

# 1996 Priorities and Projects

**T**o effectively resolve Illinois' complex waste management problems, HWRIC's ongoing research program supports scientific investigations that improve our understanding of waste problems in the state and lead to more effective technologies and strategies to solve these problems.

The Center's research and development activities address the full spectrum of issues surrounding waste management—past, present, and future. The environmental implications of past waste management practices are apparent from the number of hazardous waste sites awaiting cleanup and the extent of the contamination problems at these sites. HWRIC seeks ways to solve current problems by funding researchers to investigate and develop promising remediation technologies. Another focus of the research program is the promotion and development of pollution prevention technologies to prevent waste management problems from occurring. HWRIC concentrates primarily on hazardous and industrial solid wastes when funding pollution prevention and remediation research efforts but does not limit waste stream investigations to only those types of waste.

HWRIC staff identify topics of particular interest to the state and solicit research proposals in those areas. Topics of special interest to HWRIC for Fiscal Year 1996 funding included assessment of risk at contaminated sites, development and evaluation of pollution prevention techniques, and remediation technology development and evaluation.

Proposals are first evaluated by Center staff. Those that provide the best responses to the solicitation and address important waste management problems and/or offer significant scientific contributions towards the state's goal of waste prevention are also evaluated by external peer reviewers. Projects rated highly by the reviewers that address critical problems for the state and/or are likely to have an immediate benefit are selected for funding. Projects generally begin on October 1.

Approximately \$350,000 was available for new projects in FY96 out of a total research budget of \$640,000. These funds are primarily available to investigators working in Illinois, although researchers from other states have received support for projects of



## Pollution Prevention Technologies/Techniques

Physical and Chemical Characterization of the Dental Waste Stream—Michael Cailas, University of Illinois at Chicago

Creation of an Interactive On-Line Pollution Prevention Manual—Scott Butner, Battelle Seattle Research Center

Development of an Activated Carbon Fiber Adsorption/Regeneration System to Recover and Reuse Toxic Organic Compounds—Mark Rood, University of Illinois at Urbana-Champaign

Activated Carbon Fiber Adsorption/Regeneration System: Recovery and Reuse of Toxic Organic Compounds—Mark Rood, University of Illinois at Urbana-Champaign

Waste Management Survey of Illinois Higher Education Institutions—Diane O'Rourke, Survey Research Laboratory, University of Illinois at Chicago

Pollution Prevention Through Innovative Supplier Contracts: Strategies for Small Businesses—Thomas Bierma and Francis Waterstraat, Illinois State University at Normal

Total Cost Assessment: Catalyzing Corporate Commitment to Pollution Prevention in Illinois—Deborah Savage, Tellus Institute

Synthetic Studies of a Water-Soluble and Recyclable Organotin Reagent—Rick Gaston, Southern Illinois University at Carbondale

significance to Illinois. Researchers from public and private universities and colleges, industry, research institutes, government agencies, and consulting firms are eligible.

HWRIC's Research Program staff work with the investigators during the course of their projects, evaluating the work as it progresses, and serving as a source of information and technical assistance when needed. Research staff have worked to supplement the funding allocated to the program by co-funding projects with other agencies and obtaining external funding to pursue additional topics of interest to the Center.

The results of Center-funded research, as well as Center-conducted research, are made available in a variety of ways. Investigators are expected to publish

articles in peer-reviewed and technical publications as well as make presentations at meetings, seminars, and workshops. Factsheets and brochures are prepared by HWRIC staff and distributed to technical organizations and companies that might benefit from the information they contain. Most projects result in peer-reviewed research reports published by HWRIC and made available through our Clearinghouse. Research projects funded this fiscal year are listed in the boxes.

To obtain brief summaries of on-going projects and a list of available project reports check our Web site (<http://www.hazard.uiuc.edu/hwric/mlhome.html>). HWRIC's Research Program staff can be reached at (217)333-8940.

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### Waste Management Options

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Effect of Chemical Immersion on Interface Strengths of Hazardous Waste Landfill Liner Systems—Timothy Stark, University of Illinois at Urbana-Champaign

Accelerated Aging of Stabilized Hazardous Wastes—Robert Fuessle and Max Taylor, Bradley University

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### Remediation Technologies

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High Rate Bio-Oxidation of Dichloromethane by Denitrifying Bacteria—David Freedman, University of Illinois at Urbana-Champaign

Enhancement of BTEX Biodegradation Rates Under Iron-Reducing Conditions—Walton Kelly, Illinois State Water Survey

Toxic Heavy Metals in Biodegradation and Bioremediation Technologies—Eric Niederhoffer, Southern Illinois University at Carbondale

Remediation of Petroleum Contaminated Sites: Composting, A Better Way—Janice Perino, Perino Technical Services, Inc.

Air Sparging Investigation at Mattison Machine Works, Rockford, Illinois—Quentin Davis, Fehr-Graham & Associates

Innovative Evaluation Methods for Bioremediation—Bruce Rittmann, Northwestern University

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### Risk Assessment

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Development of a Sensitive Bioassay to Detect Exposure to Environmental Estrogens—Elizabeth Jeffrey, University of Illinois at Urbana-Champaign

Starlings as Avian Models and Monitors of Remedial Effects at Crab Orchard National Wildlife Refuge—Richard Halbrook, Southern Illinois University at Carbondale

Household Pets as Sentinels of Lead Exposure: A Study of Lead Exposure, Phase II—William Buck, University of Illinois at Urbana-Champaign

Determination of Animal Hazards from Air and Soil Samples from Crab Orchard—Larry Hansen, University of Illinois at Urbana-Champaign

A Critical and Statistical Evaluation of Characterization Methods for Sites Contaminated through Multiple, Discrete Spills—Michael Barnhardt & Donald Keefer, Illinois State Geological Survey

East St. Louis Urban Ecology Project—Kenneth Reardon, University of Illinois at Urbana-Champaign