were above a threshold of 100 organisms/100 mL, based on 26 biweekly samples for systems operating full time. In our state, there is an ongoing monthly source fecal coliform monitoring requirement for surface water systems.

At our request, EPA granted us the right to use existing fecal coliform monitoring results to meet the *E. coli* monitoring requirements under the LT2 Rule. Eighty-nine systems used their fecal coliform results and 34 more had to monitor for *E. coli*. The table at right shows results for all fecal coliform and *E. coli* monitoring.

For Filtered Sources Serving <10,000	Mean Fecal Coliform or <i>E. Coli</i> Levels Organisms/100 mL
Maximum	60
Minimum	0
Mean	10
Threshold	100

As a result, no small systems were required to do *Cryptosporidium* monitoring. All were classified as Bin 1 and, therefore, none was required to provide additional treatment. Results of all LT2 Rule monitoring indicate we have very good microbiological water quality in surface water sources in Washington!

Training and education calendar: January - March 2011

Date	Topics	Location	Contact	Phone #	Cost/CEU
Jan. 3-Feb. 5	Water Distribution (online)	Auburn	WETRC	1-800-562-0858	\$449/3 CR
Jan. 3-Feb. 5	Pumps and Pumping Systems (online)	Auburn	WETRC	1-800-562-0858	\$449/3 CR
Jan. 3-Feb. 5	Utility Worker Safety (online)	Auburn	WETRC	1-800-562-0858	\$449/3 CR
Jan. 3-7	Backflow Assembly Tester Certification Course	Auburn	WETRC	1-800-562-0858	\$675/3.7
Jan. 11	Advanced Control Valves	Spanaway	ERWOW	1-800-272-5981	\$95/120/0.7
Jan. 11-13	Water Distribution Manager Certification Exam Review	Shelton	ERWOW	1-800-272-5981	\$225/\$275/2.1
Jan. 12-13	Arithmetic for Operators of Water/Wastewater Systems	Auburn	WETRC	1-800-562-0858	\$259/1.4
Jan. 19-21	Pump Operation & Maintenance	Longview	WETRC	1-800-562-0858	\$335/2.1
Jan. 24-26	Water Works Basics	Auburn	WETRC	1-800-562-0858	\$335/2.1
Jan. 25-27	Water Treatment Plant Operator Certification Exam Review	Shelton	ERWOW	1-800-272-5981	\$225/\$275/2.1
Jan. 26-28	Managing Water/Wastewater Systems Series	Kent	WETRC	1-800-562-0858	\$328/1.4
Jan. 31	BTO/WTPO OIT & Level 1 Certification Exam Review	Auburn	WETRC	1-800-562-0858	\$179/0.7
Feb. 1-2	Service Connections and Water Meters	Auburn	WETRC	1-800-562-0858	\$259/1.4
Feb. 1-3	Backflow Assembly Tester Certification Exam Review	Shelton	ERWOW	1-800-272-5981	\$360/\$435/1.8
Feb. 1-3	Cross-Connection Control Basics and Exam Review	Camas	WETRC	1-800-562-0858	\$335/2.1
Feb. 3	Backflow Assembly Tester Professional Growth Exam Review	Shelton	ERWOW	1-800-272-5981	\$120/\$145/0.6
Feb. 4	Water Distribution Specialist Certification Exam Review	Spokane Valley	WETRC	1-800-562-0858	\$179/0.7
Feb. 7-8	Water Mains Installation, Maintenance and Repair	Auburn	WETRC	1-800-562-0858	\$259/1.4
Feb. 7-March 11	Disinfection and Chemical Feed Systems (online)	Auburn	WETRC	1-800-562-0858	\$449/3 CR
Feb. 7- March 11	Water Hydraulics (online)	Auburn	WETRC	1-800-562-0858	\$449/3 CR
Feb. 7- March 11	Water Regulations (online)	Auburn	WETRC	1-800-562-0858	\$323/2 CR
Feb. 7- March 11	Water Sources (online)	Auburn	WETRC	1-800-562-0858	\$179/1 CR
Feb. 7- March 11	Water Treatment 1(online)	Auburn	WETRC	1-800-562-0858	\$449/3 CR
Feb. 8-10	ERWOW Annual Conference and Trade Show	Yakima	ERWOW	1-800-272-5981	\$160/\$185/1.6
Feb. 9-10	Advanced Backflow Assembly Test/Troubleshoot/Repair	Spokane Valley	WETRC	1-800-562-0858	\$259/1.4
Feb. 9-11	Water Distribution Certification Exam Review	Auburn	WETRC	1-800-562-0858	\$335/2.1
Feb. 14-18	Backflow Assembly Tester Certification Course	Auburn	WETRC	1-800-562-0858	\$675/3.7
Feb. 23-24	Fire Hydrants: Install , Test, Operate and Repair	Auburn	WETRC	1-800-562-0858	\$259/1.4
Feb. 28-Mar 2	Pump Operation & Maintenance	Auburn	WETRC	1-800-562-0858	\$335/2.1
March 1-3	Managing Water/Wastewater Systems Repair	Camas	WETRC	1-800-562-0858	\$328/1.4
March 2	Excavation Safety/Competent Person	Bremerton	ERWOW	1-800-272-5981	\$110/\$135/0.7
March 3	Anatomy of a Public Drinking Water System	Auburn	WETRC	1-800-562-0858	\$179/0.7
March 9	Anatomy of a Public Drinking Water System	Mt. Vernon	WETRC	1-800-562-0858	\$179/0.7
March 11	Water/Wastewater Confined Space Entry	Spokane Valley	WETRC	1-800-562-0858	\$179/0.7
March 14-16	Basic Electrical	Auburn	WETRC	1-800-562-0858	\$335/2.1
March 14-18	Backflow Assembly Tester Certification Course	Auburn	WETRC	1-800-562-0858	\$675/3.7
March 15	Sampling Techniques	Yakima	ERWOW	1-800-272-5981	\$90/\$115/0.6
March 15-17	Cross-Connection Control Specialist Exam Review	Shelton	ERWOW	1-800-272-5981	\$225/\$275/2.1
March 23	Chemistry and Math	Shelton	ERWOW	1-800-272-5981	\$110/\$135/0.6
March 24	Asbestos Cement Pipe Work Practice Procedures	Auburn	WETRC	1-800-562-0858	\$179/0.7
March 28-31	Washington Operator Workshop (WOW)	Ocean Shores	WETRC	1-800-562-0858	\$175/TBD
March 24	Water Rights	Bellingham	ERWOW	1-800-272-5981	\$90/\$115/0.6
March 29	Found It-Finding Your Lines Before Your Backhoe Does	Pt. Angeles	ERWOW	1-800-272-5981	\$110/\$135/0.7
March 31	Found It-Finding Your Lines Before Your Backhoe Does	Vancouver	ERWOW	1-800-272-5981	\$110/\$135/0.7

Our training calendar is updated monthly; please visit the additional training links for current information.

For information about distance learning activities, call Certification Services, Green River Community College at (877) 780-2444, Ext. 3.

Additional Training Links:

AWWA King County Subsection website <<http://www.kcawwa.org/>>

ERWOW website <<http://www.erwow.org/>>

WETRC website <<http://www.wetrc.org/>>

AWWA Pacific Northwest Section website <<http://www.pnws-awwa.org/>>

EPA Drinking Water Academy <<http://www.epa.gov/safewater/dwa/>>
(No CEU assigned to these courses.)

Partnership for Water Conservation <<http://www.partners4water.org/>>

For the complete Training Calendar, visit the Drinking Water Homepage and click on Training - <<http://www.doh.wa.gov/ehp/dw>>

NOTE: Links to external resources are provided as a public service and do not imply endorsement by the Washington State Department of Health.

Know your system's barriers to contamination

Multiple barriers to contamination are important. At Walkerton, there was too little sanitary control around the well and not enough vigilance about changed conditions. Generally, we expect a 100-foot sanitary control for a well but that boundary doesn't magically protect your source. At Walkerton, heavy rainfall before the event caused cow manure to leach into the ground, contaminating the nearby well.

Know the contaminants near your source intakes. Follow and maintain protections at the source and throughout the distribution system.

Many operators work with disinfection treatment. Clearly, treatment is an important barrier to contamination. But treatment barriers require constant vigilance. Operators at Walkerton failed to measure chlorine daily. Not only did they fail to notice they were improperly dosing chlorine (too low) but they also missed one tipoff to the contamination: a high chlorine demand due to manure in the well.

Consider installing chlorine residual monitoring equipment with an auto-shutoff alarm and continue to measure daily residuals throughout your system.

North Battleford relied solely on chlorination disinfection, which is ineffective against *Cryptosporidium*. According to Hruday, the operations supervisor retired just prior to the outbreak after being unable to convince city management to invest in upgrades. Management left their system vulnerable to contamination, which risked an outbreak event that unfortunately occurred.

Know your own knowledge limitations

Operators of surface water systems know there are contaminants in source water. Multiple barriers to contamination are their line of defense.

When the operations supervisor at North Battleford retired, less experienced and less trained operators were left to handle this complex plant. Management should have recognized this weakness and responded quickly to give the operators necessary training and support.

The plant's raw water came from the North Saskatchewan River intake just 2 miles downstream from a sewage outfall. The operators were monitoring the solids contact unit clarifier for settling. Historically, good clarification resulted in 10 to 20 percent settling in 5 minutes according to an established test. Operators achieved 0.1 to 0 percent settling throughout the outbreak, which was significantly below accepted clarification.

Although the operators followed the established testing procedures for their treatment process, they either didn't understand or didn't know how to respond to the changed test results they recorded.

When there is a problem with the treatment plant, Hruday says you have to know what you don't know. Question the results you get and seek more input. For example, consult the Department of Health.

Know your system's vulnerabilities and limitations

In Milwaukee, operators had difficulty achieving good coagulation and clarification with cold, higher turbidity raw water. Filter operation was not optimized for fine particle removal and filter backwash water was recycled to the head of the plant, concentrating pathogen loading in the intake supply.

Separate turbidity meters for each pair of filters didn't work at the time of the outbreak and there was no continuous individual filter effluent turbidity monitoring to control turbidity spikes for each filter. A spike in consumer complaints was recorded, but it is not apparent that the water utility recognized this must be associated with a problem.

Be proactive

While drinking water outbreaks are relatively uncommon in developed countries, we still need to be proactive. The Alamosa waterborne disease outbreak sickened hundreds with one death. Colorado's drinking water program concluded one potential source as a small amount of bird feces draining into cracks in the ground-level storage reservoir. Alamosa's "secure" groundwater supply did not protect the entire system. So, operators and managers need to be proactive. If you see a crack in the storage tank, fix it. If the sanitary survey lists needed improvements, complete them. If the chlorinator is broken, fix it fast. Provide the proper public notice. Exercise good judgment and act.

References:

Safe Drinking Water: Lessons from recent outbreaks in affluent nations, Steve E. Hruday, Elizabeth J. Hruday, published by IWA Publishing, London. 2004

Hruday pulled lessons from four waterborne outbreaks

Milwaukee, Wisconsin: March-April 1993.

Cryptosporidium from human source in sewage treatment plant effluent and combined sewage outfalls into Milwaukee Harbor, which served as the drinking water source; estimated 400,000 people infected, 4,400 hospitalizations; and 50-100 deaths.

Walkerton, Ontario, Canada: May 2000. Attributed to cow manure that leached into a groundwater well source, more than 2,300 people sick, 7 people died. Deaths included a 2-year-old girl visiting from a nearby town who drank only one glass of water.

North Battleford, Saskatchewan, Canada: March-April 2001. *Cryptosporidium* from municipal sewage in the city's surface water source; over 6,000 people were infected.

Alamosa, Colorado: March 2008. System with a "secure" groundwater supply had an outbreak of salmonellosis attributed to small animal sources in a water storage tank; 1,300 illnesses, 1 death.

White Salmon... (Continued from Page 1)

Water quality

The city began working with us in 1992 to address safety and reliability issues with the water system. At that time, Buck Creek was an unfiltered source treated with chlorine and instances of high turbidity required periodic boil-water advisories. The situation culminated in 1999, when we issued a permanent boil water advisory after sampling confirmed the presence of *Cryptosporidium* in Buck Creek. Preliminary studies showed the best approach would focus on improving the groundwater sources rather than treating Buck Creek.

That year, the nearby City of Bingen and the Port of Klickitat were having water supply issues. So, White Salmon and Bingen teamed up to apply for and receive a \$4 million loan from the Drinking Water State Revolving Fund. These funds covered the costs of building and improving the groundwater sources and infrastructure to intertie the three water systems, including a transmission main, reservoir, and treatment facilities.

When the projects were complete in 2002, we lifted the boil water advisory. The improvements enabled the White Salmon water system to provide drinking water to its own residents and through the interties to Bingen and the Port of Klickitat. However, the city's troubles were not over.

Water rights

In 2004, it became evident that the City of White Salmon was exceeding its annual water right by 35 percent. As a result, we set the total number of approved service connections at the existing number. The city declared a moratorium on additional connections and implemented water conservation measures. Bingen began rehabilitating its old sources to reduce reliance on the intertie with White Salmon.

Moreover, even though White Salmon succeeded in reducing water consumption, studies showed the capacity of the groundwater sources was declining.

Capacity

The declining capacity of the groundwater sources reached critical points in 2008 and 2009. The city implemented more severe water conservation measures that helped to protect the sources and maintain maximum storage capacity in the reservoirs.



Buck Creek surface water being filtered through the City of White Salmon's newly constructed Nathan Wellman Slow Sand Plant.

The city also began looking again at Buck Creek as a possible solution.

Knowing they would have to treat Buck Creek water, city officials began investigating the option of a slow sand filter treatment plant. To cover the cost of the filtration system, they applied for \$.5 million in grants from Klickitat County and \$1.5 million from the state Department of Commerce's Community Development Block Grant Program.

Fortunately, the bids came in lower than expected. So, White Salmon constructed extra transmission lines and reservoirs to better operate the system and eliminate major leaks.

The city now has safe drinking water but still must overcome the hurdle with water rights, which affects growth. City officials are working with the Department of Ecology to complete the process for transferring water rights from the Klickitat Public Utility District to the City of White Salmon. In addition, they continue work on an Aquifer Storage and Recovery Study with Ecology that could garner additional water for the region.

Drinking water system loans... (Continued from Page 1)

"This is good for people's health, saves money, and creates jobs, which is precisely what we envisioned for this program," said Governor Chris Gregoire. "It makes these public health projects affordable for these communities. Equally important, it puts people to work."

"In hard economic times like this, we especially appreciate being able to direct more dollars to communities around the state," said Secretary of Health Mary Selecky. "This lets us do more to help water systems fix problems and make sure people have safe water to drink."

The projects are in 16 counties and range from \$100,000 to \$12 million. Five projects received conditional approval, meaning they need to take actions such as rate increases to ensure they can repay their loans. A 28th project is pending a review of the system's ability to handle the loan.

The Office of Drinking received loan requests totaling more than \$350 million. We scored and ranked the loan applications, and submitted recommendations to the Public Works Board for final approval.

"These financing agreements will put construction workers back to work right away and help to position our local communities for more rapid economic recovery," said Rogers Weed, director of the Department of Commerce. "Investments such as these are key to maintaining quality infrastructure that supports our ability to grow and retain jobs throughout the state."

The federal government added new requirements to the loan program this year, similar to those for the 2009 American Recovery and Reinvestment Act. For example, about \$12 million was used for subsidies for water systems in disadvantaged and economically distressed communities.

In addition, the state was required to devote about 10 percent of the money to "green" projects that improve water use efficiency or energy efficiency. All borrowers must comply with federal prevailing wage requirements.

The Department of Commerce will administer the loan agreements. Contracts will be issued in the next several months. Work on the 27 projects will begin immediately thereafter.

Time to apply for a 2011 DWSRF loan

We are preparing for the next cycle of revolving fund loans. The form and applicant instructions are online at http://www.doh.wa.gov/ehp/dw/our_main_pages/dwsrf.htm

Highlights for 2011

- About \$61 million available to lend.
- 1.5 percent basic interest on a 20-year loan.
- Reduced interest rates and subsidies for systems in disadvantaged communities.
- \$6 million loan limit per system.
- \$12 million loan limit for projects involving multiple systems.
- Retroactive assistance for specific high-priority municipal systems.
- Most Group A community and nonprofit noncommunity water systems are eligible.
- Financing available to municipal or privately owned public water systems.

Important dates!

March 1, 2011: DWSRF application deadline.

March 1, 2011: Water System Plan, Water System Amendment, or Small Water System Management Program submittal deadline.

August 1, 2011: Office of Drinking Water plan approval deadline.



2011 Drinking Water Week Awards Nomination Form

Do you know of a water system or operator deserving of recognition? Tell us about it!

In celebration of Drinking Water Week, May 1-7, 2011, the Department of Health's Office of Drinking Water (ODW) will recognize water systems and operators for their commitment to providing safe and reliable drinking water.

Tell us who you think should be recognized by completing the nomination form and providing supporting documentation about why the water system or operator you are nominating deserves recognition. Supporting documentation could be:

- Specific examples of what the nominee did to deserve recognition
- Letters of support from a manager, supervisor, co-workers, peers, customers, board or commission members, city council members
- Newspaper articles
- Pictures
- Day-in-life of the nominee

Nominations are due February 1, 2011. We will review nominations and our director's management team will make final selections. We will honor award winners during Drinking Water Week. If you have questions, please e-mail Michelle Austin at michelle.austin@doh.wa.gov or call (360) 236-3156.

Category (please check one):

- Most Improved:** Recognizing a water system that overcame a bad situation and is now providing excellent service to customers
- Grace Under Pressure:** Recognizing a water system or operator for handling a crisis well
- Going Above and Beyond:** Recognizing a water system or operator for providing assistance to neighboring water systems, the community, the Office of Drinking Water, and others
- Operator of the Year:** Recognizing an operator for his/her part in providing safe and reliable drinking water
- Lifetime Achievement:** Recognizing an operator for dedication and commitment during his/her career

Information About Nominee:

Name: _____

Title: _____

Representing _____

City and County: _____

Form Completed By:

Name: _____

Title: _____

Representing _____

Phone: _____

E-mail: _____

Nominations must be received by February 1, 2011.

Send nominations to:

Michelle Austin, Office of Drinking Water
PO Box 47822, Olympia, WA 98504-7822

E-mail: michelle.austin@doh.wa.gov • FAX: (360) 236-2252

Don't forget to attach
supporting information!

To Do List!

- Renew operator certification before Jan. 20, 2011 (Pg. 6)*
- Submit Drinking Water Week nomination by Feb. 1, 2011 (Pg. 15)*
- Apply for Drinking Water State Revolving Fund by March 1 (Pg. 14)*
- Subscribe to rulemaking e-mail list (Pg. 4)*

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

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Court sides with state on water law



Shortly before press time, the state Supreme Court issued a ruling that upholds disputed sections of the state's Municipal Water Law. The ruling overturned a 2008 King County Superior Court decision that declared parts of the law invalid.

In particular, the Supreme Court upheld sections of the law that define "municipal water supplier" and "municipal water supply purposes." The court also said water right certificates based on water system infrastructure, rather than actual water usage, are "rights in good standing."

The Supreme Court's ruling means that many privately owned water utilities now have more flexibility with their water rights, and they also do more with water conservation.

The Department of Ecology and Department of Health, the state agencies that administer the Municipal Water Law, are reviewing how the Supreme Court's decision in this case may affect the agencies' implementation of this important law.

For more information, visit us online at <http://www.doh.wa.gov/ehp/dw/mwl-legal.htm>

In This Issue

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

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

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Jennifer Tebaldi, Acting Assistant Secretary of Health, Environmental Health Division

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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