

## Thorne Named to NIH Health Advisory Council



Center Director Peter Thorne has been appointed by the Secretary of Health and Human Services, Tommy Thompson, to serve on the National Advisory Environmental Health Sciences Council for the next four years. The Council provides advice to the National Institutes of Health concerning research and training programs impacting environmental health and toxicology. The Council also surveys the total research effort in the field of environmental health sciences

and recommends actions to stimulate additional research and training in key or emerging areas. The Council will be meeting May 19-21 in conjunction with the NIEHS leadership retreat in Greensboro, NC.



environmental health sciences research center

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# EHSRC Update

news from the university of iowa environmental health sciences research center

Spring 2003 Vol. 2 No. 2

## World's Biggest Wind Farm To Be Built In Iowa



On March 25, 2003, MidAmerican Energy announced plans to build the largest wind facility in the world across northern Iowa farm fields. The exact location has not been chosen yet, but the project will consist of 180 to 200 wind turbines that will total 310 megawatts of electricity. The production from this "wind farm" is enough to power 85,000 homes. The first wind turbines will be in place and operating next year, and the project will be fully operational by 2006.

Wind power has played a part in rural life for over a hundred years. The familiar multi-vane "farm windmill" of the American Midwest was invented in the United States during the latter half of the 19th century.

In the 1930s and 1940s, hundreds of thousands of electricity producing wind turbines were perched on towers all over the U.S. These wind turbines provided electricity to farms beyond the reach of power lines and were typically used to charge storage batteries, operate radio receivers and power a light bulb or two. After the 1930s, the extension of the central power grid eliminated the market for wind power, and turbine development lay nearly dormant for the next 20 years. Following the oil price jumps of the 1970s, interest in wind energy resurfaced. Federal and state tax incentives and aggressive government research programs triggered the development and use of many new wind turbine designs. A new market for wind farms began in the early 1980s due in part to the Public Utility Regulatory Policies Act of 1978. This legislation required utilities to buy electricity from private, non-utility individuals and developers.

Recently, improvements in technology and federal subsidies have made wind-produced electricity cost competitive with other new sources of generation. The addition of wind power is not expected to cause an increase in electric rates and will also provide economic and health benefits. Less coal will be imported and burned, and local farmers are expected to be paid about \$4,000 per year for each turbine placed on their land. "People involved in renewable energy applaud the actions of MidAmerican Energy," said COEC director David Osterberg. "We think the efforts spent educating Iowa citizens about the environmental and local economic advantages of renewable energy has helped provide an impetus for this project." Iowa already has 425 megawatts of wind turbines located at four large wind farms and other locations and is the third largest producer of wind power in the United States after

California and Texas. In Iowa, state law mandated the first two wind projects and tax credits continue to provide incentives for new wind turbines.



## EHSI Student Receives International Internship

*In this issue of EHSRC Update, we feature an article written by Addie Hall, a former student at the Environmental Health Sciences Institute for Rural Youth (EHSI.)*

*In the two years since her experience at the University of Iowa, Ms. Hall has taken many opportunities to pursue her interest in environmental health science. This summer, she has been accepted as an intern to the International Rice Research Institute in the Phillipines.*

My name is Addie Hall, and I am currently a junior in high school in Hamburg, Iowa. In the summer of 2001, I attended the Environmental Health Sciences Institute for Rural Youth (EHSI) at the University of Iowa. The program covered various aspects of environmental health, but focused mainly on issues commonly found in rural areas. While there, I learned about water and air quality testing, as well as various contaminants and their effects on humans and animals. I had been to other institutes at The University of Iowa, but this was my first exposure to the study of environmental health.

EHSI was a good experience, not only because of the curriculum, but also because of the access to advanced technology and amazing people at the Environmental Health Sciences Research Center (EHSRC). Small schools have many advantages, but they tend to lack the challenging classes and extra opportunities that larger schools offer.

This was the real benefit I found at EHSI, especially since it was targeted toward rural students. Not only was the experience challenging, but it was also very refreshing to be surrounded by motivated students with similar interests. I found new areas of interest in science and health, as well as new life-long friends. I have also greatly enjoyed sharing what I learned with others. Since attending EHSI, I have continued to learn about environmental health issues, and have taken every opportunity to do so. I attended the Wallace Summer Institute (WSI) at the University of Iowa in the summer of 2002. This was another program designed specifically for rural students, but it was focused more on water quality, contaminants, and testing.

In the fall of 2002, my opportunities expanded beyond the University of Iowa as I traveled to Des Moines to take part in the World Food Prize Youth Institute. As a part of this institute, I was required to write a research paper focusing on an area of a foreign country. This seemed like a daunting task, until I found out the subject of the paper: "Is it time for a Blue Revolution? Managing Global Freshwater Shortages." After all of my background experiences in water quality from the University of Iowa, learning about other countries' water management didn't appear as difficult. After researching and writing the paper, I attended the World Food Prize Institute in October. It was an incredible experience, to say the least. I sat in the front row for the World Food Prize ceremony, and was able to discuss my paper with other students and several world leaders, including Nobel and Food Prize Laureates.

Since I was a junior and had participated in the World Food Prize Youth Institute, I decided to apply for a Borlang-Ruan Internship abroad. I had already decided to seize every possible opportunity, and I thought this was something I just couldn't pass up. I applied, and was accepted as an intern at the International Rice Research Institute (IRRI) in Manila, the Phillipines for eight weeks this summer. While there, I will be working with a rice plant geneticist. I'm really looking forward to my internship, since I plan to pursue a career in genetics. So, this summer, I will once again be having a once-in-a-lifetime learning experience like I had at the University of Iowa...just a little farther from home!

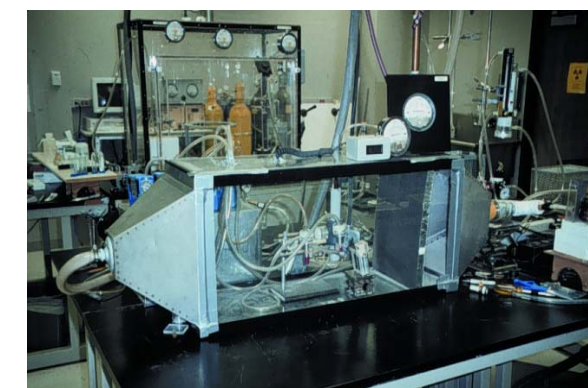
## A Profile of EHSRC Facility Cores

### Exposure Assessment Facility Core

The Exposure Assessment Facility Core (EAFC) provides expertise for exposure assessment involving chemical, microbiological, and physical agents in all media. The facility core is directed by Dr. Keri Hornbuckle, and consists of five components which have partnered in order to optimize resources; the Occupational Hygiene Laboratory, the Environmental Engineering and Science Laboratory, the University Hygienic Laboratory, the Center for Health Effects of Environmental Contamination (CHEEC), and the Center for Global and Regional Environmental Research (CGRER).

### Inhalation Toxicology Facility Core

The Inhalation Toxicology Facility Core (ITFC), directed by Dr. Peter Thorne, provides facilities and services to assist investigators with research in asthma, pulmonary biology, inhalation toxicology, and aerosol science. The functions of the ITFC include; performing acute, subacute, and subchronic inhalation exposure to rodents, developing improved aerosol and bioaerosol sampling and analysis methodology, and expanding the capability for the measurement of sensitive physiologic endpoints. The ITFC also performs assays of air and dust samples for environmental triggers of asthma including allergens, glucans, and endotoxins.

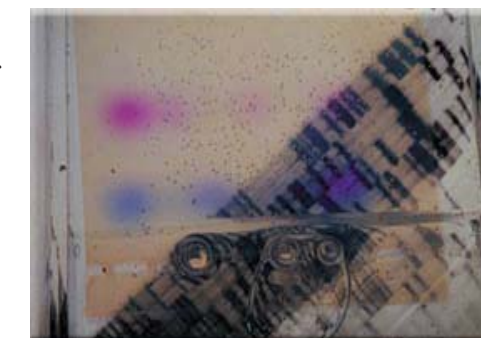


### Health Registry Facility Core

The Health Registry Facility Core provides data and services through the Iowa Cancer Registry, the Iowa Birth Defects Registry, and the Center for Health Effects of Environmental Contamination. Directed by Dr. Charles Lynch, this facility also maintains an asthma database developed from health insurance claims. Both the Iowa Cancer Registry and the Iowa Birth Defects Registry are developing methods in biologic sample collection, family birth defect/cancer history information, standardized questionnaires for behavior assessment, computer-assisted telephone interviewing, and linked databases.

### Molecular Immunology and Cell Biology Facility Core

The overall goal of this facility core is to provide an infrastructure in the areas of molecular immunology and cell biology to serve studies related to the mission of the EHSRC. Directed by Dr. Gary Hunninghake, the Molecular Immunology and Cell Biology Facility Core provides a wide breadth of expertise and services for the study of molecular immunology, epithelial cell biology, and inflammation. This facility core also provides access to the following resources; Flow Cytometry Core, Electron Spin Resonance Core, DNA Core, Vector Core, Center for Gene Therapy, Biomarkers Core, and the Microarray Facility.



### Clinical Exposure Facility Core

The overall goal of the Clinical Exposure Facility Core is to promote clinical research studies on inhalation exposures and their health effects. Directed by Dr. Joel Kline, this facility core enables investigators to perform well-characterized human exposures to specific agents that are relevant to the development of airway and parenchymal inflammation in the rural and agricultural environment.