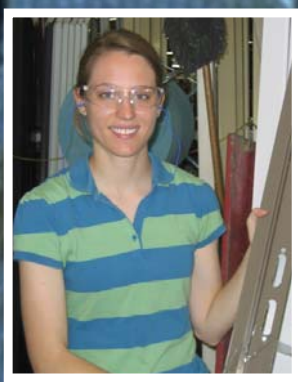
2011 ANNUAL REPORT
POLLUTION PREVENTION
INTERN PROGRAM



Pollution Prevention Services provides confidential, non-regulatory technical assistance to business and industry; working with plant managers to identify and implement environmental improvement projects, leading to more efficient use of resources and economic savings.

Through the intern program, upper-level engineering and environmental science students from Iowa colleges and universities provide host companies with a designated resource to analyze processes, research alternatives, evaluate efficiencies, document savings and provide implementation support of environmental projects.

Since 2001, more than 150 dedicated companies have saved more than $66 million by opening their doors to pollution prevention interns. Iowa's top students have gained irreplaceable experience leading to employment in their chosen fields – often in our own state.

Businesses that partner with the Pollution Prevention Intern Program are as varied as the projects summarized in this report. Collectively, they repeatedly demonstrate that investing in environmentally sustainable projects provides lasting economic benefits.

We thank the 2011 host companies for their partnership and continued pursuit of environmental excellence.

PROJECT AREAS IMPLENTED

- Lighting retrofits
- Boiler efficiency
- Heating and ventilation effectiveness
- Air conditioning usage
- Air compressor efficiency
- Water usage and wastewater treatment
- Interior and exterior thermographic analysis
- Solid waste reduction and management
- Process improvements
- Repacing hazardous chemical with less toxic alternatives

2011 IMPLEMENTED SAVINGS

CATEGORY	REDUCTION	COST SAVINGS
WATER CONSERVATION	21,849,252 GALLONS	$60,636
SOLID WASTE	296 TONS	$53,819
HAZARDOUS WASTE	5,833 GALLONS 9 TONS	$32,998 $33,652
ENERGY	10,921,589 KWH 113,073 THERMS	$733,034 $74,607
OTHER	—	$247,741
		TOTAL: $1,236,487

CONVENTIONAL AIR POLLUTANTS AND GREENHOUSE GASES DIVERTED IN STANDARD TONS

Total for all sectors							
CO_2	SO_2	CH_4	N_20	CFC	NOX	VOC	PM-10
9351.14	44.88	1395.69	164.43	102.12	21.58	3.04	2.52

"A benefit of this program is that it provides a dedicated person to focus on the project and really make it happen. To move forward, a project like this really needs the good information and someone who can be focused on completing the testing and compilation of data."

BRENT ANDERSON,
KRAFT FOODS GLOBAL INC.

"Interns with the Pollution Prevention Intern program work well independently and provide the companies with a depth of information not seen in other internship programs."

TRAVIS PERRY,
AMERICAN PACKAGING CORPORATION

Full case summaries may be viewed at:
www.iowap2services.com

IOWA DEPARTMENT OF NATURAL RESOURCES

2011 PROJECTS SUMMARIES

CODY HUEDEPOHL
ME, IOWA STATE UNIVERSITY

3M COMPANY
MASON CITY, IA
3M produces various types of tapes and adhesives used in commercial, industrial and consumer applications. Air handling units are utilized throughout the plant to maintain constant temperature and humidity levels. The intern inspected the air handlers and recommended strategies to increase their efficiency reducing energy usage and associated utility costs.

CHELSEA TOMEK
IE, IOWA STATE UNIVERSITY

CONAGRA FOODS
COUNCIL BLUFFS, IA
ConAgra Foods produces and markets leading branded and specialty food products to retail and food service customers in the United States and internationally. The intern conducted a complete waste stream analysis and developed a waste management plan that will improve environmental impacts and reduce disposal costs.

JAKE SMITH
ME, IOWA STATE UNIVERSITY

AMERICAN PACKAGING CORPORATION
STORY CITY, IA
American Packaging Corporation is a leader in flexographic printing and lamination, making packages for many well-known consumer products. The intern made recommendations to increase the efficiency of the plant's mechanical systems to help the company meet production and sustainability goals. Reducing the energy usage of these systems could considerably reduce the company's energy bills.

RICKY HARDIS
IE/ChE, IOWA STATE UNIVERSITY

EAGLE WINDOW AND DOOR
DUBUQUE, IA
Eagle Window & Door, an Andersen Corporation, manufactures a complete line of high-quality, aluminum-clad windows and doors. The intern analyzed the processes and investigated opportunities to use solvent more efficiently and to improve the effectiveness of the solvent recycling process. Reducing solvent usage in paint purging and cleaning processes will decrease air emissions and reduce purchasing and disposal costs.

PATRICK CAHALAN
ChE, IOWA STATE UNIVERSITY

ARMOUR-ECKRICH MEATS LLC
MASON CITY, IA
Armour-Eckrich Meats LLC a subsidiary of Smithfield Foods, Inc., processes lunch meats and hams. The intern conducted on-site testing of equipment to improve wastewater treatment processes at the plant. Recommendations were made for reducing water consumption and improving wastewater pre-treatment processes to increase operating efficiency and reduce disposal costs.

HANNAH WIES
IE, IOWA STATE UNIVERSITY

EMCO ENTERPRISES INC.
DES MOINES, IA
EMCO Enterprises, a subsidiary of Andersen Corporation, manufactures and supports the warranties of a variety of storm doors, designed for energy efficiency, security and durability. The intern studied the processes and material flow and recommended process modifications to reduce recurring sources of kick panel, carton and lineal scrap.

MATT BONNEY
ME, THE UNIVERSITY OF IOWA

CNH AMERICA, LLC
BURLINGTON, IA
Case New Holland (CNH) makes tractor loaders, backhoes, utility tractors, rough terrain forklifts and combine headers. The 2011 project created an energy profile of the plant and prioritized projects based on a matrix of efficiency and potential cost savings. Recommended strategies focused on lighting, ventilation systems and equipment operating parameters.

WILLIAM EDGMOND
ME, IOWA STATE UNIVERSITY

GREEN PLAINS SUPERIOR, LLC
SUPERIOR, IA
Green Plains Superior LLC is an ethanol production facility. Dried distillers grains, wet distillers grains and syrup are byproducts of the production process and are sold for use as livestock rations. The intern created a benchmark of natural gas usage in the drying process to identify opportunities and develop strategies to optimize efficiency through equipment modifications and parameter changes.

2011 PROJECTS SUMMARIES

KELLY BARNETT
ChE, THE UNIVERSITY OF IOWA

INFASTECH™
DECORAH, IA

Infastech™ produces fasteners of all shapes and sizes that are used in diverse applications, from cars and construction equipment to cell phones. The intern identified alternative methods of treating wastewater and evaluated the possibility of harvesting rainwater. Soap usage in the parts washing stations was also examined and recommendations made to reduce consumption and develop a standard operating procedure.

LOGAN SMITH
ME, IOWA STATE UNIVERSITY

LAFARGE NORTH AMERICA
Buffalo, IA

Lafarge North America manufactures building materials including cement, aggregates, concrete and gypsum. The intern identified inefficiencies and formulated standard operating procedures to optimize the operating efficiency of the compressed air system. Adopting the new procedures will enable the system to maintain minimum pressure requirements, reduce operating costs and increase reliability of the equipment.

MATT LITWIN
CE/EnvE, THE UNIVERSITY OF IOWA

IOWA HEALTH – DES MOINES
DES MOINES, IA

Iowa Health - Des Moines is the parent of four hospitals: Iowa Methodist Medical Center, Iowa Lutheran Hospital, Blank Children's Hospital and Methodist West Hospital. The intern conducted a water balance and created a baseline of usage in specific areas. Recommendations were made to reduce water usage in the irrigation and mechanical systems through process improvements and reuse.

THOMAS FISHER IV
ME, THE UNIVERSITY OF IOWA

MERCY MEDICAL CENTER
DES MOINES, IA

Mercy Medical Center is an acute-care health facility located on three campuses in Des Moines. The intern provided an analysis of the savings associated with the installation and use of variable frequency drives on heating and water pumps and heat recovery chillers in the mechanical system of the facility.

AMY SROKA
ChE, IOWA STATE UNIVERSITY

JBS USA
MARSHALLTOWN, IA

JBS is the third largest pork processer in the United States. The intern focused on the development of standard operating procedures for on-site chemical management to improve efficiency and reduce chemical usage at the plant. These projects could reduce purchasing, pre-treatment and disposal costs, help reduce the risk of spills and improve safety.

DANIEL NEWKIRK
ME, IOWA STATE UNIVERSITY

MONTEZUMA MANUFACTURING
MONTEZUMA, IA

Montezuma Manufacturing, a division of Cosma International, provides frame rails, heat shields, panel wheelhouses, door reinforcements, inlet pipes, catalytic converter shields and floor pans to automobile manufacturers. The intern identified opportunities to improve the operating efficiency of the compressed air, heating, ventilation and air conditioning and lighting systems to reduce energy consumption and utility costs at the plant.

TYLER PLATT
ChE, IOWA STATE UNIVERSITY

KRAFT FOODS GLOBAL INC.
MASON CITY, IA

Kraft Foods Global Inc. is a producer of Jell-O ready-to-eat dessert cups. The intern assisted with evaluation of a microfiltration system that cleans water to meet direct discharge limits. The intern also made recommendations for improvements in cooling tower feeds, boiler economizers, end use applications and flow metering to further reduce water usage at the plant.

JASON CHASE
ME, THE UNIVERSITY OF IOWA

NEBRASKA MEDICAL CENTER
OMAHA, NE

Nebraska Medical Center is dedicated to the highest levels of academic and private practice medicine, customer service and clinical care. The intern evaluated opportunities to improve the operating efficiency of the heating, ventilation and air conditioning system. An energy model was also developed to help prioritize efficiency projects in the mechanical systems.

2011 PROJECTS SUMMARIES

CHRIS HOLMES
ME, THE UNIVERSITY OF IOWA

OSCEOLA FOODS, LLC
OSCEOLA, IA
Osceola Foods, LLC, a subsidiary of Hormel Foods, manufactures and markets consumer branded food products. Ham and bacon are processed at the Osceola facility. The intern examined the plant refrigeration system for energy reduction opportunities to support the corporate initiative of reducing energy use at its manufacturing facilities by 10 percent over five years.

TIMOTHY JACKELS
ME, IOWA STATE UNIVERSITY

ROSENBOOM MACHINE AND TOOL
SHELDON AND SPIRIT LAKE, IA
Rosenboom Machine & Tool, Inc. manufactures custom hydraulic cylinders for a variety of markets. The intern conducted an energy audit to show the amount of electricity and natural gas consumed. After identifying major energy consumers, the intern made recommendations to improve efficiency of individual systems and reduce utility and maintenance costs.

BRANDON GOODMAN
ME, THE UNIVERSITY OF IOWA

ROCKWELL COLLINS
CEDAR RAPIDS, IA
Rockwell Collins is a pioneer in the development and deployment of communication and aviation electronic solutions for commercial and government applications. The 2011 intern evaluated the operating efficiency of heating, ventilation and air conditioning systems. The established efficiency baseline will allow the company to evaluate operating efficiencies over time and troubleshoot potential maintenance issues prior to costly equipment failures.

JEFF GORRIE
ME, IOWA STATE UNIVERSITY

VERMEER CORPORATION
PELLA, IA
Vermeer Corporation is an international leader in the design and manufacture of agriculture, construction, mining and forage equipment. The intern utilized a campus-wide energy audit to develop recommendations to reduce electricity and natural gas consumption. Strategies included heat recovery, occupancy sensors and economizers for various mechanical and process equipment.

2010 24-WEEK PROJECT SUMMARIES

LOGAN SMITH
ME, IOWA STATE UNIVERSITY

CNH AMERICA, LLC
BURLINGTON, IA
CNH America, LLC manufactures tractor loader/backhoes, rough terrain forklifts and landscaping tractors under the Case Construction name. The intern identified opportunities to optimize efficiency of the compressed air system, lighting and electric motors used at CNH. Strategies were developed to integrate heat recovery and regeneration and closed loop cooling.

ZACHARY LAWS
ME, IOWA STATE UNIVERSITY

KUM & GO
DES MOINES, IA
Kum & Go is the third largest private owner-operator of convenience stores in the United States. Based on the findings of energy audits conducted at 11 Kum & Go stores, the intern developed and implemented five energy reduction projects. His retrofits included, maintenance plans, energy monitoring and management systems and LED lighting.

BRANDON GOODMAN
ME, THE UNIVERSITY OF IOWA

PROCTER AND GAMBLE
IOWA CITY, IA
Procter & Gamble is the world's top manufacturer of household consumer products. Shampoos, conditioners, mouthwash and body washes are produced at the Iowa City plant. The intern evaluated the use of a free cooling mode in the chiller system to supply chilled water without the use of a compressor. He also conducted a full analysis of water usage to identify critical opportunities for water savings and provided recommendations to reduce water usage and associated costs.

Danielle Dilks, Intern Program Coordinator
Pollution Prevention Services
Iowa Department of Natural Resources
502 E. 9th St. Des Moines, IA 50319

www.iowap2services.com

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