

Oregon Public Health and the Department of Justice work to bring safe water to a Lincoln County public water system

Rose Lodge Water Company in Otis was supplying unsafe drinking water to hundreds of its customers

[The following is a press release issued by the Department of Justice on April 21, 2011.]

The Oregon Public Health Division along with Attorney General John Kroger today announced a Lincoln County Circuit Court ruling ordering the immediate sale of an Otis water company that provided untreated, untested and unfiltered water to about 600 homes in violation of the Oregon Drinking Water Quality Act.

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Program update

by Dave Leland

The last several months have been dominated by the Oregon legislative session, the state General Fund budget, and federal budget and deficit reduction.

The Oregon Legislature convened in January. Two specific bills were tracked by the Drinking Water Program. HB 3458, allowed backflow testers to do in-line repairs of backflow assemblies, but failed to gain stakeholder agreement, and so will be considered again next session. SB 693 required the Oregon Health Authority to set standards for and regulate packaged ice. This bill was amended to replace the reference to OHA with the more appropriate reference to the Oregon Department of Agriculture, which is the agency currently regulating packaged ice.

The Governor's Balanced Budget for 2011-2013 was issued in early February, as constitutionally required. The GBB proposed a fund shift for drinking water, replacing all \$4 million in current General Fund moneys with fee revenue. Making this work requires new fee authority, and time left in the session is short to make that happen. State agency budgets will be worked on again in late May or early June following the final revenue forecast to be issued in May, so no further news is expected until then.

After many months of continuing resolutions, and a last-minute reprieve from a national

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Lincoln County Circuit Court Judge Sheryl Bachart has signed an order requiring the appointment of a special master, or supervisory authority, to oversee the immediate sale of Rose Lodge Water Company, Inc., a public water system that supplied untreated surface water that potentially exposed people to numerous harmful pathogens and chemicals.

"We are confident that now the residents of this area will soon have a water system that provides safe drinking water," said Gail Shibley, Administrator of the Oregon Health Authority's Office of Environmental Public Health.

The Oregon Department of Justice worked with the Oregon Health Authority's Environmental Public Health Office to enforce drinking water quality standards. The extensive investigation found that, for at least two years, Rose Lodge Water Company delivered untreated, untested and unfiltered water to its customers. During that time, several consumers experienced illnesses that may have been caused by ingesting the water, including diarrhea, abdominal cramping, flu-like symptoms and extended periods of stomach sickness and digestive problems, according to affidavits in the case.

The court case came after Rose Lodge failed to respond to a series of attempted administrative actions by Oregon Public Health officials, including issuing notices of violations and assessing civil penalties. The action announced today will ensure that Rose Lodge is sold to a responsible party that will improve the systems to provide safe water. The Oregon Office of Environmental Public Health will continue monitoring the system.

"Oregonians should not have to second guess whether their drinking water is safe. There is absolutely no excuse for compromising public health," said Attorney General Kroger.

Senior Assistant Attorneys General Shannon O'Fallon and Stephanie Parent handled the case for the Oregon Department of Justice in conjunction with Joseph Carlson from the Oregon Health Authority.

Attorney General John Kroger leads the Oregon Department of Justice. The Department's mission is to fight crime and fraud, protect the environment, improve child welfare, promote a positive business climate, and defend the rights of all Oregonians.

Public water systems such as Rose Lodge are protected under Oregon's Drinking Water Quality Act, to minimize the public health risk from contaminants in drinking water. The Oregon Drinking Water program emphasizes prevention of contamination through source water protection, provision of technical assistance to water systems, and provides water system operator training so that Oregonians have safe drinking water.

The Oregon Drinking Water program lists all of its inspection and violation data on line. Oregonians can access data about their drinking water system at the Public Health web site.

**PWS ID: 00722 ---- BOULDER CREEK WS/
ROSE LODGE: Violations Summary**
[http://170.104.63.9/violsum.
php?pwsno=00722](http://170.104.63.9/violsum.php?pwsno=00722)

**PWS ID: 00482 ---- BEAR CREEK HIDEOUT/
ROSE LODGE: Violations Summary**
[http://170.104.63.9/violsum.
php?pwsno=00482](http://170.104.63.9/violsum.php?pwsno=00482)

government shutdown, the federal fiscal year 2011 budget is now in place. For drinking water, EPA primacy grants to states remain at current funding levels (Oregon gets about 1.6 percent of the national primacy grant total). However, the EPA drinking water revolving loan fund appropriation was reduced nearly 31 percent from the federal FY 2010 level to a total of just under \$1 billion. Oregon currently gets the minimum 1 percent of that national allocation, which works out to about \$10 million. We are hopeful that a more thorough and complete infrastructure needs survey, now under way in Oregon and all other states, will lead to an increase in Oregon's share in the future.

Expect a report on the outcomes of the 2011 Legislature in our summer edition!

Dave Leland is manager of the Drinking Water Program / 971-673-0415 or david.e.leland@state.or.us

Congratulations to our Outstanding Performers:

Water system name	County served
Albany Trailer Court	Linn
Ashdown Wood Water Company	Clackamas
Cove, City of	Union
Dietz Air Park Water System	Clackamas
Garibaldi Water System	Tillamook
Gervais Water Department	Marion
Glenmorrie Cooperative Assn	Clackamas
Indian Meadow Water Company	Deschutes
Johnson Creek Water Service	Lincoln
Kingswood Heights Water Co-op	Clackamas
Mount Vernon, City of	Grant
Netarts Water District	Tillamook
North Clackamas County WC	Clackamas
Oaks Mobile Home Park	Lane
Oakwood Water System Inc	Linn
Salmon Valley Water Company	Clackamas
South Fork Water Board	Clackamas
Tollgate Water Company	Deschutes
Wilson River Water District	Tillamook

These are the public water systems that have most recently met the established criteria for outstanding performance. Outstanding performers are systems with no significant deficiencies identified, as well as no unresolved violations. All systems are evaluated during their routine Water System Survey, and those that meet the outstanding performer criteria have their survey frequency (and fee!) reduced from every 3 years to every 5 years. To find out how to qualify, visit <http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/osp.aspx>.

DWP develops resources for cyanobacteria and drinking water

by Casey Lyon, R.E.H.S.

Cyanobacteria or blue-green algae are some of the smallest creatures on earth, but can cause big problems for public water systems (PWS). Not only do cyanobacteria clog filters, cause taste and odor complaints and are a general mess, cyanobacteria have the unique ability to produce toxins, known as cyanotoxins. Cyanotoxins are harmful to human and animal health. In 1996, 76 people in a kidney dialysis center in Brazil died from exposure to cyanotoxins in the water. Microcystin and cylindrospermopsin were the toxins found in the water that caused the acute liver failures. Microcystin was found at a concentration of 19 ppb; the World Health Organization threshold guideline is set at 1 ppb for microcystin. Laboratory analysis has confirmed that a potent cyanotoxin, called anatoxin-a, has killed dogs for two years in a row in Oregon. In 2009, laboratory analysis of the stomach contents of a dog exposed to cyanotoxins on the North Umpqua near Elkton revealed an anatoxin-a concentration of 10 ppb. In 2010, the stomach contents of a puppy exposed to cyanotoxins near Lawson Bar on the South Umpqua River had a measured anatoxin-a concentration of 100 ppb. Microcystin and anatoxin-a are the primary cyanotoxins of concern in Oregon, cylindrospermopsin is also of growing concern.

The Oregon Drinking Water Program (DWP) has recently made some significant changes regarding cyanobacteria and PWSs. Because the Environmental Protection Agency (EPA) has not yet developed any standards for these harmful cyanotoxins, states, such as Oregon, are developing their own health-protective measures with help from other states, countries and international organizations, such as the World Health Organization. The Oregon DWP is asking PWSs that are affected by cyanobacteria to test their water weekly during an algae bloom and provide public notice if necessary.

The response flow chart on page 5 describes the process a PWS is to follow when there is a suspected cyanobacteria impact to source water:

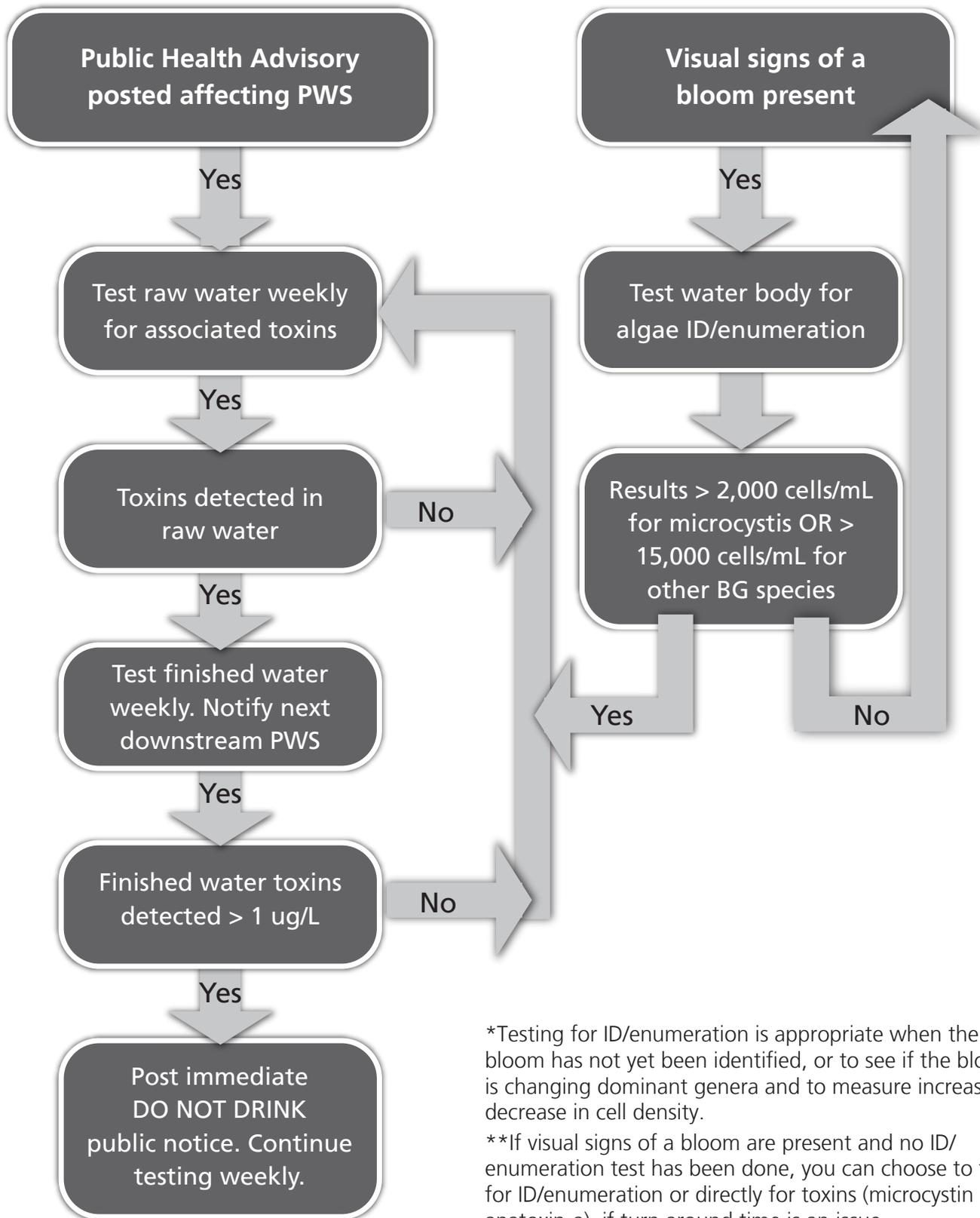
- First, collect a sample for identification and enumeration from the source waterbody to see if it is a toxin-producing harmful algae bloom (HAB).
- If so, the second thing to do is to test the raw water weekly for any toxins that are associated with the HAB throughout the bloom. Testing the water is the only way to know for sure if the water is safe to drink.
- If toxins are detected in the raw water, start testing the finished water weekly for associated toxins and notify any downstream PWS.
- If toxins are found in finished water, above 1 ppb, post a "DO NOT DRINK" public notice.

Weekly testing for these toxins can be expensive. The Oregon DWP recognizes this challenge and will attempt to cover the cost of toxin testing and shipping in 2011 through use of a limited federal drinking water protection grant. Here is how it works:

1. The PWS contacts their state regulator to discuss the particular situation in detail regarding an algae bloom and how it is affecting the PWS.
2. Upon approval by the DWP, the PWS will collect and ship the samples to a lab for weekly toxin analysis until the bloom is gone.
3. The PWS will send the invoices and test results from the lab and shipping to the DWP for payment. It is important to stay in communication with your state regulator regarding all test results, any changes in bloom activity and any treatment modifications during the bloom. Please make sure all the test results are sent to the state for record keeping.

Continued on page 6

Harmful algae bloom response flow chart for public water systems



*Testing for ID/enumeration is appropriate when the bloom has not yet been identified, or to see if the bloom is changing dominant genera and to measure increase or decrease in cell density.

**If visual signs of a bloom are present and no ID/ enumeration test has been done, you can choose to test for ID/enumeration or directly for toxins (microcystin and anatoxin-a), if turn around time is an issue.

Treatment: There are several types of treatment that can be effective at removing cyanobacteria and their associated toxins. Historically, PWSs have used algaecides, such as copper sulfate, to get rid of the bloom; unfortunately, these types of chemicals and other oxidizing agents essentially break the cells apart releasing toxins into the water. Try to gently remove the intact cells because doing this will also remove most of the toxins as they are stored inside the intact cell. When the bloom is dying off or cells are breaking, the toxins are released and should be at their highest level; toxin levels should then decrease over the next three weeks. Treatment that is effective at removing intact cells are conventional particulate removal (> 90% expected removal) consisting of flocculation, sedimentation and filtration. Membrane filters (> 99% expected removal) and slow sand filtration (> 99% expected removal) are also very good at removing intact cells. Direct filters and cartridge filters are not as effective (> 60 % expected removal) and require frequent backwashing and filter replacements.

Once the intact algae cells are removed or filtered from the water, try to degrade or adsorb any soluble toxins that may be present after filtration. Chlorine can effectively degrade

microcystin (>80% expected removal with proper CTs; see CT chart below). Chlorine is not effective against anatoxin-a. Ozone is another strong oxidant that is very effective against both microcystin and anatoxin-a (>98% expected degradation). Activated carbon is good at improving taste and odor and can also remove the toxins. UV light alone has not been very effective at degrading cyanotoxins, although advanced UV with hydrogen peroxide has shown some positive results against microcystin. See the treatment graph below left for more information regarding treatment.

For more information regarding cyanobacteria and water treatment, please go to our new algae Web page at: <http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/algae.aspx>. For more information regarding HAB and cyanobacteria, visit healthoregon.org/hab.

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Known efficiency of unit treatment considered

	Cl ₂	O ₃	KMnO ₄	PAC
Microcystins	Efficient under normal operating conditions			
Anatoxin-A	Inefficient	Efficient under normal operating conditions	Efficient under normal operating conditions	Efficient under normal operating conditions
Cylindrospermopsin	Efficient under normal operating conditions	Efficient under normal operating conditions	Inefficient	Efficient under normal operating conditions
Saxitoxins	Efficient under normal operating conditions	Inefficient	Efficient under normal operating conditions	Efficient under normal operating conditions
	Efficient under normal operating conditions			
	Efficient under certain conditions			
	Inefficient			
	Unknown efficiency			

From Mouchet & Bonnélye, 1998; Newcombe & Nicholson, 2004; Rodriguez et al. 2007.

Chlorine CT values required for reducing microcystin LR concentration to 1 ug/L

Example: If you know the toxin level is 50 ppb and you want to reduce the level down to 1 ppb, with a temperature of 10° C and pH of 7, you will need a CT of 67.7. High pH water takes longer to degrade microcystin.

pH	Microcystin- LR Concentration	CT (mg/l x min)			
		10°C	15°C	20°C	25°C
6	50 µg/l	46.6	40.2	34.8	30.8
	10 µg/l	27.4	23.6	20.5	17.8
7	50 µg/l	67.7	58.4	50.6	44.0
	10 µg/l	39.8	34.4	29.8	25.9
8	50 µg/l	187.1	161.3	139.8	121.8
	10 µg/l	110.3	94.9	82.8	71.7
9	50 µg/l	617.2	526.0	458.6	399.1
	10 µg/l	363.3	309.6	269.8	234.9

Westrick, J. A. (2003). Everything a manager should know about algal toxins but was afraid to ask. JAWWA 95 (9):26-34.

What is your certification number?

by Dottie Reynolds

Quick, what is your certification ID number? It will start with a D or a T

But what are the four digits after that? It is either D-1234 or T-1234. Do not forget the dash. Your certification number is individually assigned to you. And no one else! Your certification number is your personal water industry work number. Why should you bother remembering your certification number? A couple of reasons:

✓You will need your certification number in order to log on for the yearly online renewal and electronic payment, or to change your address or telephone number. Please get used to renewing your certification online.

✓If you are a certified operator, you will need your certification number every time you attend a class, training or conference. It is a requirement to write down your certification number as well as signing the class attendance roster. We did away with asking for Social Security ID numbers and are asking for your certification ID number instead.

Where is your current wallet certificate? Uh hah! Not in your wallet you say? Please always remember to put your wallet certificate in your wallet. You will then always have the number at your disposal.

Where is your current wall certificate? Each time you pass an exam you should receive a new wall certificate with your certification type and level, the program manager signature and the Oregon State Seal. Put the certificate in an 8"x11" frame and attach it on your office wall or next to your work station! Show off your professional certification to others!

Congratulations to the April exam takers! One hundred percent passed their exams!

Dottie Reynolds is the Operator Certification Unit coordinator in the Drinking Water Program / 971-673-0426 or dottie.e.reynolds@state.or.us



Surface water systems – Do you need a tracer study?

by Gregg Baird

Oregon drinking water rules require water systems to conduct a tracer study to determine actual contact time (T) in reservoirs and clearwells that are used for disinfection to treat surface water. A tracer study involves sending a known quantity of a tracer (usually chlorine or fluoride) through the reservoir or clearwell and tracking how long it takes (in minutes) for 10% (also known as T_{10}) to be detected. The contact time is the number that is recorded in the "T" column of the surface water quality report that is submitted monthly to the state. Contact time (T) is multiplied by the concentration of chlorine (C) to determine the actual CTs that a treatment plant is achieving.

You need to do or redo a tracer study if any of the following are true:

- You are a public water system that uses surface water and you have never done a tracer study or you are not sure how the contact time for your system was determined;
- You have added or subtracted a reservoir or clearwell that is used for contact time since the last tracer study;
- You used an estimated peak demand flow or plant flow in your original tracer study. Some older tracer studies used estimates of peak demand flow and this is no longer allowed. Peak demand flow coming out of a reservoir as measured by a flow meter must be used because it may be greater than plant flow;
- You used an estimated baffling factor in order to calculate the contact time;
- The current peak demand flow is more than 10% greater than the peak flow at the time of the last tracer study.

The state Drinking Water Program (DWP) encourages all surface water treatment plant operators to review their last tracer study and make sure it is still valid and that they understand how contact time T was determined. If you are unsure whether your tracer study is still valid, call your DWP representative. Remember: it is a significant deficiency if it is identified during a water system survey that a tracer study needs to be done!

Special note about plug flow: If you know for sure that all the disinfection contact time for your treatment plant is achieved in a transmission pipeline, then a tracer study may not be required. Since water moves as a whole unit through a pipe (plug flow), the contact time (T) can be determined from a calculation based on the volume of the pipe and the flowrate.

Community water systems that serve populations of fewer than 10,000 people are eligible to use the DWP circuit rider, HBH Consulting Engineers, to conduct a tracer study at no cost. To utilize the circuit rider, contact Robert Henry at 503-625-8065 or 1-866-669-6603, or e-mail rhenry@hbh-consulting.com and let him know you want to use the DWP circuit rider program for a tracer study.

If you decide to use your own consultant or use your own staff to do the tracer study in-house, please submit a proposal detailing how the tracer study will be conducted to your DWP representative for review and approval prior to conducting the study. Once the tracer study is complete, submit a copy of the results to the state DWP. After the final tracer study is reviewed and approved, you can begin to use the new contact time (T) to calculate daily CTs achieved on your monthly surface water quality report!

Gregg Baird is an environmental specialist in the Technical Services Unit of the Drinking Water Program / 971-673-0410 or gregg.c.baird@state.or.us

New! DWP offers advanced Small Water System Training Course 201

Operators of community or non-transient non-community small groundwater systems (<150 connections) must recertify every three years. Up to now, there was only one course that these operators could take to meet the recertification requirement — the free Basics for Small Water Systems (SWS) training course, taught in recent years by OAWU, or the equivalent training offered online.

This year, in addition to the basic course, the Oregon Drinking Water Program (DWP) is piloting an **advanced** course for groundwater system operators that have completed the basic SWS training course two or more times. If you meet these criteria, you may prefer to take the new hands-on course that we are calling “SWS 201” for your next recertification training. The advanced course will be taught by DWP staff less frequently than the basic course: only four times a year, at locations that vary throughout the state.

This free one-day course is designed with an interactive format for a smaller group of participants. It will cover topics not addressed in the original Small Water System class, such as:

- The basics of water treatment (calibrating equipment, calculating dosages, maintaining chlorine residual, etc.);
- How to properly disinfect wells, lines, and storage tanks;
- Operator responsibilities under the Ground Water Rule; and
- Determining appropriate management practices to protect the quality of your drinking water source.

As with the original Small Water System operator course, SWS 201 is free, and will provide the required CEUs for operator recertification.

The next SWS 201 class offerings will be:

Sept. 14, 2011 8:30 – 4:30 Register by: August 24	Deschutes Service Building De Armond Room 1300 NW Wall St, Bend, OR 97701
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Oct. 26, 2011 8:30 – 4:30 Register by: October 5	Clackamas Community College Gregory Forum Room 108A 19600 Molalla Ave Oregon City, OR 97045
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Class size will be limited to allow for the hands-on activities, so register early if possible, and at least by the cutoff date listed at left. The lead time allows our instructors to prepare materials specific to the water systems that will be represented in the classroom. SWS 201 registration will be handled by our DWP Springfield office. Sign up by contacting Drue Edney at 541-726-2587, Ext. 25, or drue.edney@state.or.us.

- To register, contact Drue Edney at 541-726-2587, Ext. 25, or drue.edney@state.or.us.
- For other questions about the new SWS 201 course, call Betsy Parry at 541-726-2587, Ext. 30.
- For operator certification questions, see our website (<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/certif.aspx>) or call Dottie Reynolds or Lee Keyes at 971-673-0413, or 1-800-422-6012.

It's coming! Mark your calendars!

by Adam DeSemple

The 2011 Drinking Water State Revolving Loan Fund Letter of Interest will be released in July 2011.

Who is eligible for the Drinking Water State Revolving Loan Fund?

Public water systems that are classified as "community" and/or "non-transient non-community" are eligible to receive funding for projects necessary to comply with public drinking water standards specified within the 1996 Safe Drinking Water Act amendments. A portion of the state revolving funds targets systems serving fewer than 10,000 individuals.

What is offered?

- Loan rates from 1 percent to 4 percent depending on water system type and status; repayment terms from 20 to 30 years;
- Principal forgiveness of equal-to-or-greater-than 30 percent of the loan amount, with an emphasis on "disadvantaged communities," consolidating small or adjacent water systems, and implementing green infrastructure or energy efficiency;
- Loan servicing by Business Oregon (aka: Oregon Business Development Department) — specifically, their newly re-organized section called the Infrastructure Finance Authority;
- Loans tailored to meet the specific funding and repayment requirements of the water system.

What to do?

Submit a Letter of Interest postmarked no later than Sept. 26, 2011. Here's how:

- Go to the Drinking Water SRF website at <http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/srlf.aspx>.

- When available, a direct link to the 2011 Letter of Interest materials will appear there (anticipated in mid- to late July).
- Complete and return a Letter of Interest, which is the preliminary data collection tool for the State Revolving Fund program. The Letter of Interest packet is designed for easy use and will walk you through the necessary information (mostly check-off boxes and short narrative answers). The Letter of Interest can cover any one phase or a combination of phases for a project (e.g., planning, engineering, construction).
- Drinking Water Program circuit riders can assist eligible water systems with Letters of Interest and other funding applications. Please contact Robert Henry of HBH Consulting Engineers Inc. at 503-625-8065 or 1-866-669-6603, or by e-mail at rhenry@hbh-consulting.com.

Need more information?

It's as easy as:

1. **Visiting** the Drinking Water Program website at <http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/index.aspx>;
2. **Calling** our new State Revolving Loan Fund coordinator, Adam DeSemple, at 971-673-0422, or e-mailing him at adam.desemple@state.or.us; or
3. **Contacting** Business Oregon at 503-986-0123, 1-800-233-3306 or online at www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Water-or-Wastewater-Improvement-Project/Safe-drinking-water-revolving-loan-fund/.

Continued on next page

Final note: There are two state agencies involved in the Oregon State Revolving Fund process. Drinking Water Program staff review and rank the incoming Letters of Interest against standard criteria for state revolving funds. Business Oregon's Infrastructure Finance Authority handles "loan servicing." In other words, Infrastructure Finance Authority acts as the "bank" for these

loan funds. You may contact either agency using the information listed.

Adam DeSempole is the State Revolving Loan Fund coordinator for the Drinking Water Program / 971-673-0422 or adam.desempole@state.or.us

Bob Ault is the program specialist for Business Oregon / 503-986-0133 or robert.ault@state.or.us

MEETING CALENDAR

Drinking Water Advisory Committee

Oregon Health Authority
Diane Weis / 971-673-0427

July 20, 2011
October 19, 2011

All meetings are held at the Public Utility Commission Office, 550 Capitol St., N.E., Salem, Oregon, 97310

Cross Connection Advisory Board

Go to: <http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/CrossConnection/Pages/advisoryboard.aspx>

Oregon Environmental Services Advisory Council

Go to: www.oesac.org/meeting_schedule.aspx

TRAINING CALENDAR

CEUs for Water System Operators

Check www.oesac.com for new offerings approved for drinking water

OAWU

503-873-8353
Aug.22-25 Summer Classic XVII

Sept.20-22 Water (WT/WD) Certification Review

Sept.27-29 Water (WT/WD) Certification Review

Oregon APWA Training Program

541-994-3201

June 27-29 Sustainability in Public Works Conference

Cross Connection/Backflow Courses

Backflow Management Inc. (B)
503-255-1619

Clackamas Community College (C)
503-594-3345

Backflow Assembly Tester Course

Sept.12-16 Portland (B)

Backflow Assembly Tester Recertification

June 23-24 Oregon City (C)

June 24 Portland (B)

June 24 Redmond (B)

June 29 Portland (B)

June 30 Portland (B)

Cross Connection Inspector Course

June 20-23 Portland (B)

Continued on next page



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Cross Connection Inspector Recertification

June 24 Oregon City (C)

Aug. 12

Aug. 17

Aug. 22

Bend

Eagle Point

Seaside

Small Water System Training Course

503-873-8353

July 13 Newport

July 19 Klamath Falls

Sept. 13

Sept. 15

Independence

Springfield