

2003 INNOVATIONS AWARDS PROGRAM
Application Form

1. Program Name

Pollution Prevention (P2) Intern Program

2. Administering Agency

Iowa Department of Natural Resources (IDNR)

3. Contact Person (Name & Title)

Jan Loyson, Program Planner

4. Address

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8. Please provide a two-sentence description of the program.

The Pollution Prevention (P2) Intern program places college graduate and upper level undergraduate students in businesses, industries and governmental agencies for a twelve-week period to help identify, evaluate, and implement ecological and economical solutions for specific environmental issues or problems. In two years, companies have saved over \$3 million in annual pollution, energy and waste reduction costs with more than \$9 million in potential annual savings to be realized if recommended intern projects are implemented.

9. How long has this program been operational (month and year)?

10/2000

10. Why was the program created? (What problem[s] or issue[s] was it designed to address?)

The Iowa Department of Natural Resources (IDNR) sought to create a pollution prevention/sustainable development program that combined educational, research, and outreach components for medium to large size business and industries. The P2 Intern Program was developed to address those issues and to provide companies with specific, well-developed options for reducing wastestreams while saving money.

In addition, the program wanted to enhance student's professional development with an ultimate goal of encouraging these future environmental leaders to play a role in promoting long term sustainability. By offering interns hand-on experience in an industrial setting, the students would gain experience that could result in long term employment offers thereby fulfilling an objective of the governor of the Iowa, to keep qualified college graduates in Iowa. Through the publication of case summaries, projects could be promoted, recognized and shared with others in the industry.

11. Describe the specific activities and operations of the program in chronological order.

<i>Begin marketing P2 Services Intern Program</i>	<i>September</i>
<i>Attend college and university Career Fairs</i>	<i>September</i>
<i>Mail marketing packet to business/students</i>	<i>October</i>
<i>Visit college and university Career Development Offices</i>	<i>November</i>
<i>Contact business and organizations</i>	<i>November/December</i>
<i>Deadline for business/student applications</i>	<i>January</i>
<i>Selection of business proposals/interns</i>	<i>February</i>
<i>Contract and employment information to student/business</i>	<i>March 1</i>
<i>P2 Training</i>	<i>May</i>
<i>Internship</i>	<i>May – August</i>
<i>Compilation of Case Summaries</i>	<i>September</i>
<i>Final Evaluation of Project</i>	<i>October</i>

12. Why is the program a new and creative approach or method?

The non-regulatory program provides a forum for academia, business, and government to work together to improve Iowa's environmental, ecological, and economic prosperity. The program serves to enhance intern and host company's critical-thinking, problem solving and decision-making skills while providing the IDNR the opportunity to capture measurements. With outcome-based planning and evaluation, a systematic approach has been developed to assist the department in assessing environmental quality improvement goals, improve resource allocation and develop strategic plans.

13. What were the program's start-up costs? (Provide detail about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

<i>Category</i>	<i>20 Interns</i>	<i>Notes</i>
<i>Salary</i>	<i>\$135,000</i>	<i>Grad students at \$7,500/student; undergrad students at \$6,000/student for twelve-week period.</i>
<i>Housing Stipend</i>	<i>\$24,000</i>	<i>\$400/month.</i>
<i>Administration Fee</i>	<i>\$4,200</i>	
<i>Payroll Tax</i>	<i>\$20,250</i>	<i>Covers worker's compensation and unemployment insurance. Line item is 15% of salary expenses.</i>
<i>Marketing</i>	<i>\$7,000</i>	<i>Covers printing and distribution of brochures, factsheets, invitations, and case studies. Also includes cost of attending career fairs. Other marketing expenses.</i>
<i>Training Expenses</i>	<i>\$5,000</i>	<i>Costs cover cost of room, meals, travel (for host company supervisors and our staff), and other training related expenses.</i>
<i>Student Expense Reimbursement</i>	<i>\$9,000</i>	<i>Estimated at \$450/student based on last year's expenses.</i>

14. What are the program's annual operational costs?

\$204,450

15. How is the program funded?

IDNR's Solid Waste Alternatives Program (SWAP), Environmental Protection Agency (EPA) Region VII, and Pollution Prevention Grants

16. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

No, however in 1991, the Iowa Legislature stated, "The goal of the state is to encourage pollution prevention through the use of pollution prevention techniques in preference to waste management or pollution control . . .". The legislation required the IDNR to develop, implement and promote a P2 program for the state. In addition, the state has established waste reduction goals pertaining not only to land disposal of solid waste, but also to the generation of hazardous pollutants across all environmental media. The P2 intern program was developed as an extension of P2 Services to allow us to service more customers and affect a greater impact on the environment.

17. What equipment, technology and software are used to operate and administer this program?

Personal computer; phone; fax; email; Microsoft® Access, Excel, Word, PowerPoint; Adobe Acrobat; Internet, flow meters, airleak detection equipment

18. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address and telephone number.

Yes

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19. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

Yes, Minnesota and Nebraska.

Our innovative program differs in many respects. Our client base is medium to large businesses, industries, and institutions with more than 100 employees and all Resource Conservation and Recovery Act (RCRA) Large Quantity generators (LQG). After a competitive selection process for both businesses and interns, students are matched with P2 projects submitted by host companies. The IDNR offers a one-week training program that focuses on pollution prevention methodology, development of a sustainability program, site assessment procedures, environmental management systems, life cycle analysis and other economic considerations, and workplace safety. Host company supervisors develop work plans and ensure management support, while Iowa Department of Natural Resource engineers provide mentoring and technical assistance.

20. Has the program been fully implemented? If NO, what actions remain to be taken?

Yes

21. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

Pro:

The program continues to promote goodwill between companies and the department. In some cases, this is their first positive experience with the IDNR. Thanks to partnerships formed through intern projects, host companies are demonstrating a new responsiveness and willingness to participate in a variety of other IDNR voluntary programs.

Companies that have been involved in the program are:

Summer 2001 P2 Intern Program

Alcoa, Inc.: EMS development, including mass balance diagrams and data collection systems to evaluate environmental aspects.

Armour Swift-Eckrich (ASE) Consumer Products: Water conservation and BOD reduction opportunities at a meat production plant.

Cargill, Inc., Cedar Rapids: Water conservation projects result in substantial savings for a corn milling facility.

Cargill, Inc., Eddyville: Significance determination of environmental aspects and lighting audit of a wet corn milling facility.

Dayco Products LLC: Development of EMS framework and recycling program improvements at a hose fitting manufacturer.

DuPont: Solvent reduction through a variety of options and recycling improvements at a polymer and coating manufacturer.

Equistar: Hazardous waste storage database and hazardous chemical reduction/substitution at an ethylene manufacturer.

Henderson Manufacturing: Inventory management system improvements at a manufacturer of truck accessories.

Mahle-Parr Filter Systems, Inc.: Waste tracking system and plastic recycling opportunities at a producer of fuel system components.

PMX Industries: EMS policy statement and manual development at a metal casting facility.

Polaris Industries, Inc.: Wastewater treatment redesign, solvent reclamation, and paint robot installation at the manufacturer of all-terrain vehicles, personal watercraft, and motorcycles.

Rockwell Collins, Inc.: Metal plating recommendations for the headquarters of this communication and aviation electronics producer.

Roquette America, Inc.: Reduction in hazardous waste, effluent treatment and reuse, and air compressor system losses for a corn product manufacturer.

Winnebago Industries, Inc.: Recycling opportunities for waste carpet, fabric, foam, trunk liner and other materials for the recreational vehicle producer.

Summer 2002 P2 Intern Program

Alliant Energy: Development of a computational tool to perform continuous data collection and analysis at coal-fired power plants, in an effort to reduce emissions and optimize plant efficiency.

American Ordinance LLC: Development of Best Management Practices and a Hazardous Material Management Plan for a munitions facility, reduction in sump waste and contaminated rags.

Apache Hose and Belting: Closed loop cooling system analysis, energy conservation, and scrap belt reduction at a fabricator and retailer of belts, hoses, and other cut rubber parts.

City of Newton: Report on solid waste fee structure options for the municipally owned and operated landfill.

Clow Valve Company: In-process recycling of foundry moulding sand, treatment of hazardous arcmelt dust, pallet reuse, and lighting improvements for the manufacturer of fire hydrants and valves.

Farmland Foods: Water conservation opportunities for a pork slaughtering and processing facility.

Fleetguard: Evaluation of environmental aspects and impacts at a producer of filters for engines and hydraulic systems, scrap filter recycling, pallet reuse, and water recirculation.

General Electric (GE) Industrial Systems: Heavy metals waste reduction, silver recovery, and solid waste recycling opportunities at this switchgear manufacturer.

Iowa Precision Industries (IPI): Process changes in coolant and paint systems at a facility that designs and manufactures coiled metal processing systems, primarily for the HVAC industry.

Kraft Foods North America, Oscar Mayer Foods Division: Boiler reservoir cooling system design, with substantial water savings, for this processed meat products division of a food and beverage company.

Lear Corporation: In-plant treatment of paint flush wastewater, reduction in paint filter waste, increase in paint transfer efficiency and substantial energy savings for a supplier of automotive interior systems.

Loparex, Inc.: Solvent recovery system research for a supplier of siliconized release papers and films, paper and pallet recycling.

Maytag Appliances, Newton Laundry Products: On-site solvent reclamation, surface cleaner product substitution, cardboard, stretch wrap, and plastic parts recycling programs at the washer/dryer producer.

Penford Products Co.: Chemical inventory and Material Safety Data Sheet computer management programs for a supplier of chemical starches used in the paper and textile industries.

Polk County Department of General Services: Waste audit and survey, paper recycling opportunities, and recommendations for environmental management improvements.

Rockwell Collins: Hazardous waste reduction and reuse at a communication and aviation electronics producer.

Square D: Development of Environmental Management System (EMS) elements and recycling opportunities at a manufacturer of electrical distribution products.

Tone Brothers, Inc.: Organic material diverted from landfill, production and office recycling programs, and process changes to reduce overflow product loss at a spice manufacturing company.

University of Northern Iowa: Identification of environmental aspects and impacts for university facilities, paint storage procedures, computer recycling, and mercury thermometer replacement policy.

Winnebago Industries: Scrap wood reduction through waste audits, software upgrades, and root cause analysis for the recreational vehicle producer.

With the following tangible results:

Summer of 2001 and 2002 Actual Implementation Data

Total: \$3 Million

Water Conservation		Special Waste		Solid Waste		Hazardous Waste *		Energy		Energy	
Gallons	Cost Savings	Tons	Cost Savings	Tons	Cost Savings	Gallons	Cost Savings	kWh	Cost Savings	MMBtu	Cost Savings
2.2 million	\$725,000	180	\$840,000	2650	\$760,000	10,200	\$201,000	3,700,000	\$183,000	0	\$0

Inventory/Production savings of \$315,000

Summer of 2001 and 2002 Potential Recommendations

Total: \$9.7 million

Water Conservation		Special Waste		Solid Waste		Hazardous Waste *		Energy		Energy	
Gallons	Cost Savings	Tons	Cost Savings	Tons	Cost Savings	Gallons	Cost Savings	kWh	Cost Savings	MMBtu	Cost Savings
1.4 billion	\$1,740,000	17,500	\$1,700,000	23,000	\$1,870,000	246,000	\$1,834,000	15,100,000	\$1,650,000	11,500	\$46,000

Potential Inventory/Production savings of \$832,000

The program offers many intangible benefits that cannot be measured in dollars or tonnage. Arindam Chowdhury, an Iowa State University doctoral candidate in Engineering Mechanics, saved the company \$460,000 with his recommendations to reduce paint flush wastewater and paint filtering waste, and to optimize paint and energy efficiency. "The things I learned in three months of the pollution prevention internship are more valuable than one year of course work," the intern said.

Businesses have been equally enthusiastic. "Students may not have a lot of field experience, but they have that unbridled enthusiasm," said Dave Knight, Lear Corporation, Iowa City, who served as Chowdhury's supervisor during the internship. "That's a key characteristic in looking for new solutions. We need to have input from different vantage points and age groups. Plus, you're talking about some awfully bright young people."

"General Electric definitely benefited from having our intern, with us this summer," said Glenda Thomas, Environmental Health and Safety (EHS) manager at General Electric, West Burlington. "The intern was really a professional and knowledgeable addition to the GE EHS staff. He definitely brought the GE-Burlington site to the next level of pollution prevention."

Placing interns in agencies and businesses allows for greater impact due to the duration of the student's time with each host company. Over the next five years, intern projects will save Iowa companies more than \$8.5 million annually (based on the program's two-year average savings of \$88,235 per project), a Return On Investment (ROI) of 9-to-1 for the State of Iowa. Potential savings, which include intern recommendations that have yet to be implemented, could increase that figure to more than \$24 million annually and an ROI of 23 to -1.

Con:

The majority of companies that have participated in the program reapply; however, the program cannot meet the demand. Less than 30 percent of the companies that apply receive an intern, and only 20 percent of student applicants are selected due to funding constraints.

22. How has the program grown and/or changed since its inception?

As education is a cornerstone to empowerment, the IDNR has found that an interactive learning environment has been critical for organizations to consider environmental protection as an important element in business decisions. The program has enhanced intern and host company critical-thinking, problem solving, and decision-making skills while providing the department the opportunity to capture measurements.

Our program has been flexible enough to allow us to focus on various target markets. By serving as a model of efficiency and effectiveness, the department received triple the number of student and business applicants desiring to participate in the program from the initial offering summer of 2001.

Partnerships with other organizations has increased with support from:

Academia

- *Professors and Deans' of College Disciplines*
- *Colleges and University Career Development Offices*

Technical Assistance Providers

- *Iowa Waste Exchange*
- *Iowa Waste Reduction Center*

Government

- *Iowa Department of Economic Development*
- *Solid Waste Comprehensive Planning directors*
- *Environmental Services Division of the Iowa Department of Natural Resources.*

23. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

Funding, staffing, and initially the trust of the private sector.

Add space as appropriate to this form. When complete, return to:

CSG Innovations Awards 2003

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