

## Drinking water initiatives advance in the 2007 Legislature

by Dave Leland

Thanks to great support from water providers and other stakeholder organizations, initiatives to increase the safety of drinking water in Oregon and improve the capacity of the statewide Drinking Water Program are moving forward!

The Legislature opened its 2007 session in January, and the Department of Human Services-Public Health Division, the Office of Environmental Public Health, and the Drinking Water Program hit the ground running.

The drinking water message to our policy-makers is “a three-part problem with a three-part solution.” The “three-part solution” provides state program capacity for effective oversight, and the means to eliminate the current disparity in safety between large and small drinking water systems.

The three-part problem:

- 1) Current EPA health protection standards are not yet fully implemented in Oregon, and we are unable to implement the new standards so Oregon water suppliers must work with EPA;
- 2) Disparity in public health protection exists between large municipal water systems and small rural water systems;
- 3) No oversight of very small non-EPA public water systems, true number of these is unknown.

The three-part solution (percentages of \$3M in new funding for 2007-09):

- 1) General fund increase for the drinking water program budget (76 percent);

*Continued on page 2*

## New EPA rule boosts protection of underground drinking water

*(Reprinted from the USEPA, Office of Ground Water and Drinking Water Web site [www.epa.gov/ogwdw](http://www.epa.gov/ogwdw))*

On October 11, 2006, EPA finalized the Ground Water Rule. More than 100 million Americans will enjoy greater protection of their drinking water under this new rule issued by the U.S. Environmental Protection Agency (EPA). The rule targets utilities that provide water from underground sources and requires greater vigilance for potential contamination by disease-causing microorganisms.

EPA issued the Ground Water Rule (GWR) on to improve your drinking water quality and provide additional protection from disease-causing microorganisms. Your drinking water comes from source water locations such as:

- Lakes
- Rivers
- Reservoirs
- Ground water aquifers

Water systems that have ground water sources may be susceptible to fecal contamination. In many cases, fecal contamination can contain disease causing pathogens. The GWR will provide increased protection against microbial pathogens.

The GWR will apply to public water systems that serve ground water. The rule also applies to any system that mixes surface and ground water if the

*Continued on page 2*

### Inside

Drinking water initiatives advance in the 2007 Legislature.....	1
New EPA rules .....	1
Radiological sampling due.....	6
Staff updates.....	6
Training calendar .....	7

*Drinking water initiatives in the 2007 Legislature — continued from cover*

- 2) HB 5032 — Approval for current fees raised during 2006 to cover the full cost of service (11 percent):
  - a. Operator certification
  - b. Plan review
  - c. Annual backflow fees for communities — established by the 2005 Legislature
- 3) HB 2187 — New fee for sanitary survey inspections plus federal matching funds (13percent).

In addition, the department initiated SB 156 to establish the Drinking Water Advisory Committee in statute. Taken together, these legislative and budget initiatives will provide a fully capable state/county drinking water program in Oregon.

The need for a fully capable program has become increasingly evident and urgent as EPA national drinking water standards increased in both number and complexity in recent years. The need for additional program capacity has been clearly stated by both EPA and the Oregon Secretary of State. In 2004, the Drinking Water Task Force, consisting of a diverse group of Oregon drinking water organizations and stakeholders, met with the department at the

direction of the 2003 Legislature to reach agreement on program workload and funding. The Task Force identified the department’s workload to effectively implement the state and federal drinking water Acts, and identified the funding sources and amounts needed to carry out that work (*see PIPELINE, Spring 2004*). The “three-part solution” described above is based directly on the recommendations of the task force.

We greatly appreciate the compelling public testimony given in this legislative session by Oregon drinking water suppliers in support of all of the drinking water legislation. That support is vital to assure the future success of safe drinking water in Oregon. The drinking water general fund budget proposal and HB 5032 are both now included in the Ways and Means Co-Chairs’ budget. House Bill 2187 passed the Oregon House on March 19, and now moves to the Senate. Senate Bill 156 passed the Senate on April 4, and now moves on to the House.

Stay tuned!

---

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

---

*EPA Groundwater rule — continued from cover*

ground water is added directly to the distribution system and provided to consumers without treatment.

## Final requirements

The targeted, risk-based strategy addresses risks through an approach that relies on four major components:

- Periodic sanitary surveys of systems that require the evaluation of eight critical elements of a public water system and the identification of significant deficiencies (e.g., a well located near a leaking septic system);
- Triggered source water monitoring when a system (that does not already treat drinking water to remove 99.99 percent (4-log) of viruses) identifies a positive sample during its Total Coliform Rule monitoring and assessment monitoring (at the option of the state) targeted at high-risk systems;

- Corrective action is required for any system with a significant deficiency or source water fecal contamination; and
- Compliance monitoring to ensure that treatment technology installed to treat drinking water reliably achieves 99.99 percent (4-log) inactivation or removal of viruses.

## Questions and answers

### What is the action?

EPA is issuing a rule to further protect America’s drinking water by requiring action to protect ground water sources of public drinking water supplies from disease-causing viruses and bacteria, such as *E. coli*. The rule will protect more than 100 million Americans by requiring identification of deficiencies in water systems that could lead to contamination and corrective actions to reduce risk from any identified deficiencies. The rule includes provisions

for monitoring for systems with sources at risk and actions to remove or inactivate contaminants, if found, to prevent them from reaching drinking water consumers.

### **Why is EPA taking a risk-based approach to protect drinking water provided by ground water systems?**

An evaluation of data on outbreaks and the occurrence of waterborne viral and bacterial pathogens and indicators of fecal contamination in ground water supplying public water system (PWS) wells indicate that there is a subset of ground water systems (GWS) that are susceptible to fecal contamination. Therefore, in 1996, Congress amended the Safe Drinking Water Act (SDWA) to require that EPA take a targeted risk-based approach to require GWSs that are identified as being at the greatest risk of contamination to take action to protect public health. Previously, the 1986 Amendments to the SDWA had included a provision that would have required *all* PWSs using ground water to disinfect. This would have posed a great implementation challenge for approximately 147,000 GWSs and states.

### **What types of pathogens can be found in water provided by ground water systems?**

Ground water that is susceptible to fecal contamination may contain harmful viruses or bacteria. Viral pathogens found in GWSs may include enteric viruses such as Echovirus, Hepatitis A and E, Rotavirus and Noroviruses (i.e., Norwalk-like viruses) and enteric bacterial pathogens such as *Escherichia coli* (including *E. coli O157:H7*), *Salmonella* species, *Shigella* species, and *Vibrio cholerae*. Ingestion of these pathogens can cause gastroenteritis or, in certain rare cases, serious illnesses such as meningitis, hepatitis, or myocarditis. Health implications in sensitive subpopulations may be severe (e.g., hemolytic uremic syndrome) and may cause death.

### **What causes contamination of ground water?**

Viral and bacterial pathogens are present in human and animal feces, which can, in turn, contaminate

drinking water. Fecal contamination can reach ground water sources, including drinking water wells, from failed septic systems, leaking sewer lines, and by passing through the soil and large cracks in the ground. Fecal contamination from the surface may also get into a drinking water well along its casing or through cracks if the well is not properly constructed, protected or maintained.

### **Does this rule address private wells? If not, how does the EPA help protect them?**

This rule does not address private wells because they are not under the jurisdiction of the Safe Drinking Water Act and are therefore not subject to EPA regulation. EPA has provided outreach material to states and homeowners to help them understand how to manage individual wells. EPA recommends that well owners periodically test their water for microbial and chemical contaminants and properly maintain their well. Information is available on EPA's Private Wells Web site.

### **What are the basic requirements of the rule?**

The risk-targeting strategy incorporated into the rule provides for:

- Regular sanitary surveys of public water systems to look for significant deficiencies in key operational areas;
- Triggered source-water monitoring when a system that does not sufficiently disinfect drinking water identifies a positive sample during its Total Coliform Rule monitoring and assessment monitoring (at the option of the state) targeted at high-risk systems;
- Implementation of corrective actions by ground water systems with a significant deficiency or evidence of source-water fecal contamination to reduce the risk of contamination; and,
- Compliance monitoring for systems that are sufficiently disinfecting drinking water to ensure that the treatment is effective at removing pathogens.

*Continued on page 4*

*New EPA rule — continued*

## What is a sanitary survey?

A sanitary survey is a review conducted by the state that looks at critical components of a public water system. The sanitary survey provisions in this rule build on existing state programs established under the 1989 Total Coliform Rule and the Interim Enhanced Surface Water Treatment Rule and give states the authority to define both outstanding performance and significant deficiencies. The rule defines eight specific components that must be reviewed during a survey (to the extent that they apply to the individual water system being surveyed):

1. Source;
2. Treatment;
3. Distribution system;
4. Finished water storage;
5. Pumps, pump facilities and controls;
6. Monitoring, reporting and data verification;
7. System management and operation; and
8. Operator compliance with state requirements.

## What is a significant deficiency?

Significant deficiencies cause, or have the potential to cause, the introduction of contamination into water delivered to customers. This could include defects in design, operation or maintenance of the source, treatment or distribution systems. They could also be represented by the failure or malfunction of those systems. The rule requires each state to define and describe at least one type of specific significant deficiency for each of the eight sanitary survey elements. An example of a source-related significant deficiency could be a well located near a source of fecal contamination (e.g., failing septic systems or a leaking sewer line) or in a flood zone. EPA will develop guidance to help states carry out sanitary surveys and identify significant deficiencies that could affect the quality of drinking water.

## What are the monitoring provisions?

A ground water system is subject to **triggered source water monitoring** if it does not already provide treatment to reliably achieve at least 99.99 percent (4-log) inactivation or removal of viruses. If a system receives notice of a total coliform-positive distribution system sample collected under the Total

Coliform Rule, it must take a source water sample within 24 hours. The system does not have to take a source water sample if the state can determine that the positive sample was due to an issue in the distribution system and not the source. If any initial triggered source water sample is fecal indicator-positive, the system must collect an additional five repeat source water samples over the next 24 hours for each of the sites that was initially fecal indicator-positive. States can also require immediate corrective action to address contamination at those sites.

The GWR also allows states to require systems that do not provide sufficient disinfection treatment to remove 99.99 percent of viruses to conduct **optional assessment source water monitoring** at any time and require systems to take corrective action. States may evaluate the need for assessment monitoring on a case by case basis. EPA recommends that the following risk factors be considered by states in targeting high risk systems:

1. High population density combined with on-site wastewater treatment systems;
2. Aquifers with restricted geographic extent, such as barrier island sand aquifers;
3. Sensitive aquifers (e.g., karst, fractured bedrock and gravel);
4. Shallow unconfined aquifers;
5. Aquifers with thin or absent soil cover; and
6. Wells previously identified as having been fecally contaminated.

For those systems that already treat drinking water to reliably achieve at least 99.99 percent (4-log) inactivation or removal of viruses, the rule requires **regular compliance monitoring** to ensure that the treatment technology installed is reliably removing contaminants.

## What types of options does a system have for corrective actions?

When a system has a significant deficiency or a fecal indicator-positive ground water source sample (either by the initial triggered sample, or positive repeat sample, as determined by the state), the ground water system must implement one or more of the following corrective action options:

1. Correct all significant deficiencies (e.g., repairs to well pads and sanitary seals,

- repairs to piping tanks and treatment equipment, control of cross-connections);
2. Provide an alternate source of water (e.g., new well, connection to another PWS);
  3. Eliminate the source of contamination (e.g., remove point sources, relocate pipelines and waste disposal, redirect drainage or run-off, provide or fix existing fencing or housing of the wellhead); or
  4. Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal or a state-approved combination of 4-log virus inactivation and removal).

### **What are the deadlines for completing actions required by the rule?**

States have two years to adopt the rule. The compliance date for triggered monitoring (and associated corrective actions) and compliance monitoring is December 1, 2009. There are no timeframes associated with the assessment monitoring because it is at the option of state. States must complete their initial round of sanitary surveys by December 31, 2012 for most community water systems. States will have until December 31, 2014 to complete the initial sanitary survey for community water systems that are identified by the state as outstanding performers and noncommunity water systems.

### **What are the costs of the rule?**

The estimated mean annualized present value costs are \$61.8 million (three percent discount rate) and \$62.3 million (seven percent discount rate). As a whole, EPA estimates that households subject to the rule will face minimal increases in their annual costs. Approximately 66 percent of the households potentially affected by the rule are customers of systems that serve at least 10,000 people. Households served by small systems that take corrective actions will face the greatest increases in annual costs. If one assumes that all costs are passed to consumers, the annual household costs for community water systems (including those that do not add treatment) range from \$0.21 to \$16.52. Annual household costs for the subset of community water systems that take corrective actions range from \$0.45 to \$52.38.

### **What are the benefits of the rule?**

The estimated mean annualized present value costs benefits calculated using an enhanced cost-of-illness approach are \$19.7 million (three percent discount rate) and \$16.8 million (seven percent discount rate). The estimated mean annualized present value costs benefits calculated using a traditional cost-of-illness approach are \$10 million (three percent discount rate) and \$8.6 million (seven percent discount rate). It is estimated that this new rule will annually prevent approximately 42,000 cases of illness (mean value) from rotavirus and echovirus. In addition, nonquantified benefits from the rule resulting in illness reduction from other viruses and bacteria are expected to be significant. Reductions in acute bacterial illness and deaths alone are expected to exceed five times the quantified benefits.

### **How will drinking water systems pay for the new requirements?**

Under the Safe Drinking Water Act Amendments of 1996, Congress created a new financial assistance program to help states and communities finance the costs of improving drinking water treatment facilities. To date, more than \$8.6 billion has been appropriated by Congress to ensure that local drinking water systems have the resources to protect America's drinking water and states are providing more than \$1 billion annually to public water systems to finance costs of infrastructure needed to improve public health protection and ensure compliance with regulations.

### **What is EPA doing to assist small systems?**

Through their Drinking Water State Revolving Fund programs, states must annually provide a minimum of 15 percent of their drinking water loans to systems serving fewer than 10,000 people. These loans will help pay for fixing defects in systems or adding disinfection. EPA will be developing a variety of guidance documents for small system operators to inform them about new requirements associated with the rule, best available technologies to meet new requirements, and funding available to them.

## Reminder — Radiological sampling due in 2007

by Kari Salis

Community water systems who *did not* collect one round of radiological samples (Gross Alpha, Radium-226 and -228, and Uranium) before December 8, 2003 *must* collect *quarterly* samples for these contaminants *now*. Only community water systems are required to monitor for radiological contaminants.

Community systems must collect four consecutive quarterly samples. However, if the results of any radiological contaminant are below the detection limit after two quarterly samples, the last two quarters can be waived.

The next compliance period for radiological sampling begins in 2008. The required frequency will depend on either results from before

December 8, 2003, or the average of the quarterly sampling. If the contaminant was not detected, the required frequency is every nine years. If the contaminant was detected at an amount less than half the Maximum Contaminant Level (MCL), the required frequency is every six years. If the contaminant was detected at an amount that is more than half the MCL, the required frequency is every three years. If the MCL is exceeded, quarterly monitoring is required to determine compliance.

Aren't sure what sampling has already been done? Check the "Radiologicals" button on our "Data Online" Web site. You may be done for a few years, or you may need to act fast to be sure to get all your results in by the end of 2007.

---

*Kari Salis, PE, is in the Technical Services Unit of the Drinking Water Program / (971) 673-0423 or [karyl.l.salis@state.or.us](mailto:karyl.l.salis@state.or.us)*

---

## Staff updates

**Joseph Auth** joined the Technical Services Unit of the Drinking Water Program in January 2007. He is the new Regional Engineer for water systems in Columbia and Yamhill counties. His primary responsibilities are sanitary surveys of systems in Columbia and Yamhill Counties, plan review, regulatory assistance, assisting systems that are out of compliance and providing training to operators. Joseph is a registered Professional Engineer (PE) in Civil Engineering and brings more than five years of experience working for the Departments of Transportation in both Oregon and Washington. He can be contacted directly at (971) 673-0410.

**Russell Kazmierczak** began working for the Drinking Water Program in January 2007 as a Natural Resource Specialist 3 in the Springfield Office. His responsibilities include working with public water systems in Klamath and Lake Counties providing regulatory assistance and conducting sanitary surveys. As a registered Geologist-In-Training, his duties also include working with water systems in the development of drinking water protection strategies, and with non-community water systems to determine which groundwater sources are under surface water influence. Russell graduated from Southern Oregon

University with a BS degree in geology. Prior to coming to work for the Drinking Water Program, Russell worked for the City of Eugene as an Industrial Source Control Inspector in Wastewater Treatment. He can be contacted directly at (541) 726-2587 ext. 26.

**Casey Lyon** is a registered Environmental Health Specialist with five years experience in the environmental health field. He started out at Multnomah County as a sanitarian inspecting food establishments as well as drinking water systems. Since then, Casey has worked for the City of Eugene Wastewater Division, the Department of Environmental Quality, and now the DHS Drinking Water Program. Casey's primary responsibilities are responding to water quality problems/emergencies, conducting sanitary surveys, assuring compliance with regulations and assisting with training courses for systems in Lane County. He can be contacted directly at (541) 726-2587 ext. 31.

**Thomas Peterson** began working for the Drinking Water Program in January 2007 as a Research Analyst 1 in the Portland Office. His responsibilities include working with public water system data, regulations and databases. His experience includes

---

Web site development and technical support to end users. Tom graduated with a BA from Pacific University, and an AA from Landmark College. He has worked as an Engineering Analyst for retailers and Computer Informational Resource Firms. He can be contacted directly at (971) 673-0471.

*Ingrid Tucker* joined the Springfield Office in October 2006 as an Office Specialist. Ingrid brings many talents to DHS, having worked as a design artist, desktop publisher, criminal defense paralegal, and administrative assistant. She can be contacted directly at (541) 726-2587 ext. 25.

## Training calendar

### CEUs for Water System Operators

Check [www.oesac.com](http://www.oesac.com) for new offerings approved for drinking water

### OAWU

(503) 873-8353

Jul. 26 Water System O&M

Aug. 20-22 Summer Classic XIII

### Cross Connection/Backflow Courses

Backflow Management Inc. (B)

(503) 255-1619

Clackamas Community College (C)

(503) 657-6958 ext. 2388

### Backflow Assembly Tester Course

June 11-15 Clackamas (C)

June 18-22 Redmond (B)

July 23-27 Portland (B)

### Backflow Assembly Tester Recertification

June 1 Clackamas (C)

June 6 Portland (B)

June 25 Portland (B)

June 26 Portland (B)

June 28 Portland (B)

July 11 Portland (B)

### Cross Connection Inspector Recertification

June 27 Portland (B)

### Backflow Management Inc.

(503) 255-1619

July 10 Confined Space Entry

### Water System Training Course

Department of Human Services

Marsha Fox/(971) 673-0408

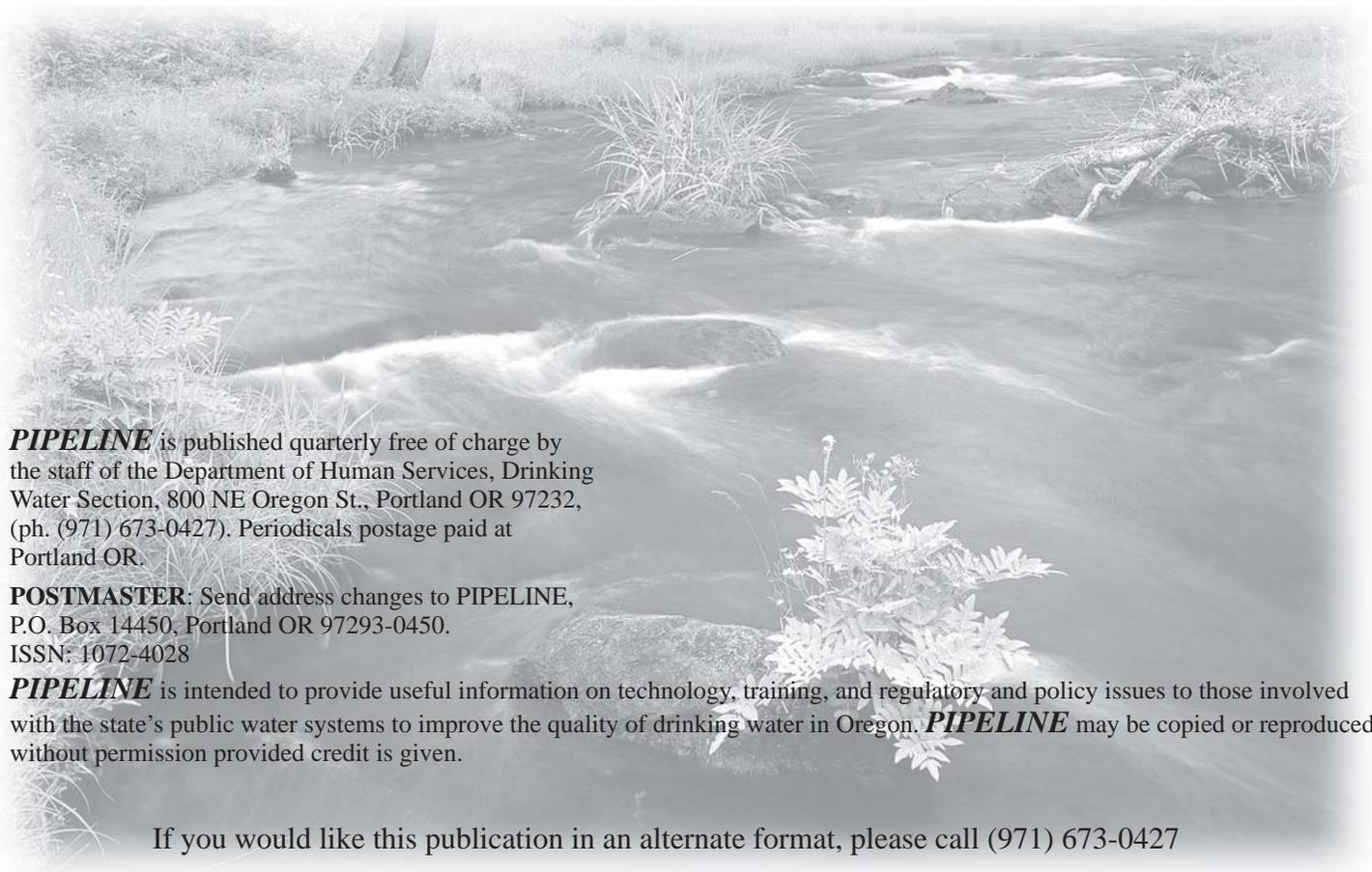
June \* The Dalles & Coos Bay

July \* Eugene & Pendleton

\* Dates to be announced



Department of Human Services  
Drinking Water Program  
PO Box 14450  
Portland, OR 97293-0450



**PIPELINE** is published quarterly free of charge by the staff of the Department of Human Services, Drinking Water Section, 800 NE Oregon St., Portland OR 97232, (ph. (971) 673-0427). Periodicals postage paid at Portland OR.

**POSTMASTER:** Send address changes to PIPELINE, P.O. Box 14450, Portland OR 97293-0450.  
ISSN: 1072-4028

**PIPELINE** is intended to provide useful information on technology, training, and regulatory and policy issues to those involved with the state's public water systems to improve the quality of drinking water in Oregon. **PIPELINE** may be copied or reproduced without permission provided credit is given.

If you would like this publication in an alternate format, please call (971) 673-0427