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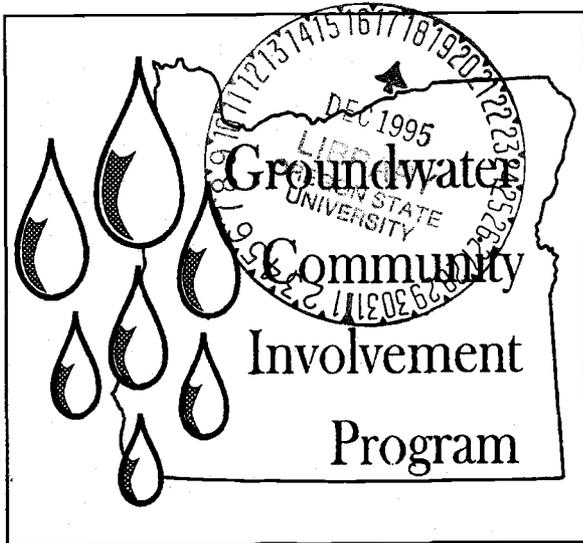
LINKING OREGON'S WATER RESEARCH AND EDUCATION

Special Groundwater Edition

WELCOME FROM LORETTA BRENNER, OREGON GROUNDWATER COMMUNITY INVOLVEMENT PROGRAM COORDINATOR

Groundwater is everywhere... and this special edition of the *H₂O News* highlights groundwater protection programs and projects that are "springing up" around Oregon. The Oregon Groundwater Community Involvement Program (GCIP) at OWRI has been busy over the spring and summer with nitrate testing and groundwater education programs. As we enter into the fall, more well water testing programs are in the works for Tillamook, Forest Grove, Mill City, and Medford. A manual is being written to help communities sponsor a do-it-yourself version of the free water testing program. The GWCIP will conduct a workshop "Groundwater 101" at the annual Oregon Science Teacher's Association Conference in October, and plans are to participate in the National Groundwater Guardian Conference, in November to be held in Illinois.

We also bid adieu to our summer intern, Carrie Kimbell, who diligently kept the free water testing program going, and maintained our nitrate testing databases. Carrie,



who graduated this summer with a B.S. degree in Public and Environmental Health, has been busy applying for a "real job," and hopes to stay in the Willamette Valley. We thank her for excellent work and wish her all the best in her future endeavors. Good luck, Carrie!

As you will see in this special edition, there is much work being done for groundwater protection throughout Oregon. I thank everyone who contributed their time in sharing their efforts, and encourage you to find out more about how your community can be involved in groundwater protection. Because... groundwater is everywhere!

Loretta K. Brenner

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UPDATE FROM THE DEPARTMENT OF ENVIRONMENTAL QUALITY - GROUNDWATER SECTION

A few changes in the Groundwater Program at DEQ come with the start of a new biennium. A four-year long study in the Lower Umatilla Basin has recently been concluded and the report should now be available through DEQ. The next step is to work with a local Citizen's Advisory Committee to develop an Action Plan which responds to the finding of the report. Groundwater quality assessments have been conducted in a number of areas over the past year and are planned for at least three additional areas in the coming year (see article by Rodney Weick for further details).

Additional program foci for the coming biennium will be on the developing wellhead protection (WHP) program and the dissemination of pollution prevention tips for industries which are a part of the WHP guidance document. DEQ is also working to complete internal guidance for addressing potential groundwater contamination from permitted facilities.

Deschutes Basin Study

A groundwater contamination modeling project by DEQ was recently completed for an area in the Deschutes Basin from Sun River south through La Pine. This study, conducted in conjunction with the Deschutes County Commissioners, evaluates the impact (on groundwater quality) of nitrate-nitrogen from septic systems installed at increasing densities. This model will be useful to the County as a planning tool for managing and evaluating the impacts of growth on groundwater quality in an unsewered region. The project may serve as a prototype for other communities requiring similar assessment. Questions about the model should be addressed to Rodney Weick at (503) 229-5886.

Statewide Monitoring

House Bill 3515, the Groundwater Protection Act, was passed by the Oregon Legislature in 1989. The legislature directed DEQ to assess the quality of groundwater throughout the state. At present, DEQ has identified 35 areas statewide where groundwater may be affected by nitrate. Thirteen areas have been sampled by DEQ since 1989. These areas include Lower Umatilla Basin, Malheur County, La Pine, Prineville, North Bear Creek Valley (Medford), Coburg, Junction City, Canby, Woodburn, Grants Pass, Albany-Lebanon, Burns-Hines, and Upper Grande Ronde Valley.

The Lower Umatilla Basin and Malheur County are designated groundwater management areas under HB 3515 with nitrate levels in groundwater that exceed

the federal drinking water standard of 10 mg/l. La Pine, Prineville, North Bear Creek Valley (Medford), Coburg, and Junction City areas have significant levels of nitrate in groundwater (generally greater than 7 mg/l) with levels in some wells exceeding 10 mg/l. Elevated nitrate levels were also detected in localized portions of the Grants Pass area. Nitrate levels in groundwater for the remaining completed study areas are generally below 7 mg/l.

DEQ anticipates assessing groundwater quality in four additional areas by September 1996. These areas tentatively include Clatsop Plains, Harrisburg-Monroe, Hillsboro-North Plains, and Aloha-Tualatin.

The Voluntary Nitrate Testing (VNT) Program is a key element to assessing the groundwater quality on a statewide basis. The VNT data, in conjunction with data generated from other programs, is used to identify areas where elevated nitrate levels may be present in groundwater on a statewide basis. The VNT data is also used to help prioritize areas of groundwater quality for further investigation under the Statewide Groundwater Monitoring Program. The value of the VNT Program is that it helps DEQ identify the most beneficial areas for community assistance in the assessment and protection of their groundwater resource.

For more information contact: Amy Patton, DEQ, Groundwater Section, (503) 229-5878.



Oregon's Children's Groundwater Festival -- On the Move!

Two years and over 1,500 students later, the Children's Groundwater Festival has found a new home at Portland State University's Center for Science Education. The move will open up new funding possibilities for the increasingly popular program that started as a pilot project at the Oregon Department of Environmental Quality. Plans are underway for the 1996 Festival with hope to reach more teachers and students throughout Oregon. **Contact: Julie Magers, Coordinator, PSU Center For Science Education, PO Box 751, Portland, OR 97207-0751; (503) 752-8288.**

LOWER UMATILLA BASIN PROMOTES TEAMWORK FOR GROUNDWATER PROTECTION

Michaele Pelzer, Umatilla SWCD &
Loretta Brenner, GWCIP

Keeping involved in the community and working to build partnerships is a crucial role for Michaele Pelzer, the Lower Umatilla Basin's (LUB) Groundwater Program Coordinator. Pelzer coordinates the Groundwater Program through the Umatilla Soil and Water Conservation District (SWCD) in Pendleton. The LUB was declared a groundwater management area in 1992.

Fieldmen's breakfasts, K-12 and community college presentations, displays at the Farm and City Fair, are a few of the on-going public outreach programs designed to reach the community and promote an exchange of ideas and information. Pelzer also represents the LUB Groundwater Program as part of a natural resource discussion group that meets monthly to share information, provide program updates, and to lend interagency support. Representatives from a number of natural resource agencies regularly attend the informal meetings. A spinoff of this group is "Team Umatilla." Pelzer says, "Team Umatilla shows the public that natural resource groups are working together, talking to each other, and sharing resources," and "so far we've had a very positive public response." A program providing Groundwater Information to local realtors was launched this summer (see next article).

Memorandums of Understanding have been developed between interested entities and the Umatilla County SWCD for program and project cooperation, including nitrate sampling for the OR DEQ and lease of a truck/soil probe to provide information relative to present soil conditions and levels of nitrate. A special emphasis is the Water Quality/Quantity Incentive Program (WQIP) for landusers in the LUB. This program allows incentive payments to enrolled landusers for trying new management practices, including straw mulching, filter strips, cropping sequence, soil sampling, different types of irrigation, watermark sensors, and integrated crop management. IRZ Consulting in Hermiston is assisting with water management plans for participants in the LUB.

"If not for the strong natural resource team in Umatilla County, these activities and programs would not exist," says Pelzer, "groundwater in Umatilla County is a high priority resource, and the Citizens' Committee, Technical Advisory Committee, and the Umatilla SWCD will continue to work with landusers and promote the importance of groundwater quality."



GROUNDWATER TESTING AND TRAINING IN EASTERN OREGON

This summer, residents in five Eastern Oregon counties participated in a free well water testing program. The free nitrate testing was sponsored by the Extension Service's Home*A*Syst Program, and OWRRI's Groundwater Community Involvement Program. The tests were offered at community events and fairs in Umatilla, Morrow, Union, Grant and Wheeler Counties, and coordinated by Rich Topielec, Union County Extension agent. Topielec stated that, "the response in the communities was really encouraging. People were interested in finding out about their water."

Topielec continued his groundwater education efforts, in cooperation with the Umatilla Soil and Water Conservation District and the Oregon Health Division, by organizing a 3-credit groundwater seminar for the Columbia Basin Board of Realtors. Over 30 realtors attended the seminar in Irrigon which, "introduced the whole gamut of groundwater issues," according to Topielec. Video presentations, groundwater model demonstrations, and a lecture on health concerns, were features of the groundwater training. The OSU Extension "Home*A*Syst" packet was offered as a resource. The seminar was so well received by the realtors that another seminar is in the works for this fall, and will include presentations by the regional well inspector and DEQ staff. *Carrie Kimball, Intern, Groundwater Community Involvement Program.*

NEXT ISSUE:
**Update on Malheur County
Groundwater Programs!**



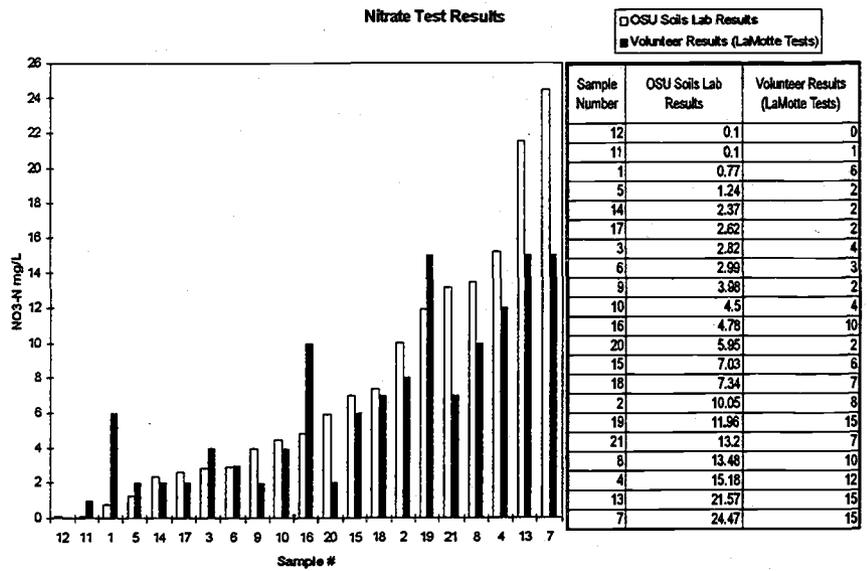
UPDATE ON NITRATE MONITORING TEST KITS

Responding to a need for safer and easier to use water testing kits, both Lamotte Company and Hach (pronounced "hawk") Company are now offering a cadmium-free, nitrate-nitrogen water test kit. The appeal of these kits is the use of zinc in reducing nitrate to nitrite, which eliminates the problem of disposing of the heavy metal cadmium that remains in the test sample water. The Lamotte kits also feature dissolvable reagent tablets, streamlined sample processing, and easy-to-open foil packets.

Volunteers with the Oregon Groundwater Community Involvement Program previewed Lamotte kits during the summer with favorable response. Reagent tablets are easy to drop into test tubes and eliminates skin contact with the chemicals, and interpretation of test results is relatively easy using color standards. The HACH Nitro-ver Nitrate Test kits, used for years in the Groundwater Testing Program, have powder reagents that tend to spill when tapped into a test tube.

Performance of zinc reduction nitrate-nitrogen test kits appears comparable to the cadmium based kits. The Lamotte test kit was screened at the Portland Department of Environmental Quality Lab, and was found to perform similarly to other color comparator test kits. Samples tested with the Lamotte test kits, and also screened by the Oregon State University Central Analytical Lab, were found to be within acceptable nitrate-nitrogen detection limits (see graph) for the Volunteer Testing Program. Procedural error may explain the cases where test results varied widely.

One disadvantage of the Lamotte Test Kit is the use of a fixed-value color comparator, as opposed to the continuous HACH color comparator wheel. Our program reports nitrate values in whole number increments, so the Lamotte fixed-value comparator is



adequate for our needs, but would certainly be a disadvantage to those requiring greater accuracy.

Further testing and use will confirm the accuracy of the Lamotte and other zinc-based nitrate water testing kits, but volunteers are sold on them. They particularly like the ease of use and the kit's safety features. In addition, the kits are appropriate for use by younger students and citizens not familiar with lab techniques and equipment.

For more information contact the Lamotte Company, 1-800-344-3100, Nitrate-nitrogen kit #3354; or Hach Company, 1-800-227-4224, nitrate-nitrogen (cadmium free) kit # 26492-99. A handout is available from the Groundwater Community Involvement Program about the Lamotte and Hach test kits.

**NEXT ISSUE --
Update on Lane County's
Groundwater Guardians**

CLATSOP PLAINS AQUIFER CONFERENCE

Dunes and groundwater were the topics of choice at the Clatsop Plains Aquifer Conference, held in Warrenton, in June, 1995. Nearly 60 people attended the Conference, including concerned citizens, city council members, county commissioners, natural resource and governmental agency personnel, local water utility managers, planners, and engineers. This diverse group came to the Conference to discuss ways to facilitate the rapid growth and development of the Clatsop Plains area without damaging the fragile dunes surface or contaminating the clean water below. The Conference was sponsored by the Clatsop Soil and Water Conservation District (SWCD), and supported with a grant from the Governor's Watershed Enhancement Board (GWEB).

Presentations were made by Phil Keisling, Oregon Secretary of State; Frank Reckendorf, recently retired geologist and dunes expert; and Kent Mathiot, hydrogeologist and consultant with EMCON in Portland. An afternoon breakout session offered participants the opportunity to discuss concerns regarding development pressures in the area and the potential for groundwater contamination. Communities

in the Clatsop Plains area are also considering tapping into the aquifer for more community and public water supplies, and questions exist on the impact of above ground activities to the aquifer. Discussion focused on the need to get more water quality and quantity information out to the public, collaboration among public water suppliers, and the possibility of wellhead protection efforts in the area. Overall, the water quality in the area is good, but localized contamination problems have occurred primarily from nitrates and bacteria. High permeability of the aquifer and shallow water tables contribute to the aquifer's susceptibility to contamination. Groundwater and surface water interactions are common.

The Clatsop SWCD is to be commended for creating a forum for discussing water quality issues. Based on the interest generated by this meeting, the opportunity is ripe for citizens and agencies Clatsop Plains to work together in developing and achieving its water quality goals. Citizen input and concerns needs to be a key part of the process in balancing expansion of facilities and population growth, with maintenance of safe and clean water supplies for generations to come.

L. Brenner

OREGON HOME*A*SYST PROGRAM HELPS YOU PROTECT YOUR DRINKING WATER

The Homestead Assessment System (Home*A*Syst) is a national program sponsored in Oregon by Oregon State University Extension Service. The System consists of a packet of material that can be used by rural residents to evaluate their site characteristics, structures, and practices that may affect the quality of their well water. Once unsafe conditions are identified, advice for improving the situation is provided.

For each of nine topics there is a detailed Fact Sheet (6-14 Pages) with background information and a list of contacts and references, and a Worksheet with a glossary and a risk assessment table that is completed by the rural resident. Current topics are: Drinking Water Well Condition, Pesticide Storage and Handling, Fertilizer Storage and Handling, Petroleum Product Storage, Hazardous Waste Management, Household Wastewater Treatment, Livestock Waste Storage, Livestock Yards Management, and Milking Center Wastewater Handling. Other topics are planned for the

future. There is an additional Worksheet for Site Evaluation which utilizes information from the other worksheets and the Site Evaluation to determine overall drinking water risk. Home*A*Syst Packets are available from Publication Orders, Agricultural Communications, OSU Administration Services A422, Corvallis, Oregon 97331-2119 for \$12.00.

The Oregon Home*A*Syst program offers training throughout the state for local professionals and volunteers interested in serving as Home*A*Syst Groundwater Safety Leaders. Trained leaders would conduct local workshops on how to use the Assessment material and serve as a contact for residents needing help in identifying or remedying high-risk situations on their homestead. To arrange a Home*A*Syst Leaders Training in your area, contact Gail Glick, Extension Water Quality Educator, Bioresource Engineering, Gilmore Hall 116, Corvallis, Oregon 97331-3906 or (541) 737-6294.

Gail Glick

GROUNDWATER RESOURCES

GET HELP FROM EPA HOTLINES

◆ *National Pesticide Telecommunications Network*

Provides factual, up-to-date information regarding all types of pesticides. The hotline is now housed at Oregon State University and the number for Oregon residents is (541) 757-5086. For callers outside Oregon call 1-800-858-7378. Or write: NPTN, Oregon State University, Dept. of Agricultural Chemistry, Attn: Dr. Sheldon Wagner, Agriculture & Life Science Bldg., Room 1007, Covallis, OR 97331.

◆ *Safe Drinking Water Hotline*

Information about the Safe Drinking Water Act, health advisories, certified water testing labs, and more. They assist citizens, consultants, labs, public water suppliers, and others interested in programs, policies, and technical issues. 1-800-426-4791.

◆ *Environmental Education Clearinghouse*

Help for teachers and educators in locating info on training, grants, curriculum, speakers, environmental programs, technical assistance, publications, study sites, and teaching kits. Call 1-800-424-4372 or write: US EPA Region 10, Environmental Education Clearinghouse, 1200 Sixth Ave, SO-143, Seattle, WA 98101-9797.

WATER "WRITES"

◆ *The Water Sourcebook*

Tennessee Valley Authority, the U.S. EPA, and Legacy Inc. A Series of Classroom Activities for Grades 3-5. Write: The Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314-1994, or call 1-800-666-0206.

◆ *The Water Resources Professional's Outreach Notebook*

US Geological Survey, Stephen J. Vandas. Lesson plans and activities that bring a water resource professional into the education process. Grades 6-8. Write: USGS, Earth Science Information Center, Open-File Reports Section, Box 25286, MS 517, Denver Federal Center, Denver, CO 80225. Request Open-File Report 94-73.

◆ *Assessing the Experience of Local Groundwater Protection Programs*

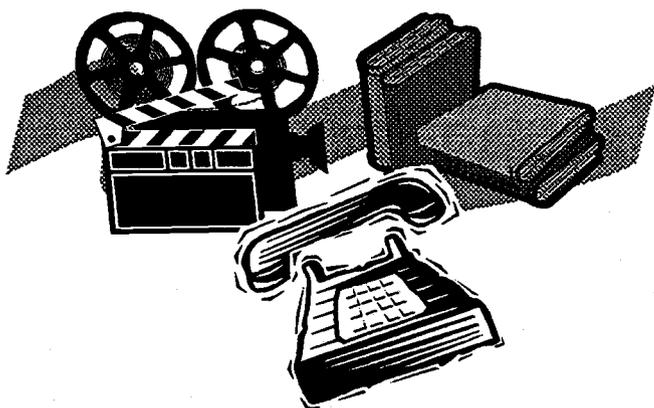
The Urban Institute. Six case studies across the United States and an overview of policies, regulations, and strategies for groundwater protection. Write: The Urban Institute, 2100 M Street, NW, Washington, DC 20037, or call: (202) 833-7200.

◆ *Protecting Ground Water: Promoting Understanding, Accepting Responsibility, and Taking Action*

The Terrene Institute. Proceedings from Terrene Institute's National Conference, December 12-13, 1994. Write: The Terrene Institute, 1717 K Street, NW, Suite 801, Washington, DC 20006-1504. (202) 833-8317.

◆ *Summary of 1995 Water Legislation*

Oregon Water Resources Commission and Water Resources Department. Write: Oregon Water Resources Department, 158 12th Street SE, Salem, OR 97310, or call: (503) 378-8455 (ext.299) or 1-800-624-3199 (ext. 299).



UPCOMING CONFERENCES AND SEMINARS

NOVEMBER

27-30 Save the Columbia Conference

*World Forestry Center,
Portland, OR*

For further information call Dick Dewey,
Portland State University, 1-800-547-8887
ext. 4832.

DECEMBER

**5 Small Governments/
Environmental Compliance
Workshop**

*Unified Sewerage Agency Rock
Creek Facility, Hillsboro, OR*

For further information call Peter Dalke, DEQ,
(503) 229-5588.

**5-6 Twelfth Annual Hazardous
Waste Law and Management
Conference**

*Washington Athletic Club,
Seattle, WA*

For further information call Nancy Curran,
NW School of LAW, CLE, (503) 768-6672.

**6 Lower Umatilla Basin Groundwater
Management Area Committee
Meeting**

*Good Shepherd Community Hospital,
Hermiston, OR*

For further information call Rick Keper, DEQ,
(503) 229-6804.

DECEMBER

**7 Small Governments/
Environmental Compliance
Workshop**

*Columbia Gorge Community College
The Dalles, OR*

For further information call Peter Dalke, DEQ,
(503) 229-5588.

**7-8 New Rules - No Rules, NW Power
System Odyssey**

Marriott Hotel, Portland, OR

For further information call WEPI (503) 231-
1994.

**7-8 Twelfth Annual Hazardous Waste
Law and Management Conference**

Lewis & Clark College, Portland, OR

For further information call Nancy Curran, NW
School of Law, CLE, (503) 768-6672.

COMING IN 1996

**Jan. 4 Oregon Forests in the 21st
Century, Issue Forum**

*Oregon State University,
Corvallis, OR*

For further information call Doug Decker,
ODOF, (503) 945-7422.

**June 8-12 Watershed '96 - Moving
Ahead Together**

Baltimore, MD

For further information call WEF (703) 684-2414.



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GROUNDWATER RESOURCE SURVEY COMING SOON!!!

The Oregon Groundwater Community Involvement Program is developing a resource guide on groundwater expertise in Oregon. The information will be useful to citizen groups, local governments, educators, agency personnel, and others working on groundwater protection in their communities around the state. Watch your mail for the survey which should be mailed in early December. We want to include you and your excellent groundwater protection expertise!

For additional information contact: Loretta Brenner, GCIP, OWRRI, 210 Strand Ag Hall, OSU, Corvallis, OR 97331-2208; (541) 737-5736.

EPA GRANT PROPOSAL DEADLINE EXTENDED

Do you have a great environmental education project idea, but lack funding? Do you work with an educational institution, public agency, or nonprofit organization? Then sharpen your pencils and get busy on your grant proposals to the EPA Environmental Education Grants Program. The "pre-application" deadline has been extended until **Friday, December 15, 1995**. For more information and to request and application packet, (for grant requests \$25,000 or less) call: (206) 553-1207 or 1-800-424-4EPA, Sally Hanft, Region 10 Environmental Education Grant Coordinator. For information on grant requests above \$25,000, contact: George Walker or Kathleen MacKinnon, US EPA, Washington, DC, (202) 260-8619.

H₂O NEWS

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For additional copies or for further information regarding the Oregon Water Resources Research Institute program, please call or write:

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