



the WATER TAP

WASHINGTON'S DRINKING WATER NEWSLETTER

Legislative Session Wrap-Up

This year's lengthy legislative session brought several developments affecting the drinking water program and water systems, including some new funding and bills affecting public utility tax deductions, water rights, and backflow prevention.

Budget: New state funding for safe drinking water account

In a time when many agencies and programs were experiencing budget reductions, the safe drinking water account received an enhancement of \$2.9 million in new state general funds. Of this, \$1.6 million is to help local jurisdictions continue and improve their role in assuring the safety of small water systems. The remaining \$1.3 million is for contracted technical support to help local water systems implement the new SDWA requirements, and additional state staff to monitor compliance.

Water Resource Management (ESHB 1832)

This omnibus water resource bill included three sections directly affecting the drinking water program:

Public utility tax deductions for conservation measures

The public utility tax is levied on gross income of public and privately owned utilities. The incentive program created by the legislature allows water systems to deduct from their gross taxable income 75 percent of amounts expended on measures that will reduce the use of water by

customers. These measures must be included in the system's current approved Water System Plan or Small Water System Management Program. The tax incentive provisions became effective May 10, 2001 and expire June 30, 2003.

More information on the tax deduction program for conservation measures is available at http://www.doh.wa.gov/ehp/dw/fact_sheets/publicutilityfs.htm

There is also a provision for a tax deduction for revenue from sale of reclaimed water. This provision is administered by the Department of Ecology.

Water right applications

Allows applications for transferring or changing existing water rights to be processed separately from applications for new water rights and does not protect the new applications from being impaired by decisions regarding the existing rights. Gives the Department of Ecology new staff to deal with the backlog of water right applications. As this backlog is reduced, there will be an

increase in the number of water system project approval requests coming to DOH.

Family farm water rights

Provides that a public water system receiving a water right transferred from a family farm permit must meet the conservation requirements of its state-approved water system plan or its small water system management program. DOH



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Design Manual Updated

A biennial update of the Division of Drinking Water's Water System Design Manual includes some new sections and appendices, others that were clarified or strengthened, and corrections to the text.

The revised manual should be available by October 1st at <http://www.doh.wa.gov/ehp/dw/publications/design.htm>

An outline of the substantive changes is being mailed to consultants and large system purveyors.

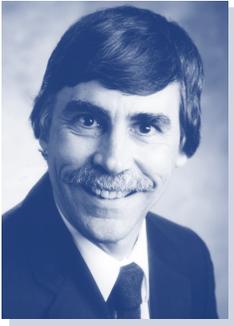
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THE DIRECTOR'S COLUMN

BY GREGG GRUNENFELDER



The Division of Drinking Water recently adopted a vision statement that articulates the type of organization we want to continue to be.

The vision statement supplements our mission statement: *“to protect the health of the people of Washington*

State by assuring safe and reliable drinking water” by stating the kind of environment and type of organization we help to create for the future. Our vision statement is as follows:

We have safe and reliable drinking water in Washington State. People understand drinking water issues and make informed decisions. We create better, more effective ways to protect and promote the public's health.

Our staff builds and maintains long-term relationships with those we serve and regulate, and are viewed as credible and trustworthy. We work together as a team of competent and motivated professionals. Our service to the people of Washington State is valued and we are successful.

In developing this vision statement we wanted to highlight our ongoing commitment to public health protection and the kind of positive relationships we want to create with those with whom we work. While we do have many regulatory responsibilities, we do not want to create simply regulatory-based relationships.

We will continue to emphasize our long-term commitment to partnerships, technical assistance, and useful information. Assuring safe drinking water is something we all need to strive for together, and the division's vision will support this approach into the future.

As an additional note, I am pleased to report that Rich Hoey has assumed the position of Field Operations Manager for our division. Rich replaces Alan Rowe, who retired from the department in July. While we will miss Alan, Rich will bring to the division a high level of commitment and talent to help us advance our mission and vision.

Rich will oversee the field activities of our three regional offices and work closely with me in overall management of the division. I hope many of you will have the opportunity to meet Rich in the near future. He is a quality individual and skilled drinking water engineer.

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and Ecology are establishing a process to assure that public water systems receiving surplus family farm water satisfy the conservation requirements.

Backflow Prevention (ESHB 2172)

This bill creates a specialty plumber certificate of competency for maintenance and repair of backflow prevention assemblies. The Department of Labor and Industries is establishing rules, with criteria for certification, to take effect by July 1, 2002. Backflow assembly testers who are not certified plumbers may continue to maintain and repair backflow prevention assemblies until January 1, 2003. Whether they will be able to continue doing so after that date is an issue that the Department of Labor and Industries will be addressing.

Governor Locke vetoed a section in this bill that would have removed the annual testing requirement for backflow assembly devices.

The Gauntlet Has Been Thrown: State vs. City Water Use Challenge

The Northwest Drinking Water Office DOH staff have challenged Seattle Public Utilities staff to the first ever 'DOH vs. SPU Actual Water Use Challenge'. The rubber gloves are off! In this era of drought declarations, second pipelines, salmon concerns, new diversions, and conservation goals, metered competition has joined the fray.



Here are the specifics: The average of the NWRO staff's driest three single-family residential users against the three most miserly SPU users, meter-on-meter in the following categories:

- Residence summer two-month use.
- Per capita summer two-month use.
- Average annual residence use.
- Per capita annual average use.
- Greatest residence summer two-month reduction in use from last year.
- Per capita summer two-month reduction in use from last year.

Actual utility billing records will be the basis of water use numbers. Amidst reports of shared bath waters and with shower timers ticking, final volumes will be determined and a champion crowned this fall. Stay tuned.

Management Changes in the Division of Drinking Water

Several key management positions have changed in the Division of Drinking Water in the last few months.

Rich Hoey is the new manager of field operations, replacing Al Rowe, who retired in July.

Peggy Johnson assumes a position as manager of headquarters operations.

Paula Smith is the manager of the division's newly-established training and outreach section.

Linda Chapman, manager of regional services, is retiring in September.

Janice Keller left in June to head up communications work for the City of Bellingham.

Chris McCord has returned to the division after a brief absence to serve as compliance coordinator .

Sara Brallier started August 20 as field activities coordinator. She formerly worked at Seattle-King County Public Health, the Tacoma-Pierce County Health Department, and METRO.

Bonnie Waybright, started August 27 as engineering coordinator. She comes from the Oregon Drinking Water program where she worked as a regional engineer and cross connection program lead.

The division's new organizational chart is still in the works, and will probably be printed in the December issue of *Water Tap*.

Learn About Risk Communication Under the Safe Drinking Water Act

EPA's Drinking Water Academy is sponsoring a two-day course on risk communication under the Safe Drinking Water Act. It is intended for state, tribal and EPA Regional staff, as well as representatives of water systems who are responsible for communicating with the public.

The course discusses risk communication principles and SDWA risk concepts. The course will explain how to develop a risk communication program and provide techniques for communicating risk in situations specific to SDWA, such as Consumer Confidence Reports, new drinking water regulations, source water assessments, and emergencies. The course contains group exercises to reinforce the risk communication tools and techniques.

The Washington state session of the course will be held October 18-19 at the Civic Center in Shelton. For more information contact Scott Hemingway at Evergreen Rural Water in Ellensburg, 509-962-6326.

Other northwest sessions are scheduled for October 15-16, in Boise, Idaho, and October 22-23, in Tillamook, Oregon.

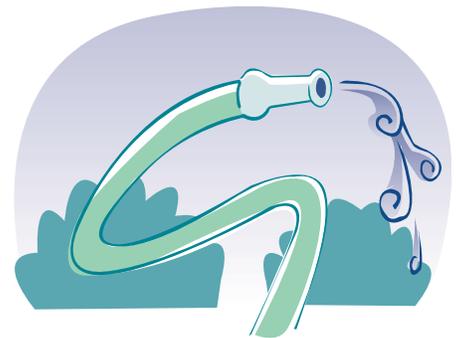
For more information, contact Jamie Bourne, 202-260-5557, bourne.james@epa.gov.

Free Conservation Brochures: Limit 1,000

In the last issue of the Water Tap, we announced that because of the statewide drought situation, the number of free conservation guideline handouts available to water purveyors for distribution to customers was being increased from 500 to 2,000.

Unfortunately, due to an enormous number of requests and difficulties in maintaining an inventory of these publications, we have had to reduce the number of free handouts to 1,000 per utility. Free CDs are also available, from which you can print the brochures yourself. The brochure packet contains:

1. Indoor Water Conservation
2. Outdoor Water Conservation
3. Lawn Watering Guide
4. Indoor Water Audit
5. Meter Reading & Leak Repair
6. Soil Preparation & Planning
7. Irrigation & Landscaping
8. Salmon Recovery



You can see the handouts on line at http://www.doh.wa.gov/ehp/dw/Our_Main_Pages/consumer_drought_info.htm For more information, call 360-236-3116.

Revised Regulations in the Works

Five Topics Addressed in a Year-and-a half Process that Began this June

In June 2001 the Division of Drinking Water filed a notice of intent to revise the Group A Regulations (chapter 246-290 WAC) to reflect Environmental Protection Agency rules on surface water treatment, disinfection, public notification, lead and copper, and radionuclides.

The target timeliness for all five sections are:

Draft rule prepared:	Dec. 2001
Stakeholder comment:	Jan. 2002
Revised rule:	April 2002
Public Hearings:	July 2002
Final adoption:	Dec. 2002



Interim Enhanced Surface Water Treatment Rule (IESWTR); Disinfection/Disinfection By-Products Rule (D/DBPR) Stage 1

These two rules will help protect the public from microbial contaminants and will help prevent the creation, through disinfection, of possible cancer-causing agents in water supplies.

The IESWTR focuses on surface water systems and systems with ground water under the influence of surface water as a source and serving at least 10,000 people (21 larger water systems).

The D/DBPR will affect all Group A Community water systems that disinfect.

Large surface water systems must comply with the D/DBPR by January 2002; ground water systems and small surface water systems must do so by January 2004.

Most compliance deadlines for the IESWTR are January 2002, but there are exceptions. For example, large surface water systems were required to begin quarterly monitoring for certain disinfection by-products by March 2000, unless they had data showing that their water does not exceed specified levels of those contaminants. Nearly all have complied with this requirement.



Revised Public Notification

This rule affects all Group A water systems – about 4,270 systems. The revisions establish three new “tiers” for public notification, based on the nature of the health risks involved:

- Tier 1 - Acute health concerns
- Tier 2 - Chronic health concerns
- Tier 3 - Reporting and monitoring requirements

Tier 1 violations (for example, presence of E. coli or fecal coliform) will require public notification within 24 hours instead of the current 72 hours.

The rule also contains simplified health effects language and streamlined requirements for distribution of public notices. These should make it easier for water systems to understand what is required.

In addition, there will be consistency with the consumer confidence report language requirements.



Minor Revisions to Lead and Copper

This rule affects all community and NonTransient NonCommunity water systems – about 2,530 systems.

These changes will require systems to demonstrate “optimal corrosion control.” Water quality parameters such as alkalinity, temperature, and conductivity are used to characterize the effectiveness of corrosion control.

In general, the minor revisions make it less burdensome for water systems to comply with monitoring requirements. For example, systems that monitor water quality parameters daily will be allowed up to nine “excursions” (currently they are allowed only one) outside the allowable parameter range before being considered out of compliance.

Public education requirements will be simplified, with options for distribution of materials that should make it easier for water systems to comply.



Radionuclides

This rule affects all Group A community water systems – about 2,350 systems. It sets a new uranium MCL of 30 ug/L that systems must monitor for.

The rule requires radionuclide monitoring every three years instead of the current four years, bringing sampling frequency for radionuclides in line with other contaminants. This may increase some costs, but should reduce confusion about when to sample.

The rule also changes monitoring location requirements. Sampling must now occur at each point where source water enters the system. This could increase costs for some systems which previously had to sample only from representative distribution points.

For more information: Contact Richard Siffert, 360-236-3146.

Operator Certification News

Professional Growth Options

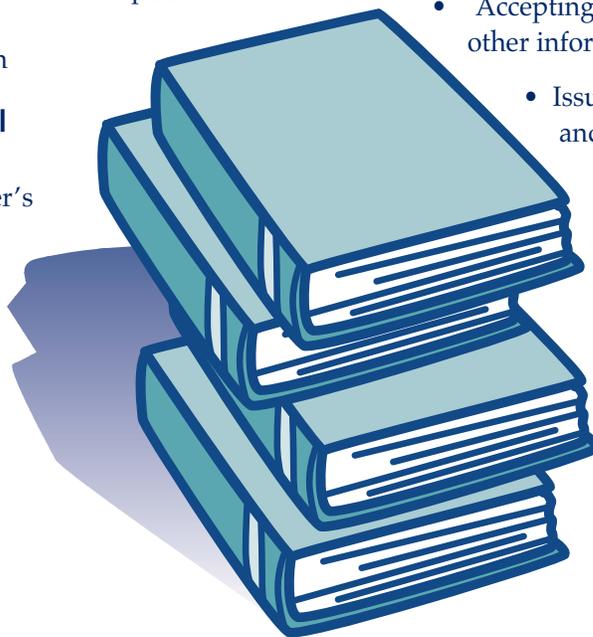
All water works operators certified before January 1, 2001, including those who were grandparented into the certification program, must meet their professional growth requirement by December 31, 2003. There are a number of ways to do this:

1. Accumulate a minimum of three Continuing Education Units or college credits for training that is directly relevant to the operation, maintenance or management of a water system and that has an influence on water quality, public health, or environmental protection.
2. Advance by examination in the Water Works Operator Certification Program to a Level 2, 3, or 4.
3. Achieve certification by examination in a different classification as follows:
 - WDM to WTPO, BTO, or CCS
 - WTPO to WDM or CCS
 - BTO to WDM, WTPO, WDS or CCS
 - WDS to WDM, WTPO, BTO or CCS
 - CCS to WDM, WTPO or WDS

Don't get caught by waiting until the last year to obtain relevant training. You will find possible training opportunities in the Water Tap or by visiting the Division of Drinking Water training calendar at http://www.doh.wa.gov/ehp/dw/Our_Main_Pages/training.htm

Operator training for small systems

The Division of Drinking Water's new Training and Outreach Section, as well as third party contractors, will be instrumental in offering fully or partially subsidized relevant training opportunities to certified operators of systems serving a population of less than 3,300.



Update on grandparenting

With the recent amendments to chapter 246-292 WAC, effective January 29, 2001, Division of Drinking Water staff have been busy completing the process of grandparenting operators of Group A community water systems that serve less than 100 services and nontransient noncommunity (NTNC) systems.

About 1,890 water systems were affected by the amendments. Most of them – about 1,800 – were qualified to grandparent an operator. Preliminary figures indicate that about 1,060 chose that option, and 540 either got their operator certified or went with a satellite management agency or a contract operator. About 200 systems were out of compliance and faced enforcement actions.

Backflow Assembly Tester (BAT) program

Administration of the BAT program has been transferred to WETRC. DOH has discontinued publishing and maintaining the public listing of certified Backflow Assembly Testers. Enforcement elements of the program remain with DOH, and WETRC is responsible for the following activities:

- Tracking and monitoring compliance with the BAT professional growth requirement.
- Scheduling and proctoring BAT certification and professional growth examinations following DOH criteria.
- Maintaining BAT certification and professional growth database and files.
 - Accepting and processing address, name and other information changes.
 - Issuing BAT Certificates of Competency and validation cards.
 - Processing annual BAT renewal notices and payments.
 - Responding to telephone inquiries about BAT certification and professional growth requirements.
 - Correspondence with and notification to BATs regarding certification and professional growth status.

One-Call Notification

Get a chance to mark your underground water lines before an excavator goes to work

Washington State law requires excavators to notify underground utility owners about upcoming work two days in advance. This gives the utility the opportunity to mark its underground facilities in the area where the excavation is going to happen.

This is a great damage-prevention service that can save you time, work, and money. But there's a responsibility that goes with it. The law also requires that all underground-facility owners belong to a "one-call" notification center. This allows excavators to make just one call in order to get the necessary information to multiple utilities that might be affected.

Despite this legal requirement, many utilities that own or operate underground facilities – including water companies – are not subscribers to the one-call system in Washington. Damage to underground facilities can be financially costly, and it can endanger public safety – particularly when the damage is to a water main that is supposed to supply clean drinking water to hundreds or even thousands of customers. The risk of contamination is serious and immediate.

There is a cost to join the one call system, but it is much less than the potential for lost revenue and repair costs, to say nothing of the impact on your customers.

To learn more about the Washington law and ongoing damage prevention efforts, to become a member of a notification center, or to get free printed materials, call 1-800-424-5555. You can find the actual law on the web at <http://www.leg.wa.gov/wsladm/rcw.htm> - Go to "Title 19" and then to 19.122.

You can get more information about the one-call notification system at the Washington Utilities Coordinating Council web site at www.wucc.org or at the Washington Utilities and Transportation Commission website at www.wutc.wa.gov.



Drought Update:

Water Systems feel the effects

Over the last several months, the drought of 2001 has affected many water systems around the state, both large and small. The effects have varied greatly, ranging from minor to severe water shortages.

Some utilities looking at minor shortages, like the cities of Seattle and Bremerton, have asked customers for voluntary conservation. Others facing moderate shortages, like the City of Kent and Sammamish Plateau Water and Sewer District, have required mandatory water curtailment from residents. And in response to a severe shortage, the City of Goldendale in Klickitat County has taken emergency action to restrict all outdoor water use and obtain new sources of water.

With the peak water use season upon us, many more water systems could see shortages. To ensure your water system is prepared, the department recommends you take action now:

1. Start checking the water level of your water sources. Don't be caught by a water outage that could have been anticipated.
2. Find leaks and repair them. Leaky water pipes can waste large amounts of precious water supply.
3. Educate your customers about water conservation. Now, more than ever, is the time to stress the importance of efficient use of water.
4. Prepare a water shortage response plan. Think now about what to do when water supplies run low.
5. Look for alternate sources of water for use during an emergency. Now is the time to develop an intertie (interconnection) with a neighboring water system, or get an emergency water source ready for use.
6. Have your emergency sources tested now. Make sure your emergency sources will be safe for use when you need them.

Department of Health staff are prepared to help with your drought preparedness and response efforts. Information and assistance on the steps recommended above are available by contacting your Division of Drinking Water regional office.

Drinking Water State Revolving Fund (DWSRF)

The DWSRF program provides low-interest loans to help water systems improve their infrastructure. Since the program began in 1997, over \$106 million in loans have been committed to improvements in Washington.

Washington is a national leader in getting this money out to public water systems. According to an Environmental Protection Agency report, Washington is second in the nation in total loans executed, third in loans to small systems, and second in loans to privately-owned systems.

Applications were down in 2001

The 2001 application cycle brought in 49 applications for DWSRF assistance from 38 jurisdictions—about half of what we expected to receive, and down nearly 50% from last year. The amount of funding available is about \$24.7 million. The approved loans will be distributed in the spring of 2002.

While we anticipated being able to fund only high-priority water quality projects, it now appears that many medium and even low priority projects may also receive funding.

Intended Use Plan to be reviewed

Each year, once the DWSRF applications have been evaluated, the Division of Drinking Water develops an Intended Use Plan explaining how we plan to distribute the funds.

A public hearing on this year's Intended Use Plan will be held at 10:30 AM, October 3, at 7171 Cleanwater Lane SW, Building 3, Tumwater, WA 98501. The purpose of the hearing is to present the state's recommended actions and provide an opportunity for public comment.

The draft Intended Use Plan is subject to a 30-day public review and comment period, Sept. 10 to October 10. The plan is available

through the internet at http://www.doh.wa.gov/ehp/dw/Our_Main_Pages/dwsrf.htm

The draft plan is also available at the State Library in Olympia, or by contacting:

Chris Gagnon
DOH - Division of Drinking Water
PO Box 47822
Olympia WA 98504-7822
(360) 236-3095
chris.gagnon@doh.wa.gov

Washington's DWSRF program is jointly administered by the Department of Health, the Department of Community, Trade and Economic Development, and the Washington State Public Works Board.

We are always looking for ways to improve the program and streamline the process to make it easier for clients. If you have concerns or ideas for improvements, we would like to hear from you.

Getting ready for next year's application cycle

Now is the time to make sure you have everything in order if you plan to apply for DWSRF funding in the 2002 cycle. Watch for information on application workshops in future editions of the Water Tap. These will be held in the spring of 2002, with applications due the first week of June.

Be sure your water system plan or small water system management program is up to date. Applicants in 2002 will be required to have an approved plan by December 31, 2002, with funding available by spring 2003. Remember, well-thought-out projects take time, so start early.

New state regulations on DWSRF

On August 21, the division conducted a hearing to take public comment on a new chapter 246-296 WAC that puts the DWSRF process into state regulations for the first time. The new regulations should be effective in October. The contact for information on the new regulations is Sean Orr, 360-236-3153.

Need information on infrastructure planning and financing?

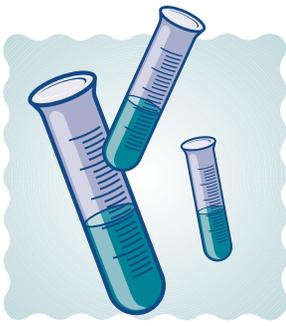
Check out the IACC biennial conference in November - The Infrastructure Assistance Coordinating Council (IACC) will hold its biennial conference in Wenatchee November 6-8.

Since the last conference, the state has experienced more than its share of challenges, including floods, fires, earthquakes, a drought, and energy shortages. But for the most part the critical roads, bridges, water lines, sewer systems, and power lines have continued to function well.

To help ensure the future solidity of the state's infrastructure, the IACC is offering more training sessions, program overviews, technical assistance meetings and case studies than ever before. Each is designed to help participants figure out how to do the right thing at the right time for the right price for the right reason.

Planning and financial experts will be on hand for technical assistance, as well as the latest software to help you determine what needs to happen and when. Scholarships are available for communities that are really strapped for funds.

For conference registration information, contact Jacquie Andresen, Public Works Board, at (360) 725-5002. And check the council's web site at www.infracunding.wa.gov for the latest on infrastructure funding.



Emergency Disinfection of Small Systems

Has your system lost pressure lately due to a power outage, failed pumping system, main break, or other unusual event? Or have you just learned you have an Acute or Non-Acute Total Coliform Rule MCL violation? If so, and if you normally provide water that is not disinfected, please read on.

When to Disinfect

A water system should be disinfected any time it experiences any of the following:

- The system loses pressure for any reason.
- Any part of the system is “opened up” for maintenance or repairs.
- Backflow or back-siphonage creates a cross-connection event.
- Total coliform, fecal coliform, or E. coli is found present in both routine and repeat coliform samples.

A system should also be batch chlorinated if multiple routine coliform samples in one month show the presence of total coliform, fecal coliform, or E. coli. This disinfection should not occur until after the required repeat samples have been collected for each of the unsatisfactory routine samples.

Notify your customers first

Before disinfecting any system that is normally not disinfected, you must notify all users. Of special concern are people with unique medical needs, such as kidney dialysis patients. All water systems should maintain a list of such customers. People with aquariums or ponds that contain fish will also want to know that the water is to be chlorinated.

Note: This article is primarily written for smaller, non-municipal type systems, though the information may be helpful to any system. The article discusses how to disinfect both for a simple groundwater system with pressure tanks and distribution pipes, as well as a system with a storage reservoir. The first four steps are different for the two kinds of systems, but steps 5-8 are identical.

Adding chlorine to a groundwater source

1. Calculate the volume of water in the well or spring box. To do this, multiply the number of cubic feet by 7.5 to determine the number of gallons. (Or use the table below).

CALCULATING WELL VOLUME	
Well Casing Diameter (inches)	Volume (gallons per vertical foot of water)
6	1.5
8	2.6
10	4.1
12	5.9
14	8.0
16	10
36	53

2. Calculate how much chlorine to add to the well or spring box, using this table:

Well Volume (gallons)	WELL DISINFECTION: Amount of chlorine bleach to use			
	Desired Chlorine Dosage			
	5 1/4 % bleach		50 ppm	12% bleach
	5 ppm	20 ppm	50 ppm	5 ppm
50	1.2 Tbsp	0.3 cups	0.8 cups	0.5 Tbsp
100	2.4 Tbsp	0.6 cups	1.5 cups	1.1 Tbsp
150	3.7 Tbsp	0.9 cups	2.3 cups	1.6 Tbsp
200	4.9 Tbsp	1.2 cups	3.0 cups	2.1 Tbsp
250	6.1 Tbsp	1.5 cups	3.8 cups	2.7 Tbsp
500	12 Tbsp	3.0 cups	7.6 cups	5.3 Tbsp
750	18 Tbsp	4.6 cups	11 cups	8.0 Tbsp
1000	24 Tbsp	6.1 cups	15 cups	11 Tbsp

(Also see the sidebar: *What chlorine dose is needed?*) If your distribution system is extensive, consider the volume of water in the distribution piping when determining how much chlorine to use.

3. Pour the required quantity of bleach into the well or spring box.
4. Connect a brand new garden hose to the nearest outside faucet and circulate the water through the hose and back into the source. This will mix the chlorine with the water, and the pump will draw the chlorine to the bottom of the well. After you start smelling the chlorine in the water coming out of the hose, use the hose to rinse the upper portion of the well with the disinfectant. Note: If you cannot reach the well with the hose, mix one cup chlorine bleach per bucket of water and pour chlorinated water down the inside of the casing. The bucket method will also work when you are disinfecting a gravity-flow spring box.

Now proceed to Step 5, next page.

Adding chlorine to a storage reservoir

Note: If you must chlorinate both your source and your storage reservoir, disinfect the reservoir and distribution system first, then do the source and the pipe leading to the reservoir. This will ensure adequate disinfection of the source.

1. If the contamination does not appear to be originating at the water source, the system maybe disinfected by adding disinfectant to the storage reservoir rather than the water source.
2. Determine the amount of chlorine that will need to be added to the storage tank, using the table above right:

RESERVOIR DISINFECTION: Amount of chlorine bleach to use

Res. Volume (gallons)	Desired Chlorine Dosage			
	5 1/4 % bleach			12% bleach
	1 ppm	20 ppm	50 ppm	1 ppm
5,000	1.5 cups	1.9 gal	4.8 gal	0.7 cups
10,000	3.0 cups	3.8 gal	9.5 gal	1.3 cups
15,000	4.6 cups	5.7 gal	14 gal	2.0 cups
20,000	6.1 cups	7.6 gal	19 gal	2.7 cups
25,000	7.6 cups	9.5 gal	24 gal	3.3 cups
50,000	15 cups	19 gal	48 gal	6.7 cups
75,000	23 cups	29 gal	71 gal	10 cups
100,000	30 cups	38 gal	95 gal	13 cups

(Also see the sidebar: *What chlorine dose is needed?*) If your distribution system is extensive, the volume of water in the distribution piping should be considered when determining how much chlorine to use.

- Draw down the level of water in the storage tank, but keep sufficient quantity for fire flow, if required.
- Pour the chlorine into the tank as the tank is refilling, in order to get some mixing.
- (Steps 5-8 are identical for both types of disinfection operations.) Beginning with the outlet closest to the point of chlorine addition (that is, either the source or the reservoir) draw water at every outlet until you can smell chlorine. To be more accurate, use a chlorine residual test kit. DOH recommends that every water system own a such a kit. Turn off each outlet once chlorine is detected.
- Allow the chlorine to remain in the system overnight (24 hours is preferable.) Chlorine needs time to do an effective job of disinfecting.
- Use one or more outside faucets, blow-offs, hydrants, etc. to draw water out of the system to remove the chlorine. The system should be thoroughly and repeatedly flushed to remove the chlorine. During this process, make sure you don't damage a pump by drawing water down below the pump intake. **Chlorinated water is extremely toxic to fish. It should never be discharged to any water body, wetland, or drainage ditch. High chlorine residuals must be dechlorinated before discharge.**
- After following this procedure and rendering the water completely free of disinfectant, you should wait a minimum of seven days following disinfection before collecting a bacteriological sample. (Note: If you are disinfecting in follow-up to an Acute Total Coliform Rule MCL violation, you should be working with the DOH Regional Office Coliform or Engineering staff to determine when coliform sampling should occur relative to chlorination and flushing.) The chlorine residual should be measured and noted on the coliform lab slip whenever coliform samples are collected. In follow-up to an emergency disinfection event, the measurement of a zero residual is worthy of note too. The bacteriological analysis will indicate whether or not the system disinfection was effective.

If you have any questions about disinfecting your system, please call your DOH regional engineer or coliform program staff member:

Northwest - Carol Stuckey or Jennifer Prodzinski, 253-395-6775

Southwest - Sandy Brentlinger, 360-753-5090

Eastern - Pat McCaffery, 509-456-2788

Other, more detailed references regarding disinfection of water system facilities include:

- American Water Works Association (AWWA) Standard C564-87, "Disinfection of Wells"
- AWWA Standard C651-92, "Disinfecting Water Mains"
- AWWA Standard C652-92, "Disinfection of Water-Storage Facilities"

These AWWA standards assume that the component being disinfected, such as a well or storage tank, is isolated from the rest of the system during the disinfection. For this reason, these references discuss chlorine doses significantly higher than those discussed above. Such high dose should not be used if there is a chance that any water system user could consume, or otherwise utilize, the water.

What chlorine dose is needed?

A chlorine dose of 1 to 2 ppm (mg/L) should be sufficient whenever contamination is suspected (such as following a pressure loss due to a power outage) or in response to a Non-Acute MCL violation of the Total Coliform Rule. In some cases when responding to a Non-Acute violation, this dose may not be sufficient and a larger dose such as 3 to 4 ppm might be needed. Larger doses may be required in response to an Acute MCL violation of the Total Coliform Rule or when a known bacteriological cross-connection has occurred. Please consult with your DOH regional office in these cases.

Note: *There is a regulatory maximum chlorine residual for systems that disinfect full-time. That maximum residual is 4 ppm. It is therefore recommended that for emergency disinfection, the chlorine dose be such that this maximum is not surpassed.*

Notes related to the tables

Volume of bleach needed, $V_1 = (C_2 \times V_2) / C_1$, in gallons, where

C_2 = desired chlorine dose, ppm

V_2 = the volume water to be treated, gallons

C_1 = the concentration of the bleach solution, ppm

Well volume = $7.48 \times H \times 3.14 \times (D/12)^2 / 4$, in gallons, where

H = the height of water standing in the well, in feet

D = the well casing diameter, in inches

5-1/4 % household bleach contains 52,500 ppm hypochlorite

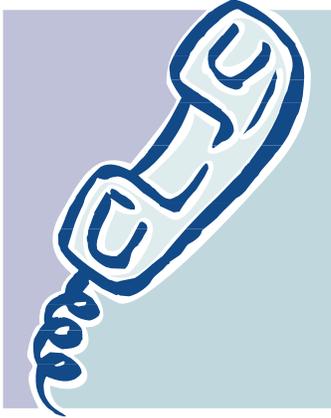
12 % bleach contains 120,000 ppm hypochlorite

1 cubic foot of water = 7.48 gallons

1 gallon = 16 cups

1 cup = 16 tablespoons (Tbsp) or 8 fluid ounces

Training and Education Calendar Sept. - Dec. 2001



To register call these contacts...

WETRC

Washington Environmental
Training Center
253-288-3369

ERWOW

Evergreen Rural Water
of Washington
509-962-6326

Laura Szentes
(425) 868-1144

Jeff Long
(208) 343-7001

Scott Hemingway
(509) 962-6326

Cheris Lane
(503) 873-8353

Jacquie Andresen
(360) 725-5002

<u>Date</u>	<u>Topics</u>	<u>Location</u>	<u>Contact</u>
Sep 10-11	ERWOW Fall Conference	Ocean Shores	ERWOW
Sep 11-13	CCCS CERT Review	Auburn	WETRC
Sep 11-13	WDM CERT Review	Yakima	WETRC
Sep 12-14	Cross Connection Cntrl Spec Certif Review	Ocean Shores	ERWOW
Sep 17-21	BAT Course & Exam	Auburn	WETRC
Sep 18-20	WDM CERT Review	Everett	WETRC
Sep 25-27	CCCS CERT Review	Everett	WETRC
October	Basic Electrical Training	TBA	ERWOW
Oct 4	Disinfection & Disinfection By-Product	Bellevue	Laura Szentes
Oct 5	Cross Connection Program Review	Yakima	ERWOW
Oct 12	Asbestos Cement Pipe	Auburn	WETRC
Oct 15	Chlorination Basics*	San Juan Islands	ERWOW
Oct 15-16	Risk Communication*	Boise, Idaho	Jeff Long
Oct 15-19	BAT Course & Exam	Auburn	WETRC
Oct 16-18	Pump Op & Maintenance	Tacoma	WETRC
Oct 17	Chlorination Basics*	Winthrop	ERWOW
Oct 18-19	Risk Communication*	Shelton	Scott Hemingway
Oct 22-23	Risk Communication*	Tillamook, OR	Cheris Lane
Oct 22-26	BAT Course & Exam	Auburn	WETRC
Oct 23	Chlorination Basics*	Deer Park	ERWOW
Oct 23-25	Basic Electrical	Tacoma	WETRC
Oct 24	Chlorination Basics*	Pomeroy	ERWOW
Oct 30	Drinking Water Seminar 2001 Safe Drinking Water, Healthy Communities	Lacey	WETRC
Nov 1	Drinking Water Seminar 2001 Safe Drinking Water, Healthy Communities	Mount Vernon	WETRC
Nov 2	Cross Connection Program Review	Shelton	ERWOW
Nov 6-8	Infrastructure Assistance Coordinating Council (IACC) Conference	Wenatchee	Jacquie Andresen
Nov 8	Trench Safety	Bellevue	Laura Szentes
Nov 13-14	Process Control & Instrument	Auburn	WETRC
Nov 15	Drinking Water Seminar 2001 Safe Drinking Water, Healthy Communities	Pasco	WETRC
Nov 26-30	BAT Course & Exam	Auburn	WETRC
Dec 3-7	BAT Course & Exam	Auburn	WETRC
Dec 6	Basic Water Works for Office Staff	Kirkland	Laura Szentes
Dec 7	Cross Connection Program Review	Woodland	ERWOW
Dec 10-14	BAT Course & Exam	Auburn	WETRC
Dec 11-13	Water Works, Basic	Tacoma	WETRC

Additional Training Links:

ERWOW Website - <http://www.ERWOW.org>

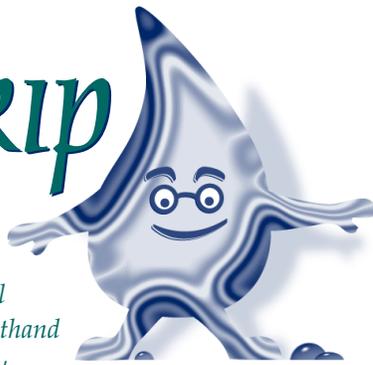
WETRC Website - <http://www.ivygreen.ctc.edu/wetrc>

AWWA Pacific NW Section - <http://www.pnws-awwa.org/index.cfm>

*Indicates
training is less
than \$25.00

**For the complete Training Calendar visit the Drinking Water
Homepage & click on Training - www.doh.wa.gov/ehp/dw**

DR. DRIP



Dear Dr. Drip,

Some people say you should never use acronyms in professional communications, but hey, it's shorthand and saves time, right? I notice you guys use acronyms here and there. Sometimes I know what they mean, sometimes I don't. How about a guide to acronyms in your newsletter?

Whatzit Meen

Dear Whatzit:

You're right, a few acronyms among friends are just fine, but we try not to overdo them. To see how acronym-savvy you are, try the following quiz. All these are in this newsletter.

AWWA

1. American Water Works Association
2. Accounting While Wandering Around
3. Association of Water Witching Activists

BAT

1. Bubble Action Treatment
2. Backflow Assembly Tester
3. Boss Assessment Training

D/DBPR

1. Disinfection/Disinfection By products Rule
2. Do/Don't Bypass Procedural Reference
3. Debriefing/Discussion By Preplanned Ritual

DWSRF

1. Deep Water Source Recognition Framework
2. Drinking Water State Revolving Fund
3. Done With Significant Real Fun

ESHB

1. Enhanced Subsurface Holographic Bitmap
2. Engineering Society for Hydro Ballistics
3. Engrossed Substitute House Bill

MCL

1. Maximum Confoundment Level
2. Maximum Contaminant Level
3. Manual of Confusion Liability

SDWA

1. Sufferin' Dudes Water Association
2. Safe Drinking Water Act
3. Single Dipole Wave Action

TNC

1. Tick and Newt Control
2. Transient Noncommunity
3. Tricky New Concept

WAC

1. Washington Administrative Code
2. Water Accountability Control
3. Wisecrack Abatement Council

Good Luck,

Dr. Drip

PS: As you may have guessed, Drip isn't my real name. DRIP is actually an acronym. Maybe I'll reveal its meaning in the next issue.

New Source Metering Rule Proposed

Comment period for Ecology's draft rule, *Measuring and Reporting Water Use*, is from August 15 to September 24, 2001

Under 1993 state law (RCW 90.03.360) measuring is required for all water diversions. The Department of Ecology must require measuring as a condition for all new surface water right permits, and for existing water rights that meet either of the following two criteria:

- Surface water diversions greater than one cubic foot of water per second, or,
- Diversions and withdrawals from surface and ground water sources that support fish stocks classified as critical or depressed by the Washington Department of Fish and Wildlife.

In March 1999, environmental groups filed suit against Ecology for not complying with the 1993 water measurement law. Under the court ruling, Ecology is required to revise the current state rule, which was written in 1969, by December 31, 2001.

A draft of Chapter 173-173 WAC, Requirements for Measuring and Reporting Water Use, is now available for review and comment. This draft rule will replace Chapter 508-64 WAC.

The proposed revisions focus on updating the old rule and including information from the 1993 measuring law.

For more information and a list of hearing dates and locations, visit Ecology's web page, Measuring Water Use, at www.ecy.wa.gov/programs/wr/measuring/measuringhome.html or call Jeff Marti, Department of Ecology, 360-407-6636.

Drinking Water Seminar Coming This Fall



This year's drinking water seminar, entitled **Safe Drinking Water, Healthy Communities**, will be presented in three locations:

- Lacey - October 30
- Mount Vernon - November 1
- Pasco - November 15

The seminar is designed to benefit water supply system operators, managers, owners, and staff responsible for complying with Washington's drinking water regulations. Local health department staff who enforce the regulations will also find the material useful. The cost is \$35, and it is anticipated that participants will receive .6 CEU.

The topics and presenters will be:

Introduction, Fred Delvecchio, WETRC.

Directions and Priority Issues for 2002, Gregg Grunenfelder, Division of Drinking Water.

Communicating Information and Risk to the Public, Dr. Maxine Hayes, State Health Officer

Drought Response and Water Use Efficiency, Rich Hoey, Division of Drinking Water.

Operator Certification, Cheryl Bergener and Paula Smith, Division of Drinking Water.

Understanding Sanitary Surveys, Dan Sander, Division of Drinking Water.

The Challenge of Financing Water System Facility Needs, Rich Sarver, Division of Drinking Water, and representatives from three utilities.

To register or get more information call WETRC toll-free in Washington state, 1-800-562-0858.

In This Issue

The following people contributed to the production of this issue of the Water Tap: Peter Beaton, Cheryl Bergener, Christine Corrigan (Ecology), Steve Deem, Chris Gagnon, Gregg Grunenfelder, Penny Hansen (Utilities and Transportation Commission), Rich Hoey, Jim Hudson, Steve Kelso (Editor), Meliss Maxfield, Paula Smith, Ginny Stern, Carol Stuckey, Ronni Woolrich. The Department of Health, Division of Drinking Water, publishes the Water Tap to provide information to water system owners, water works operators, and others interested in drinking water.

Comments and questions are welcome. Past issues are available by writing to the editor, the Water Tap, Division of Drinking Water, PO Box 47828, Olympia, WA 98504-7828, or email your request to steve.kelso@doh.wa.gov. Past issues are also available on the web at <http://www.doh.wa.gov>

 *printed on recycled paper*

• IACC Conference - November 6-8

October 18-19

• EPA Risk Communication Course -

October 30, November 1 and 15

• Drinking Water Seminars -

Upcoming Events

BULK RATE
US POSTAGE PAID
Washington State
Department of Printing

Department of Health
Division of Drinking Water
PO Box 47822
Olympia, WA 98504-7822
1-800-521-0323