Oregon Drinking Water News
DIPLINE
Drinking Water Program, Oregon Health Division

Vol. 6, Issue 3 July 1991

SIOC, Lead, Copper Rules Will Affect All

by Chris Hughes, P.E.

Two major federal rulemakings have occurred which will greatly affect all public water systems: the Phase II Synthetic and Inorganic Chemical (SIOC) Rule and the Lead and Copper Rule. This article summarizes their requirements and the status of their adoption by Oregon.

Phase II SIOC Rule

Summary

Promulgated by EPA on January 30, this rule sets the maximum contaminant levels (MCLs) and treatment technique requirements for 33 contaminants and re-proposes five others:

- 17 pesticide standards;
- 8 inorganic standards;
- 10 volatile organics standards;
- Treatment technique requirements for two water treatment chemicals (polymers); and
- One standard for PCBs.

This rule also sets secondary standards for two contaminants (silver and aluminum) to address aesthetic considerations. A summary of Phase II contaminants is at the end of this article.

The rule identifies best available technologies (BATs) for compliance with the MCLs, includes mandatory health effects language for public notification of violations, and sets analytical methods and laboratory performance requirements.

It also establishes monitoring requirements for 30 additional unregulated contaminants. They will become regulated under the EPA Phase V rule to be promulgated in March, 1992.

Monitoring Requirements

All Phase II monitoring requirements apply to community and non-transient, noncommunity systems which must test each source (well, etc.) separately. Beginning January, 1993, one-third, or about 430 systems, will be required to monitor the first year

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Chris Hughes is the manager, Field Services unit, Drinking Water Section.

Lead and Copper Rule

Summary

The Lead and Copper Rule was promulgated by EPA on June 7 and establishes action levels for those elements at the consumer's tap. It also establishes the treatment technique requirement for optimal corrosion control, source water treatment, public education and replacement of lead service lines. The corrosion control requirement is triggered by exceeding the lead action level of 0.015 mg/L or the copper action level of 1.3 mg/L in customer's tap samples.

The rule also includes best available technologies (BATs) for complying with the treatment technique requirements, mandatory health effects language for public notification of violations, and analytical methods and laboratory performance requirements.

Monitoring Requirements

The Lead and Copper Rule monitoring requirements apply to all community and non-transient non-community public drinking water systems. Initial monitoring will begin in January, 1992, for systems serving a population greater than 50,000 (large); for systems serving a population of between 3,300 to 50,000 (medium) in July, 1992; and for systems serving a population smaller than 3,300 (small) in July, 1993.

One liter samples are to be collected at *high risk* locations by system personnel or residents. High risk locations are homes with lead solder installed after 1982, or with lead pipes or service lines. If not enough

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under the new standardized monitoring framework devised by EPA. The next third will begin in January, 1994, and the last third in January, 1995. The framework is an attempt by EPA to set up a 3/6/9 year monitoring cycle. Monitoring becomes more complex when contaminants are detected or one of several sources is determined to be vulnerable to contamination.

The cost of first year monitoring for all contaminants has been estimated by EPA to range from $4,527 for ground water to $4,671 for surface water. This high cost is due to the complexity of pesticide analysis and the number of analytical methods involved. These figures do not include the unregulated contaminants. Systems should begin to budget in anticipation of these costs.

Transient non-community public drinking water systems such as recreational campgrounds, hotels and stores, will be required to test for nitrate and nitrite.

Monitoring Waivers

The rule includes provisions for waivers from monitoring requirements for most contaminants. Grandfathering of existing test data is also allowed.

There are two types of waivers which can apply to a water source to reduce monitoring requirements. A *use* waiver can apply if a particular contaminant (such as a type of pesticide) was not used in the area of the source. A *susceptibility* waiver can apply if an assessment determines the source is not vulnerable if the contaminant were present in the area.

Waivers must be granted prior to initial monitoring for each source. Waiver consideration must begin by January, 1992, for systems which start monitoring January, 1993.

State Implementation

The state is required to adopt this rule within 18 months of federal promulgation. The first draft will be available for review in September, 1991. There will be several informal workshops around the state in the fall and formal hearings will be scheduled in spring, 1992. The deadline for adoption is July 30, 1992.

Several workgroups have been established to deal with the adoption process and the issues of concern with this rule:

Workgroup	Leader	Primary Issue
Technical	Dennis Nelson	Use, susceptibility waivers
Data management	Mary Alvey	Data tracking, storage
Lab certification	Irene Ronning	Lab certification
Workgroup	**Leader**	**Primary Issue**
Rule information/ training materials	Mike Grimm	Handouts/training
Public information	David Leland	Health effects information
Rules Adoption	Chris Hughes	Rule adoption

Phase II SIOCs

Contaminant Group	Contaminant	MCL (mg/L)
Inorganics	Asbestos	7 (MFL)*
	Barium	2
	Cadmium	0.005
	Chromium	0.1
	Mercury	0.002
	Nitrate	10
	Nitrite	1
	Selenium	0.05
Volatile organics	o-Dichlorobenzene	0.6
	cis-1,2 dichloroethylene	0.07
	trans-1,2 dichloroethylene	0.1
	1,2 Dichloropropane	0.005
	Ethylbenzene	0.7
	Monochlorobenzene	0.1
	Styrene	0.1
	Tetrachloroethylene	0.005
	Toluene	1
	Xylene	10
Pesticides and PCBs	Alachlor	0.002
	Aldicarb	0.003
	Aldicarb sulfone	0.003
	Aldicarb sulfoxide	0.003
	Atrazine	0.003
	Carbofuran	0.04
	Chlordane	0.002
	Dibromochloropropane	0.0002
	2,4-D	0.07
	Ethylene Dibromide	0.00005
	Heptachlor	0.0004
	Heptachlor epoxide	0.0002
	Lindane	0.0002
	Methoxychlor	0.04
	Polychlorinated Biphenyls	0.0005
	Pentachlorophenol	0.001
	Toxaphene	0.003
	2,4,5-TP Silvex	0.05
Treatment techniques	Acrylamide	0.005% dosed at 1 mg/L
	Epichlorohydrin	0.01% dosed at 20 mg/L

*Million fibers per liter (>10 μm)

(Note: This article is based on fact sheets developed by the Office of Ground Water and Drinking Water of the EPA, Washington,D.C.)

Radionuclide Rule Proposed

On June 19, EPA proposed drinking water standards for radon and uranium and revisions to four existing standards for other radioactive contaminants. The rule proposes an MCL for radon of 300 pCi/L. The public comment period lasts for 90 days from the final publication date in the Federal Register; comments are due in September. Water systems can obtain information on the proposed rule by request from the Oregon Health Division.

Water Fact: One second in 11½ days is equal to one part per million; one second in 32 years is one ppb.

of these locations exist in the water system, the rule provides specific guidelines for selecting other sample sites.

The rule requires systems to collect one sample from the following number of sites during each six-month monitoring period:

System Size	Initial Base Monitoring No. of Sampling Sites	Reduced Monitoring No. of Sampling Sites
>100,000	100	50
10,001 - 100,000	60	30
3,301 - 10,000	40	20
501 - 3,300	20	10
101 - 500	10	5
<101	5	5

If a system meets the lead and copper action levels or maintains optimal corrosion control treatment for two consecutive six-month monitoring periods, then reduced monitoring is allowed and sample collection frequency drops to once per year. After three consecutive years, sample collection frequency drops to once every three years.

Testing When Action Levels Exceeded

In addition to lead and copper testing, all large- and those small- and medium-sized water systems which exceed the lead or copper action levels will be required to monitor for the following water quality criteria: pH, alkalinity, calcium, conductivity, orthophosphate, silica and water temperature. These criteria are used to identify optimal corrosion control treatment and determine compliance with the rule once treatment is installed.

The sampling locations for monitoring water quality criteria are at entry points and representative taps throughout the distribution system. Coliform sampling sites can be used for distribution system sampling. The number of sites required for monitoring water quality during each six-month period are:

System Size	Initial Base Monitoring No. of Sampling Sites	Reduced Monitoring No. of Sampling Sites
>100,000	25	10
10,001 - 100,000	10	7
3,301 - 10,000	3	3
501 - 3,300	2	2
101 - 500	1	1
<101	1	1

Water systems which maintain water quality criteria reflecting optimal corrosion control for two consecutive six-month monitoring periods qualify for reduced monitoring. After three consecutive years, the monitoring frequency can drop to once per year.

Treatment requirements

All large systems must demonstrate that their water is minimally corrosive or install corrosion treatment regardless of lead and copper sampling results. Other systems must begin corrosion treatment if lead or copper action levels are exceeded.

State Implementation

The state is required to adopt this rule within 18 months of federal promulgation. The first draft of the Oregon rule will be available for review in December, 1991. Because initial monitoring must begin before the Oregon version is adopted, several workshops will be held in November and December. Formal hearings will not take place until summer or fall, 1992. The deadline for state rule adoption is December 7, 1992.

Milwaukie Installs Aeration Towers

By Tim Corbett, city of Milwaukie and Chris L. Hughes, P.E., Oregon Health Division

On February 27, Milwaukie began using wells 2,3 and 5 for public drinking water after they had been shut down for more than two years. The shutdown was recommended by the Oregon Health Division after VOC contamination was confirmed in five of Milwaukie's seven wells. The city began purchasing water from the Portland Water Bureau while an engineering study was undertaken to determine the best alternative for the future of Milwaukie's drinking water supply.

As a result of the study, packed tower aeration was determined to be the most cost effective means of removing VOCs from the well water. That is considered by EPA to be a *best available technology* for VOC removal. Also known as air stripping, packed tower aeration systems operate by running water down a tower filled with irregularly configured hollow plastic balls which break water into small droplets. Air is simultaneously forced up through the tower and into the atmosphere. Since these contaminants are extremely volatile, they are easily removed, or stripped, from water by this process. Contaminant emissions into the air from the towers during stripping are considered negligible.

Initial testing of these towers, the first in an Oregon public water system, has proven they remove contaminants from Milwaukie's water to below detectable levels. Ongoing tests will ensure the towers remain effective.

Sutherlin's Polyphosphate System a Success

This article presents one city's practical experience with a corrosion control treatment program. It illustrates how water systems managers should proceed to comply with the Lead and Copper Rule. The author is chief operator, Water Treatment Department of Sutherlin.

By Floyd Dollar

The Pacific Northwest is blessed with good quality and, in many cases, pristine water. But much of this pure water is soft, has low mineral content and is aggressive (corrosive) to metallic piping materials such as iron, galvanized steel and copper. We all take great pride in the quality of water produced and are often frustrated when we receive complaints of poor quality water from our customers. Many times these complaints are of rusty water or other problems occurring in the distribution system and are related to corrosion of the distribution system lines by this aggressive water.

The city of Sutherlin (pop. 7,000) has always followed a systematic process when dealing with customer complaints of poor water quality. When a complaint is received, the customer's name, address and phone, date of complaint and nature of the problem are recorded on a form. Response begins with personal contact by a Treatment Department operator who discusses the nature and probable causes of the problem with the customer and then collects samples to be analyzed at the city's water quality laboratory. Analysis usually consists of tests for chlorine residual, turbidity, iron, manganese and pH. Occasionally, depending on the nature of the complaint, the laboratory also tests for the presence of coliform bacteria.

The majority of complaints in the past involved water with a musty taste, dirty appearance or laundry staining. Analysis of samples from locations with these complaints often revealed higher levels of iron. Corrective action included flushing of the water main serving the problem area as well as the customer's service line. These steps usually solved the problem temporarily but it often recurred within a few weeks.

. . .staff began investigating corrective action [to] provide a long-term or permanent solution to corrosion. . .

Sutherlin's two water treatment plants have been producing very high quality water for years with a consistent turbidity of less than 0.1 NTU, a pH of 7.00 and no apparent taste or odor problems. Plant operators take a great deal of pride in the facilities and quality of water produced. They found it frustrating to see water quality degraded in the distribution system.

Treatment Department staff conducted a detailed analysis of customers' complaints in 1986. Because most were from areas which were served by unlined cast iron pipe, it was likely that the higher levels of iron in these areas were due to corrosion of those mains and customer's galvanized plumbing. Another area of concern was lead and copper leaching within service lines. Having collected and analyzed samples for these contaminants in the past, results had always been below maximum contaminant levels. But, in anticipation of the new lead regulations, the Department wanted to lower even further any lead detected at customers' taps.

Having determined the source of the problem, Treatment Department staff began investigating corrective actions which would provide long-term or permanent solutions to corrosion in the distribution system. Methods investigated included raising the pH and alkalinity, using corrosion inhibitors, replacing unlined cast iron line sections, and cleaning and relining those sections.

The replacement alternative was found to be expensive. It would involve tearing up and replacing streets as well as restoration of affected landscaped areas. Mechanical cleaning and relining was also prohibitively expensive and would disrupt service to customers. In addition, both methods would fail to protect the customers' plumbing from future corrosion.

A pilot study of lime feeding was undertaken at one of the water treatment plants but operators found the lime to be dusty, expensive and hard to feed. The process also created disinfection problems and the higher pH increased CT values needed for disinfection.

In 1987, the Department began to look into the alternative of phosphate treatment. A review of the AWWA Journal, 1987-89, found that polyphosphate treatment had the ability to remove scale and tubercles from distribution lines. The process not only inhibited corrosion but also suppressed lead and copper leaching. It was decided this method would best suit Sutherlin's needs.

Sutherlin's corrosion control

program began in September, 1989. Prior to that, the Treatment Department contacted several vendors for proposals and sought recommendations from other municipalities and utilities that had experience with that particular method. However, the Department quickly learned there was limited experience in the use of polyphosphate treatment for corrosion control in the Pacific Northwest.

The Department contacted the Oregon State Health Division for suggestions and approval of the phosphate treatment concept. Division staff assisted in checking the polyphosphates involved for EPA and National Sanitation Foundation certification for drinking water additives.

The Treatment Department then went before the Sutherlin City Council for approval of the proposed program. All of the investigated corrosion treatment options, costs and anticipated problems were outlined. The City Council approved the polyphosphate treatment option.

Phase One of the program began with a press release to local news media. In it, the Department explained to system customers the goals of the program, what to expect and general information about the chemicals involved. Some residents were concerned about the addition of new chemicals to their water and, in those cases, the Department provided copies of all information available on the program. The press release also advised that customers should expect their water to appear dirtier at times during the first three months of treatment.

Small chemical metering pumps were installed at the two water treatment plants along with the lines necessary to feed the polyphosphates into the plant stream after filtration and ahead of the disinfection stage. The first three months of the program, Phase One, was cleaning. Polyphosphate was fed at 5 mg/L to soften the scale and corrosion buildup in existing water lines. In conjunction, an extensive flushing schedule was begun to remove loosened residue from the distribution system before it could affect

. . .there was limited experience in the use of polyphosphate treatment for corrosion control in the Pacific Northwest.

water quality at the customer's tap. The Department anticipated an increase in customer complaints during this phase of the program as a result of water discoloration. Due to the active flushing of hydrants along the lines, those complaints were minimized.

During flushing sessions in this phase, large quantities of tubercles could be seen coming out of the hydrants. At one point, operators feared that a particular hydrant was in danger of plugging due to the large amount of deposits.

Within a month after starting Phase One, the amount and size of deposits being removed substantially decreased. The Department continued flushing for two months and began to receive numerous comments from customers about the improvement of their water. By the end of this phase, operators saw definite improvement in water clarity during flushing and deposits all but ceased to appear.

Once the three-month cleaning phase was completed, the corrosion control maintenance phase (Phase Two) began. The feed rate of the polyphosphate additive was lowered to 2 mg/L and the frequency of line flushing was decreased.

From the program's inception, the Department monitored the levels of polyphosphates and orthophosphates (polyphosphates slowly revert to orthophosphates while in the system). This gave clear indications of the water turnover in different parts of the system as well as the amounts of phosphates available to maintain the protective film being built on the interior surfaces of the lines.

The Department also monitored for indicators of corrosion such as iron, copper, lead, zinc, nickel, etc. Samples were taken in areas where problems had existed prior to the program and where customers had expressed concern regarding the addition of the phosphates to their water. The

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Sutherlin *(Continued from page 5)*

Department installed corrosion coupon loops at both water treatment plants prior to phosphate feed points to determine corrosion rates in mils of pipe loss per year before and after treatment. The coupons were weighed prior to installation in the four-coupon loop where treated water flowed past them. Any corrosion taking place would result in material being lost from the coupons, allowing a determination of the corrosion rate in mils per year. Deposits which built up on the coupons were analyzed for type and amount. They indicated if there was any scaling and whether a protective film was being built in the system. Coupons are left in for a minimum of 30 days and are normally

replaced on a rotation of 30, 60 and 90 days.

The success of Sutherlin's corrosion control program has gone well beyond expectations. Coupon testing showed a decrease in the corrosion rate from 6.5 to about 2 mils/yr after treatment as noted in the table below. Water quality in all parts of the city's distribution system has shown a marked improvement, apparent not only through laboratory results, but also from customer comments from all areas of the community. The program has proven to be a very economical alternative to line replacement and utilizes a minimum of man-hours and maintenance dollars compared to other methods.

Operators at the water treatment plants still take a great deal of pride in the excellent quality of water they help produce. Now there is additional pride in the knowledge that customers are getting that same quality drinking water from their taps.

Examples of program progress:

Lead levels (mg/L)	*Before*	*After*
Junior high school	0.014	Nd@.002
West elementary school	0.003	Nd@.002
Calapooia Ave. residence	0.054	Nd@.002
Copper levels (mg/L)	*Before*	*After*
Calapooia Ave. residence	2.00	0.26

Customer complaints (21 month periods)
Jan., 88 - Sept., 89:17
Oct., 89 - June, 91: 6

Cost
Cleanup phase (3 mo. at 4ppm): $4,533.90
Maintenance dose (9 mo. at 2ppm): 6,823.71
Total first year chemical cost: $11,357.61
Total annual cost (after first year) of chemical and shipping is running 2.6 cents for each 1,000 gallons of water produced.

Coliform Hearing Set

A hearing for comment on adopting federal revisions to state rules regarding monitoring and analytical requirements for coliform bacteria in public water systems will be conducted by the Oregon Health Division at 1 p.m., Aug. 28, 1991.

The proposed amendments will change Oregon Administrative Rules (OAR) 333-061-030, 333-061-045 and 333-061-097. The hearing will be at the State Office Building, Room 709, 1400 SW 5th Ave., Portland 97201.

The Health Division is amending Oregon rules made effective Dec. 29, 1990, concerning monitoring and analytical requirements for coliform bacteria in public water systems. These amendments are federal revisions to the maximum contaminant level (MCL) for coliform bacteria as well as variance criteria for MCL violations.

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments received by 5 p.m., Aug. 28, 1991, will also be considered. Written comments should be sent to and copies of the proposed rulemaking may be obtained from:

Oregon Health Division
Drinking Water Section
Box 231
Portland, OR 97207

If you have questions, please contact Mike Grimm at 229-6307.

Hermiston Spill Shows Wellhead Protection Value

On June 3rd, a 50-gallon drum containing the toxic cleaning solvent trichloroethane (TCA) ruptured as a result of a fire at a Department of Transportation storage yard in Hermiston. A public water supply well, drawing from a shallow, highly permeable sand and gravel aquifer, was only 1,200 feet from the spill. Due to the proximity, there was concern that a portion of the city's water supply might have been contaminated. The well was shut down while soil tests were conducted, monitoring wells drilled and groundwater analyses completed. Fortunately, these analyses detected no soil or groundwater contamination from the accident.

However, the incident is an excellent example of the importance of having in place a Wellhead Protection (WHP) program. The guidelines for such a program in Oregon are being developed (April, 1991, ***PIPELINE***). The surface area overlying a portion of the aquifer contributing groundwater to each public water supply

well is identified for protection. Public water suppliers are encouraged to locate potential contaminant sources within that area and work with local government to develop management plans designed to protect the groundwater resource.

If a WHP program had been in place in Hermiston, the TCA likely would have been identified and removed from the well's recharge area. Even though the amount of TCA released during the Hermiston fire was small (about 20 gallons), that amount could contaminate over 5 billion gallons of groundwater to detectable levels of TCA! This spill could have had a significant impact on Hermiston's water supply. Cleanup or treatment would have been costly and time consuming. A portion of the groundwater resource might have been lost.

The Oregon Health Division recommends that each public water supply conduct an informal survey of potential contaminants around its well(s). You, like officials in Hermiston, may be surprised at what you find. To assist you, a list of possible sources and risk assessment information is available from Barbara Priest, Wellhead Protection Specialist at the Department of Environmental Quality (229-5945). A workshop on WHP program training is listed in the Training Calendar of this ***PIPELINE***, page 8.

SWT Rule Updated

Most community water systems using surface water are preparing to meet the new water treatment regulations. A total of 160 community systems currently use surface water and 105 of those already have some form of filtration treatment. Most of the remaining 55 are working toward installing filtration by June 29, 1993; abandoning the surface source in favor of another source; or meeting the unfiltered criteria by Jan. 1, 1992. However, of the 139 non-community and non-transient, non-community systems with surface water, 107 are still unfiltered and most have no plans to meet the new requirements.

Oregon Health Division will draft compliance schedules for these 162 (55 community and 107 non-community) unfiltered surface supplies by the end of this summer. These schedules will outline monitoring and/or construction time frames which the systems will be required to follow to insure compliance.

A one-day workshop will be offered later this summer for systems with filtration treatment facilities. An announcement with meeting dates and locations will be mailed. Stay tuned!

Water Test Mysteries Solved

Routine? Repeat? Special?

The Oregon Health Division's Drinking Water staff is spending an increasing amount of time dealing with many problems arising from the new coliform rule and the reporting of coliform bacteria test results. Some of the common problems:

1. Test results are marked incorrectly or not at all.
   Types of samples:
   Routine - Samples collected regularly each month or each quarter.
   Repeat - Samples collected after a positive coliform test.
   Special - Anything else (These do not need to be sent in, e.g., construction samples or untreated water)
2. Forms marked *repeat* are sent without the date of the first positive (coliform present) test.
3. Water systems are not notifying our office of positive results.
4. Positive test results are not sent to our office.
5. *Repeat* samples are taken at the wrong places.
6. Not enough *repeat* samples are collected.
7. No system ID number (41.....) or name on reports.

The phone number on the bottom of the form is that of the Drinking Water Section, not the lab doing the test. The water system is responsible for collecting *routine* and *repeat* samples and reporting them to the Drinking Water Section.

If a lab notifies a water system that a coliform test was positive, the system must immediately call the Drinking Water Section: in Portland, 229-6307 or in Pendleton, 278-8006. When collecting *repeat* samples, the operator must write on the lab form the date the first positive result was collected. Many labs will report these results directly to the Health Division if the system authorizes it.

If you have questions or comments, please call the Duty Engineer at 229-6307.

PIPELINE is published quarterly by the staff of the Oregon Health Division, Drinking Water Section. It 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.

Please send requests for article topics or manuscripts of your articles to John Gram, editor (503 / 229-6302).

This issues contributors include: Floyd Dollar, Sutherlin; Mike Grimm, John Huffman and Chris Hughes, all of Oregon Health Division.

Training Calendar

Small Water System Training courses
Drinking Water Section, OHD
Contact Jo Ann Collins, 229-6310

Month	*County*
Aug.	Klamath/Josephine/Jackson/ Deschutes/Crook
Sep.	Malheur/Umatilla/Wallowa
Oct.	Clatsop/Tillamook/Columbia
Nov.	Polk/Yamhill
Dec.	Marion/Linn/Benton

Water Certification Examinations
Administered Oct. 17 at locations to be announced. Deadline for receipt of applications by OHD in Portland is Sept. 1. Contact Joe Bogart, 229-5783.

Cross Connection Inspection class
Nov. 19-22, Clackamas Community College

Cross Connection Device Tester's class
Aug. 5-8, Grants Pass
Dec. 9-12, Clackamas Community College
Clackamas Community College is also offering a cross connection device tester's class two evenings a week for 5 1/2 weeks in the fall term. For information on any of the classes, call the college, 657-8400, ext. 278 or the Health Division, 229-6309.

Three-day short school
Pacific Northwest Section, AWWA
Clackamas Community College
Sep. 9-11
657-8400, ext. 278

Operation and Maintenance of Small Water Systems
Sept. 24-26
Arasmith Consulting Resources
Red Lion Inn
Springfield
928-5055

EPA Workshop: Tools for Local Government (Wellhead protection)
September 26-27
Hotel Vintage Plaza
422 Southwest Broadway
Seattle, WA
No registration fee, but preregistration is required. Contact Dru Keenan, EPA Region 10, Seattle, at 206 / 553-1219 for information.

AWWA Lists Projects

A database containing all current (within the last five years) projects relating to water resource issues in the Pacific Northwest is being developed by the PNWS-AWWA Water Resources Management committee. Examples of subjects:

- Source protection
- Water quality enhancements
- Source development or expansion
- Wetlands
- Conservation
- Computer applications
- Water resource planning
- Water reuse

The database will contain the project name, description, status (projected or actual completion date or ongoing), contact person and employer, telephone number and general subject category. Contributors of project information will receive a free copy of the database; others who request it will be charged a small fee to cover costs. Call Teri Liberator, Water Resource Management committee chair, 796-7483, to get your projects into the database. Pick up the phone and take a minute to let us know about your activities!