



NEWS RELEASE

For Release: IMMEDIATELY

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Note: Project abstracts are available at <http://www.wri.wisc.edu/>

State Grant Supports Research on Water Contamination, Supplies

MADISON, Wis. (8/10/04) — What happens when antibiotics and other pharmaceuticals get into Wisconsin's soils and groundwater? Can trees help clean contaminated groundwater?

Those are two of the many questions being investigated with a \$300,000 State of Wisconsin grant to the University of Wisconsin System.

The grant is supporting a total of 14 projects that run between 2004 and 2006. The projects are also examining groundwater contamination by mercury and arsenic, helping communities plan for increased demands on water resources, investigating groundwater supplies, and exploring ways to remove contaminants from groundwater.

The projects are funded through the Water Resources Institute at UW-Madison.

"We've tended to think of Wisconsin's abundant groundwaters as limitless and exceptionally pure—and to treat them that way," said James Hurley, assistant director of the institute. "But we're learning that nature imposes definite limits on what people can do. Human activity is definitely affecting both the quantity and the quality of the water we all depend on."

The institute's projects include applied work that helps non-specialists better understand and protect their community's water resources and technical research that's geared toward groundwater and resource professionals, Hurley said.

The WRI annually supports more than a dozen research projects related to drinking water, groundwater and surface water. The institute also provides technology transfer through its Web site, publications and conferences, as well as support and training for graduate and undergraduate students in a variety of disciplines.

Research supported by WRI currently involves more than 80 faculty, staff and students from University of Wisconsin campuses in Madison, Milwaukee, Parkside, Stevens Point and Whitewater; the University of Wisconsin-Extension; researchers from the Wisconsin State Laboratory of Hygiene and the U.S. Geological Survey; and individuals from the private sector.

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The University of Wisconsin WRI is one of 54 Water Resources Research Institutes nationwide—all focused on addressing problems of water supply and water quality at local, state, regional and national levels.

For more information, visit www.wri.wisc.edu.

University of Wisconsin Water Resources Institute

Groundwater Projects

2004-2006

Pharmaceuticals, Mercury, and other Contaminants

Antibiotics and other pharmaceuticals are increasingly detected in the nation's groundwater and other subsurface environments. These and other contaminants are receiving particular attention in the University of Wisconsin WRI program. Researchers are investigating:

- How tetracycline and other antibiotics move into soils – and possibly into groundwater
Project Title: Fate of Representative Fluoroquinolone, Macrolide, Sulfonamide and Tetracycline Antibiotics in Subsurface Environments
Investigators: K.G. Karthikeyan, UW-Madison, (608) 262-9367
Joel Pedersen, UW-Madison, (608) 263-4971
- The ways contaminants known as endocrine disruptors, such as natural and synthetic estrogen, can enter groundwater from polluted rivers and from nonconventional waste-disposal systems in rural areas
Project Title: Occurrence of Estrogenic Endocrine Disruptors in Groundwater
Investigators: William Sonzogni, UW-Madison, (608) 224-6200
Jocelyn Hemming, UW-Madison, (608) 224-6230
Steve Geis, UW-Madison, (608) 224-6230
Miel Barman, UW-Madison, (Lab of Hygiene), (608) 224-6230
- How mercury moves through watersheds and groundwater and the way it changes form (or species) as it passes through different environment
Project Title: Mercury Speciation along a Groundwater Flowpath
Investigators: David Armstrong, UW-Madison, (608) 262-0768
Christopher Babiarz, UW-Madison, (608) 265-5085
- Contamination of groundwater around landfills
Project Title: Evaluation of Contamination of Groundwater around Landfills
Investigators: Tuncer Edil, UW-Madison, (608) 262-3225
Craig Benson, UW-Madison, (608) 262-7242
Jack Connelly, Wisconsin Dept. of Natural Resources, (608) 267-7574

Groundwater and Smart Growth

In several applied-research efforts, investigators are:

- Providing rural communities with specific examples of how local governments have devised and implemented groundwater protection measures while developing comprehensive plans

Project Title: Development of Tools to Address Groundwater in Comprehensive Planning

Investigators: Lynn Markham, UW-Stevens Point, (715) 346-3789
Charles Dunning, U.S. Geological Survey, (608) 821-3827
Chin-Chun Tang, UW-Stevens Point, (715) 346-4853

- Working with a test community to compile local groundwater information and to develop a water budget and flow model, ultimately developing a procedure communities can use to incorporate such information into their planning processes

Project Title: Providing Communities with the Groundwater Information Needed for Comprehensive Planning

Investigator: Douglas Cherkauer, UW-Milwaukee, (414) 229-4563

Groundwater Supplies

Other studies are learning more about the underground structures that hold groundwater and the ways that water flows through them. Researchers are:

- Elucidating the processes behind low water tables, high salt content and high radioactivity in Waukesha County groundwater

Project Title: A Combined Hydrogeological/Geochemical Investigation of Groundwater Conditions in the Waukesha County Area, Wisconsin

Investigators: Timothy Grundl, UW-Milwaukee, (414) 229-4765
Kenneth Bradbury, UW-Extension, (608) 263-7921
Daniel Feinstein, U.S. Geological Survey, (414) 962-2582
David Hart, UW-Extension, (608) 262-2307

- Synthesizing data from many sources to produce a model of groundwater systems in west-central Wisconsin

Project Title: Hydrostratigraphy of West-Central Wisconsin: A New Approach to Groundwater Management

Investigators: David LePain, UW-Extension, (608) 262-8658
Kenneth Bradbury, UW-Extension, (608) 263-7921

- Examining the ways aquifers in Vilas County are “recharged” with surface water and how the surrounding geology affects the chemistry of that water
 Project Title: Delineation of Flow Paths, Capture Zones and Source Areas, Allequash Basin, Vilas County, Wisconsin
 Investigator: Mary Anderson, UW-Madison, (608) 262-2396
- Developing guidelines for the design of rain gardens and operating an experimental garden to determine their long-term effectiveness at filtering surface water and promoting aquifer recharge
 Title: Design & Evaluation of Rain Gardens for Enhancement of Groundwater Recharge
 Investigator: Kenneth Potter, UW-Madison, (608) 262-0040

Cleaning Up

Rounding out the research program are several projects studying ways to remove arsenic and other contaminants from groundwater. Investigators are:

- Examining the possibility of using iron from recycled foundry slag for removing arsenic from groundwater
 Project Title: Foundry Slag for Treating Arsenic in Groundwater and Drinking Water
 Investigators: Craig Benson, UW-Madison, (608) 262-7242
 David Blowes, University of Waterloo, (519) 888-4878
- Studying the potential of using trees to clean up severely contaminated groundwater
 Project Title: Monitoring Environmental Effects at an Established Phytoremediation Site
 Investigators: William DeVita, UW-Stevens Point, (715) 346-3753
 Mark Dawson, Sand Creek Consultants, Inc., (715) 365-1818
- Pursuing new “pump-and-treat” technologies that remove contaminants as groundwater is being pumped
 Project Title: Combination of Surfactant Solubilization with Permanganate Oxidation for Groundwater Remediation
 Investigator: Zhaohui Li, UW-Parkside, (262) 595-2487
- Evaluating new methods for testing groundwater for contamination by *E. Coli* and other bacteria
 Project Title: A Comparison of USEPA-Approved Enzyme-Based Total Coliform/*E. Coli* Tests for Microbiological Groundwater Monitoring and Laboratory Consultation
 Investigators: James Schauer, UW-Madison, (608) 262-4495
 Jeremy Olstadt, UW-Madison, (608) 224-6262
 Jon Standridge, UW-Madison, (608) 224-6209
 Sharon Kluender, UW-Madison, (608) 224-6262