Funding Provides Increased Environmental Assistance to Illinois Companies

Illinois industry and the environment stand to benefit from a recently awarded grant to the Hazardous Waste Research and Information Center.

The one year, $86,000 grant, provides small and medium sized firms with better access to HWRIC’s specialized pollution prevention expertise and technical assistance. The project focuses on increasing environmental and pollution prevention awareness of the staff of the new Manufacturing Extension Centers (MECs) located throughout Illinois as well as helping industries meet modernization needs with respect to environmental issues.

“The goal for this project is to help manufacturers become more efficient, competitive, and environmentally sound through an active partnership between the Hazardous Waste Research and Information Center and Illinois’ MECs. We also want to increase pollution prevention awareness in Illinois industries,” said Tim Lindsey, HWRIC’s Pollution Prevention Program Manager.

Supporting the state’s COMPETE (Coalition for Manufacturing Performance through Technology) program, this Technology Challenge Grant requires HWRIC to conduct environmental and pollution prevention training for Manufacturing Extension Center staff, arrange and perform pollution prevention assessments for firms requesting assistance, and prepare project reports on the assessment.

Lt. Governor Bob Kustra, Governor Edgar’s senior advisor for economic development, announced the $1.5 million in grants earlier this summer. Funding for the program comes from the Illinois Department of Commerce and Community Affairs in collaboration with the Illinois Coalition and the Governor’s Science Advisory Council.

The 10 organizations who received funding will continue the development of the state’s network of Manufacturing Extension Centers. The Centers provide a broad range of technical information, modernization assessment and planning, and industrial engineering and consulting services to Illinois businesses.

For more information contact Tim Lindsey at 217/333-8955.

Reverse Osmosis Takes on Pickling Waste

A new Reduction/Recycling Technology (RRT) project is underway with Arid Technologies of Chicago, a company specializing in developing membrane technology systems for their clients. The project will test reverse osmosis (RO), a membrane filtration technology, to remove metal contaminants and regenerate and recycle sulfuric acid from a galvanizing metal process line.

The prototype RO unit for this pilot study has been designed by Arid to withstand the high pressure, temperature, and acidity of their client’s pickling waste stream. The test will take place on site at the manufacturing facility over a three week period.

If the test is successful, a full-scale RO unit will be constructed and put into operation in this facility. Currently, the manufacturing facility generates 5,000 gallons of spent sulfuric acid per week, paying $0.40/gallon for transport and disposal. Raw material costs for the 94% sulfuric acid used by the company are approximately $0.50/gallon.

Arid Technologies estimates the RO system will save the company $100,000 annually in reduced disposal costs and acid purchases. The project is scheduled for completion in the Spring of 1996.

HWRIC’s RRT program focuses on research done in cooperation with industries in Illinois. These projects require a 100% match by the industry which can be in-kind services, personnel, equipment, etc. Often these projects involve final testing of a pollution prevention technique or technology and use the expertise of HWRIC engineers.

For more information on HWRIC’s RRT Program, contact Tim Lindsey at 217/333-8955.
New Projects Aid Pollution Prevention, Remediation Efforts in Illinois

Tellus Institute, Boston, received additional money from HWRIC's Research Program to expand their current on-going project "Total Cost Assessment: Catalyzing Corporate Commitment to Pollution Prevention in Illinois." In addition to assisting targeted businesses with implementing total cost assessment procedures for tracking wastes they generate, Tellus staff will now tackle the important issue of measuring pollution prevention effectiveness within Illinois.

Illinois State University researchers Dr. Tom Bierma and Frank Waterstraat have been awarded funding to continue their innovative work on understanding how companies adopt pollution prevention and on developing strategies to encourage them to do so. The two-year project seeks to develop contractual strategies between suppliers and small manufacturers which will provide financial incentives to both parties for continuous waste reductions. Innovative contractual arrangements between a few large manufacturers such as General Motors and their chemical suppliers have produced dramatic reductions in chemical waste. The researchers will examine these incentive contracts and adapt them to small businesses in the metal products fabricating industry with participation by both facility managers and their suppliers.

Perino Technical Services, Inc.'s newly funded study will provide a basic outline for using bagged-composting remediation (BCR) on contaminated soils from leaking underground storage tanks (LUST). Conventional composting for LUST sites is usually conducted in open or static "windrows". Structurally firm material and water are often added to the contaminated soils to improve handling and biodegradability. The drawbacks to this method include: large land requirements, high operating and maintenance costs, weather related control problems and permitting requirements.

BCR uses existing, relatively simple technology in an efficient manner without huge costs, space, permitting, or other prohibitive requirements. It has potential for remediating LUST contaminated soils at costs significantly less than landfilling or other technologies while avoiding the limitations of conventional composting. The goal of this project is to make BCR more accessible to a wider variety of users.

Two University of Illinois researchers, Dr. William Buck and Karen Duncan, have been funded to complete the final phase of a study designed to evaluate and compare the effects of bismuth, iron, and lead shot on hand-reared mallards. This project examines the potential effects of sublethal doses of bismuth and lead on reproductive capacity by measuring clinical pathological parameters in the ducks.

HWRIC research funds are also being used to develop and offer two courses through the Neighborhood Development Academy in E. St. Louis, one of the poorest urban communities in the US. The courses, to be developed by Dr. Kenneth Reardon of UIUC's Department of Urban and Regional Planning, will be an introduction to local, state and federal government structures, processes and policies that impact the urban environment and an introduction to the theory, methods and issues related to neighborhood planning.

NEW PUBLICATIONS

Overcoming Barriers to Pollution Prevention in Small Businesses: Applications in the Metal Parts Fabricating Industry. Thomas J. Bierma, Francis L. Waterstraat, Illinois State University, RR-075, $5.00.

Pollution Prevention & Business Management: Curricula for Schools of Business and Public Health. Thomas J. Bierma, Francis L. Waterstraat, Illinois State University, TR-024 (Volumes 1 & 2), $5.00; TR-025 (Supplemental Readings), $10.00.


Air Concentrations of PCBs and Metals at Crab Orchard National Wildlife Refuge. Stephen Vermette, Buffalo State University; MaryAnn Willet, Illinois State Water Survey; Jack Cochran, Illinois Hazardous Waste Research and Information Center. RR-063, $5.00.

Contact the HWRIC Clearinghouse for further information or to order these publications at 217/333-8940. Prepayment by check or money order is required.
Overcoming Barriers to Pollution Prevention

It's a puzzle that needs to be solved. If pollution prevention (P2) benefits companies in various ways from decreasing the amount of waste generated to bettering the bottom line, and even with the strong push by federal, state and local agencies to provide pollution prevention help, why haven't more companies adopted it?

Illinois State University researchers, Dr. Thomas Bierma and Francis Waterstraat, sought answers to this puzzle through a HWRIC research grant. Another question they investigated dealt with learning what strategies could be used to significantly accelerate the adoption of P2 by these same companies.

The researchers set out to understand the typical technology transfer mechanisms and what the barriers were to P2 technology adoption in the metal parts fabricating (MPF) industry. Methods of gathering information included: reviewing academic marketing literature on "Diffusion of Innovation"; conducting telephone interviews with personnel from P2 assistance programs across the country to identify common difficulties in promotion of technological change; reviewing the current state of the industry in terms of customers, suppliers and future trends; conducting additional telephone interviews with Illinois MPF companies to identify their perception of P2 and how they get their technology information; and, conducting on-site interviews at selected MPFs to develop a more detailed picture of how new technologies are identified and adopted.

The findings from this research include the following observations:

- conditions for P2 diffusion appear to be good, yet diffusion is very limited
- though MPF managers are demanding other manufacturing innovations, they are not demanding P2 innovations—this lack of demand appears due to two primary factors. First, those who are promoting P2 are not speaking the language of business. Currently, P2 is perceived by managers to address "environmental problems," and therefore are tangential to their primary concern of productivity and profitability. Even though P2 addresses these concerns, the language currently in use doesn't establish that connection in the mind of the small MPF manager. Second, managers greatly underestimate their production waste and the financial impact of that waste on the company. Current managerial accounting practices fail to capture the volumes and costs of production wastes. As a result, managers fail to recognize the benefits of reducing such wastes.
- familiar technology transfer mechanisms are not promoting P2—typically, small MPFs adopt new technologies by seeking information from a well established set of sources, a "comfort zone" of professionally trusted individuals such as suppliers, competitors, customers, and contracted business associates (accountants, attorney's, etc.). None of these have P2 expertise or experience. Also, since MPF managers are not demanding P2 assistance, none of these sources are receiving market signals to develop P2 expertise.
- government-driven P2 technology transfer mechanisms have limited effectiveness—governmental agencies who promote P2 technology transfer are often outside the "comfort zone". In fact, they are in most managers' "danger zone". Managers do no trust members of the "danger zone" and actively avoid communications with them.

Recommendations to providers of P2 based on this study are:

- approach P2 promotion as a marketing problem—communication about the product must come through accepted channels from trusted sources.
- enhance traditional P2 promotion programs through marketing insights—use trusted communication sources, reach the customers through their "comfort zone" members; change the P2 language to be more oriented toward business.
- use non-traditional mechanisms for P2—use the supplier/MPF relationship as suppliers are the most trusted source of innovative information for most small MPFs; use the accountant/MPF relationship since one of the most significant barriers to P2 adoption is manager ignorance of waste volumes and associated costs.
- use relationships among competitors and other local businesses—small businesses depend upon other businesses, including competitors,
for assistance and advice in adopting new ideas and technologies.
• use the customer/MPF relationship.
• expand availability of capital—external funding may not be available to some businesses because lending institutions may be attempting to minimize financial risk by avoiding certain types of businesses or business activities. It may be necessary to identify sources of misunderstanding in the banking industry and provide education on the value of pollution prevention investments.

The complete report of this research project is available from the HWRIC Clearinghouse for $5.00.

Calendar

September 20, 1995
9th Annual Governor’s Pollution Prevention Awards
Radisson Hotel, Rosemont, IL

September 21, 1995
Charting the Course to Environmental Soundness in the Printing Industry
North Business & Industry Council, HWRIC
Chicago, IL
Contact: NORBIC, 312/588-5855

October 2, 1995
6th Annual Pollution Prevention Conference
The Hotel Pere Marquette
Peoria, IL
Contact: Mark Gerberding, IEPA, 217/785-8797

October 19-20, 1995
Hazardous Materials Transportation Course
Oak Brook, Illinois
Cost: $395.00
Contact: Mary Elsner, University of Illinois at Chicago, Hazardous Substance Training Program; 312/996-2623