



Bruce Wood, left, president of ePower Synergies, and EERC Director Dr. Gerald Groenewold listen to Senator Byron Dorgan during his presentation honoring the National Center for Hydrogen Technology.

## Dorgan extols EERC’s role in hydrogen future

According to U.S. Senator Byron Dorgan, the Energy & Environmental Research Center (EERC) has been—and will continue to be—integral to the development of a hydrogen economy and ensuring the energy security of our nation. Hydrogen, he said, is fueling a real-life revolution that is increasingly replacing outmoded technologies and being integrated into the everyday lives of millions.

“I am proud of the work the EERC has done in this exciting field,” said Dorgan, who presented the EERC with a plaque honoring its designation as the National Center for Hydrogen Technology (NCHT), a designation he worked in Congress to secure. “The work done in this facility has helped propel us into the future of transportation at an amazing rate.”

Dorgan awarded the EERC’s efforts during his Hydrogen Energy Action

Summit “Building the Hydrogen Economy,” on November 7, which attracted more than 175 business, research, and government leaders to the EERC to find ways for North Dakota to take the lead in the emerging hydrogen economy.

The NCHT will play a vital role, bolstered by the \$2.5 million award from the North Dakota Centers of Excellence Commission for construction of a new \$3 million facility to house NCHT research activities. The award, approved by the commission in October, was then endorsed by the State Board of Higher Education, the North Dakota Department of Commerce Foundation and, finally, the Legislative Budget Section in December. It will be matched by \$500,000 from the Grand Forks Growth Fund.

The 15,000-square-foot facility, to open late next year, will be dedicated to the development and commercialization of

hydrogen and fuel cell technologies. It is expected to create between 50 and 100 new high-paying technical jobs and attract at least \$50 million in research contracts in the very near term.

“The National Center for Hydrogen Technology represents a significant partnership between the federal government, the state, private industry, and higher education and provides a cornerstone to address this nation’s enormous challenge of developing new technologies which will guarantee

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# Hydrogen fuels innovative ice resurfacer



With a barely audible hiss from the hydrogen fuel pump and the whine of its hydraulic pump and four electric motors (one per wheel), the eP-ICEBEAR ice resurfacer was driven into the EERC's technology demonstration facility for the night.

At the helm was EERC Research Engineer Jay Almlie, part of a team that has been testing the forward-looking hydrogen fuel cell technology and which prepared the ICEBEAR for its official world debut at Senator Byron Dorgan's Hydrogen Energy Action Summit November 7 at the EERC.

Bruce Wood, president of ePower Synergies, Inc., and a key player in the ICEBEAR's pace-setting hydrogen propulsion system, was right there with the engineers and builders of the ICEBEAR as they took it through a late-night test of all of its systems, including the critical hookup of the EERC hydrogen fueling station and the tanks of 5000 psi hydrogen.

"It's a go!" proclaimed Wood, a former John Deere executive who headed up the agricultural equipment giant's ePower Technologies division before spinning it off into a stand-alone company. Wood said his company was thrilled by the ICEBEAR's performance.

"It does the same job as any other ice resurfacing machine, but with zero pollution," said Wood, whose

Cordova, Ill.-based ePower Synergies is betting big on a hydrogen-fuel future. "We've got a machine that can deal cleanly with the closed environment" of ice hockey arenas. Many such venues—including all indoor arenas in Sweden—have banned fossil fuel-powered machines, which produce emissions that must be vented at great cost during winter.

Technical challenges remain, but some of the biggest have already been surmounted, Wood said.

"Even a year ago, this machine would not have been possible because the batteries charged by the hydrogen-powered electric motors were too big and bulky to fit into the compact ice resurfacing package," Wood said. Other problems, such as hydrogen embrittlement, which can cause failure even in such strengthened materials as stainless steel, are likewise being addressed with new materials, including carbon fiber.

The Resurface Corporation, of Elmira, Ontario, designed the body of the \$150,000 hydrogen-powered ICEBEAR. The company also makes and markets the Olympia-brand, conventionally propane-fueled ice resurfacing machine. Other project partners include Ontario-based HyMotion; Alberta-based Dynetek Corporation; Nuvera Fuel Cells, Cambridge, Massachusetts; and the U.S. Department of Energy National Energy Technology Laboratory.

The EERC's National Center for Hydrogen Technology, which is supporting the development of the ICEBEAR and leading the initial demonstration of the technology, contributed \$300,000 to the project. That included construction of a portable hydrogen fueling station on-site.

"We now have one of only 27 in-service hydrogen fueling stations in the country," said Almlie, who also helped coordinate the ICEBEAR's Canadian debut in early December at the 2005 Electric Drive Transportation Association Conference in Vancouver, British Columbia, future site of the 2010 Winter Olympics. Potential sites for the next demonstration include New York City and the country of Latvia.

"The ICEBEAR is proof that the hydrogen economy is here," Almlie said. "Fuel cells are commercially viable now. Niche markets like this will help kick-start the hydrogen economy. They will be the early adopters of hydrogen fuel cells, and as the technology becomes more economically feasible, more niche markets will follow suit."

Wood agrees and anticipates that small, carefully selected fleets of work vehicles, such as ice resurfacing machines and forklifts, will provide the early "beta" testing for the technology before it is deployed widely in cars and trucks—currently the world's largest consumers of fossil fuels.

"This development of a near-commercial ice refinisher underscores the fact that the technology is ready, the hydrogen is available, and companies are developing products for commercialization," he said.

"This isn't science fiction anymore," Wood told engineers, scientists, and members of the media gathered at the EERC during the Hydrogen Summit to witness hydrogen history in the making. "This is science fact."

— Juan Pedraza

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this country's energy security for the long term," said EERC Director Gerald Groenewold.

The facility is an anchor in Dorgan's Red River Valley Research Corridor, to which he has directed more than \$225 million since 2002. "Hydrogen fuel cells have an unlimited potential for growth," Dorgan said. "There's no reason the research for the industry can't be done here at the EERC in the Red River Valley Research Corridor."

The EERC currently has more than \$10 million in contracts funded through federal agencies and numerous private sector partners to support the development of technologies for hydrogen production and fuel cells.

Dorgan authored a provision in the federal energy bill that includes \$3.75 billion for hydrogen research and calls for 100,000 hydrogen-fueled vehicles on the road by 2010 and 2.5 million by 2020. "When we look at the future of transportation, hydrogen emerges as one of the most promising technologies that will help us shed our dangerous dependence on foreign sources of oil," Dorgan said.

The Hydrogen Summit attracted the largest attendance ever to one of Senator Dorgan's Red River Valley Research Corridor events, Groenewold said. "The successful commercialization of innovative, practical hydrogen technologies depends on gatherings such as this which involve key players in the industry, government, and the research community."

Dorgan's summit was followed on November 8 by a practical "Hydrogen 101" training course that focused on the basics of hydrogen technology. The course, delivered by EERC researchers and cosponsored by Dorgan, the EERC, Xcel Energy, the Research Corridor Coordinating Center, and DOE, attracted 75 participants.

## Groenewold inducted into engineering academy

EERC Director Gerry Groenewold was inducted into the UND School of Engineering and Mines Academy on September 30. The Academy was formed in fall 2003 to celebrate the achievements of alumni, to encourage and motivate current students in their academic pursuits, and to provide advice to the School of Engineering and Mines on major issues.

Groenewold was nominated for the Academy by the Department of Geology in late August based on his extensive background and knowledge base in the field of geology, his commitment to partnerships with an international clientele, and his leadership and vision for strategic, globally significant research addressing a wide range of energy and environmental issues.

Groenewold received his Ph.D. in environmental geology and his M.S. in geology from UND and his B.S. in geology from the University of Illinois. He has served as Director of the EERC since 1987. Prior to his current position, Groenewold served as Director of the North Dakota Mining and Mineral Resources Research Institute, Director of the Engineering Experiment Station, and Associate Dean for Research of the UND School of Engineering and Mines and was employed by the North Dakota Geological Survey and the Ohio Geological Survey.

## Benson honored by ACS

EERC Senior Research Manager Steven Benson was presented the American Chemical Society's (ACS's) Outstanding Service Award in appreciation for his service as 2004 chair of the ACS Division of Fuel Chemistry. Benson received the award, in part, for presiding over the Storch Award Symposium that honors individuals who have made a significant contribution in fuel chemistry; and for developing an ACS Presidential Event entitled "Fuel for the Future: Leading the Way with Chemistry," which included presentations by Nobel Laureate Richard Smalley, Rice University, and Ken Deffeyes, author of *Hubbert's Peak: The Impending World Oil Shortage*.

## Mercury researchers honored

Three EERC researchers were honored along with other members of the North Dakota Mercury Task Force Team with the 2005 Distinguished Service Award—Government Action Program (Regulatory). The North Dakota Lignite Energy Council presented the award at its annual meeting October 26 in Bismarck in appreciation of the team's mercury technology development and regulatory subcategorization achievements. Honored from the EERC were Steven Benson, Senior Research Manager; Michael Holmes, Deputy Associate Director for Research; and John Pavlish, Senior Research Advisor and Director of the Center for Air Toxic Metals®.

## A new look

Readers of the *EERC Newsletter* may have noticed that we're sporting a new look—and name. The *EERC Edge*, a publication for employees, will continue to communicate with and about the people who give the EERC its edge in meeting the energy and environmental challenges facing the world today. We welcome your comments and story suggestions. – *Janie Solarski*

# Display honors environmental activist

While it's been over a year since North Dakota native and UND graduate Mary Wiper died after being struck by lightning while hiking in Colorado on August 1, 2004, her spirit continues to grow in the hearts and minds of those who knew her, including EERC Director Gerald Groenewold.

"You meet a lot of interesting people in life, but every once in awhile you meet someone who is truly exceptional. Mary Wiper was exceptional," said Groenewold, who established a display at the EERC in her honor.

As president of the Frontier Heritage Alliance, Groenewold joined forces in 2001 with Wiper, who was working for the Sierra Club, in an effort to preserve the largest collection of Native American rock art in North America. Located in Weatherman Draw, a small valley in south-central Montana, the drawings date

back 1100 years and tell the stories of the people who painted them. The archeological, cultural, and historical value of the drawings is immeasurable, and Weatherman Draw is considered a holy place and a place of peace by many Native American tribes.

When a Denver oil company that held the leases for the land was granted a permit for exploratory drilling in the area, the Frontier Heritage Alliance, the National Trust for Historic Preservation, the Montana Chapter of the Sierra Club, ten Native American tribes, and other concerned citizens joined to save Weatherman Draw. Wiper was a leader of the successful effort, working tirelessly on the campaign, researching, writing letters, and bringing together people on both sides of the issue, including representatives from the oil company and government agencies as well as congressional delegates.

"I think all of us who knew Mary were affected by her," said Groenewold, who respected her unshakeable commitment to her beliefs, which so often inspired others. "She had the courage of her convictions. And her convictions were phenomenally honorable."

A native of Bowbells, North Dakota, Wiper graduated summa cum laude in 1999 with majors in Honors and English and minors in Sociology and Women's Studies. She was an exceptional student and enthusiastic activist, working to establish an Earth Day celebration and a recycling program on campus.

"Mary had a quiet determination and an unwavering focus," Groenewold said. "She was a person who was never self-serving. She was always looking to improve the lot of people and the landscape. And she knew the two were intricately related."



Mary Wiper's father, Ray, left, and stepmother, Joyce, recently visited the EERC and Director Gerald Groenewold.

# In the news

## Senators duel for dollars



Robert Monette

Whether EERC coworkers Robert Monette and Angie Morgan are dueling for your donut dollars or enticing you with days of glory, just remember, it's all for a good cause.



Angie Morgan

To help raise money for the Staff Senate Scholarship Fund, the two UND Staff Senators in recent months targeted their fellow employees

with competing appeals in a Krispy Kreme fundraiser and sold tickets for the "31 Days of Glory" raffle.

The two EERC employees joined the Staff Senate earlier this year. Monette, a Contracts Officer in Business Operations, was elected to a 3-year term, and Morgan, an Administrative Assistant for the Environmental Technologies group, was appointed to fill a vacant position that expires in 2006.

The Staff Senate, established in 1998, is recognized equally with the University Senate and Student Senate as participants in advising university administration on issues related to campus operations, working conditions, and employment practices. It comprises elected representatives from four job categories: professional, secretarial, service, and technical. Monette is a professional representative, and Morgan is a technical representative.

Monette said serving on the senate offered the means to get more involved on campus, "so I put my name in the hat and let people know I was running." Monette serves on the Legislative Committee and said he's eager to help his fellow employees

understand the campus better. "I want to serve as a spokesman for staff members and help them increase their involvement in where they work," he said.

Morgan, who serves on the Elections/ Bylaws Committee, had similar reasons for joining the Senate. "I thought it would be something interesting to do and would be a chance to represent the EERC," she said. "I enjoy it because I get to know what's going on at UND. Plus, we help to raise money for a good cause."

## EERC raffle winners

EERC Graphic Designer Earl Battle won \$600 in the "31 Days of Glory" raffle, while Director Gerald Groenewold won \$100. Funds raised through the sale of raffle tickets were designated to the UND Staff Senate Scholarship Fund. Daily drawings were conducted throughout December.

## They named their baby...

Garrett Barry, born October 7, 2005, son of Lisa and Barry Botnen.



Human Resources Manager Sue Bartley presents a cake for Heith Dokken's going away party.

## Dokken heading to Afghanistan

EERC employees bid farewell once again to Research Engineer Heith Dokken. The North Dakota Guardsman is heading back to the Middle East, this time for a tour of duty in Afghanistan.

Dokken, a medic who serves with the 957th Multi-Role Bridge Company based in Bismarck, previously served a 15-month tour in Iraq during 2003-2004. During this tour, he will be joining the 1-188th Air Defense Artillery on a security force mission that will last between 18 and 24 months. He is currently in training and will fly overseas in late January or early February.

EERC Director Gerald Groenewold assured Dokken he is welcome back upon his return and, on behalf of the staff directors, presented Dokken with a 2400-minute calling card so he could keep in touch with coworkers and family.

"I can't thank you enough for all of your support," Dokken told his fellow employees before leaving. "I can guarantee you, no one in my unit has this type of support."

# New employees



## **Kelly Hodgson**

says her job as a Research Information Associate at the EERC “is a perfect fit. I like interacting with people, and the people here are great. They’re

friendly, and they make you feel so welcome. It’s a wonderful place to work.” Hodgson works in the Front Desk area to provide a variety of office and product finalization services, including producing documents, fielding incoming telephone calls, providing initial contact for EERC visitors, serving as a Centerwide contact and reference point, and providing information dissemination services. She enjoys greeting visitors to the EERC and preparing documents. “I like working on the computer, and I’m really learning a lot here,” she said.

The East Grand Forks native graduated from Northwest Technical College with a Secretarial Certificate. Hodgson worked for several years in retail sales at a clothing store and a gift shop in Grand Forks before joining Century Properties, Inc., a manager of apartment complexes, as a secretary from 1984 until 2003. She continued to work there during summers while serving as the attendance secretary at Grand Forks Central High School from 2000 to 2003. She then joined Brady, Martz & Associates, P.C., as an administrative secretary assisting with the preparation of reports and documents. Hodgson and her husband, Dave, a comfort consultant at Custom Aire, Inc., in Grand Forks, have two children, Morgan, 12, and Nicholas, 8. Much of her spare time involves attending their baseball, volleyball, and softball games, swim meets, and dance recitals. Hodgson also enjoys hunting, fishing, camping, biking, boating, and downhill skiing.



## **Walter Hollifield,**

a Contracts Officer, says he is proud to be working at the EERC. “I was attracted here by the strong culture, the mission of the organization, and its core values.

You can sense that everybody understands the vision of the organization and supports it,” he said. Hollifield prepares, reviews, negotiates, and administers numerous types of agreements, including sponsored research agreements, subcontract agreements, and confidentiality agreements in accordance with federal and nonfederal contractual requirements, government and university regulations and policies, and EERC policies. “It is very detailed work, and I’m always learning,” he said. “Management expects a high quality of work, and the people here are very knowledgeable. They’re nice to work with and extremely helpful.”

Hollifield, who graduated from the University of California at Humboldt with a degree in Psychology, earned his master’s in Educational Leadership from UND in August 2004 and plans to pursue a master’s degree in Public Administration in January. The native of Cleveland, Ohio, worked as a finance manager for three Indian Tribes: the Standing Rock Sioux in Fort Yates, North Dakota, for 7 years, South Dakota’s Lower Brule Sioux for 2 years, and North Dakota’s Spirit Lake Sioux for 3 years. He then established and ran his own bookkeeping business in Devils Lake for 14 years as well as a construction company for 10 years. Hollifield most recently worked as a graduate research assistant in the Telemedicine Program at the UND School of Medicine. When he’s not working, Hollifield enjoys racquetball, softball, and basketball. He and his wife, Sharon, have five grown children.



Petroleum/Reservoir Engineer **Ronald Rovenko** credits the EERC for attracting him from Alabama back to his home state. “I kept up with what

was going on at the EERC through the UND Alumni newsletter—the EERC catches a lot of headlines,” he said. “If not for the EERC, I would not have moved back to North Dakota.” Rovenko grew up on a farm south of Minot, North Dakota, and graduated from UND in 1979 with degrees in Geology and Geological Engineering.

At the EERC, Rovenko works with the Plains CO<sub>2</sub> Reduction Partnership and is involved with secondary and tertiary oil recovery, reservoir modeling, and separation and transportation of carbon dioxide. Rovenko has over 20 years of experience with major and independent operators developing and operating oil and gas wells. His work has involved all phases of project development, including drilling, completion, production, and gathering operations for all types of hydrocarbon production. Rovenko worked for 2 years at Gulf Oil in Williston, North Dakota, as a Production Engineer, before joining Getty Oil, Casper, Wyoming, in 1981 as an Operations Engineer. In 1987, he joined River Gas, an independent gas company in Tuscaloosa, Alabama. In 1997, he moved to Saudi Arabia for 2 years to work for Saudi Aramco as a Drilling Engineer. “That was quite an experience,” he said. “A good well in the United States will produce 100 barrels of oil a day; a good well in Saudi Arabia produces 5000 to 10,000 barrels a day.” Upon his return to Alabama, he worked for CDX Gas before joining the EERC.

# EERC on the move

Rovenko, who enjoys golfing and hunting, said he's also eager to return to his fishing hobby in area lakes, where he does not have to contend with the poisonous water moccasins and alligators common in Alabama waters. He and his wife, Jackie, have four grown daughters.



**Austin Theisen**, a Programmer Analyst, is no stranger to the EERC. Theisen worked here as a student employee while still in high school and then

in college, first in maintenance and then with the Research Information Systems group. The Grand Forks Red River High School graduate earned a B.B.A. with a major in Information Systems from UND in May 2005. Theisen assists with the design, development, and maintenance of the EERC Web site and other Web-based projects for EERC programs and conferences. He also serves as a programmer for internal business applications. "I've always enjoyed computers, and I've learned so much while working here," he said. "Web design was my initial interest, but I've been able to get into more programming, and that interests me as well."

Theisen says he enjoys everything about working at the EERC. "There are a lot of good people here and the work environment is great. There's a lot going on, a lot of fun activities," he said. "I also like it because it's on campus and close to home." When he's not working, Theisen enjoys listening to music and attending concerts. He likes to camp and play intramural hockey and is an avid UND hockey fan who enjoys traveling to Sioux road games.

*Air Quality V: Mercury, Trace Elements, SO<sub>3</sub>, and Particulate Matter Conference, Arlington, Virginia, September 19–21:*

**Tom Erickson** and **John Pavlish** (EERC) served as technical directors of the conference. **Steve Benson** (EERC) coordinated and moderated a panel discussion entitled "Power Systems of the Future: Emission Control," for which **Tom Erickson** moderated and **Everett Sondreal** (EERC) served as a panelist. **Benson** also coordinated a session entitled "SO<sub>3</sub>," **Nick Ralston** (EERC) coordinated a session entitled "Mercury Health Issues." **Laura Raymond** also presented a paper coauthored by **Ralston** (EERC) entitled "Mercury's Effect on Selenium: Physiological Implications." **Raymond** also presented a paper coauthored by **Ralston** entitled "Selenium's Effect on Mercury: Environmental Implications." **Raymond** coordinated a session entitled "PM Policy, Regulations, and Health issues." **John Pavlish** (EERC) coordinated a session entitled "Mercury Policy and Regulations." **Dennis Laudal** (EERC) coordinated a session entitled "Mercury Measurement." **Laudal** also presented a paper coauthored by **Grant Dunham** (EERC), D. Smith (SaskPower), S. Pletcher (U.S. Department of Energy [DOE] National Energy Technology Laboratory [NETL]), and D. Rose (Environment Canada) entitled "The Fate of Mercury in a Pilot-Scale Amine CO<sub>2</sub> Scrubber at SaskPower Boundary Dam Station." **Ye Zhuang** and **Christopher Zygarlicke** (EERC) coordinated a session entitled "Mercury Transformation, Plume, Atmospheric Reactions, and Modeling." **Zhuang** also presented a paper coauthored by **Zygarlicke**, **Jeff Thompson**, and **Pavlish** (EERC) entitled "Chlorine-Induced Mercury Transformation in a High-Temperature Coal Flue Gas." **Laudal**, A. Robinson (Carnegie Mellon University), and M. McCoy (DTE Energy) coauthored a paper presented by Andrew Grieshop (Carnegie Mellon University) entitled "Investigation of Mercury Transformations in Coal Power Plant Plumes Using a Dilution Sampler." **Laudal**, **Richard Schulz**, and **Dunham** (EERC), P. Swartzendruber (Frontier Geosciences, Inc.), L. Levin (Electric Power Research Institute [EPRI]), W. Aljoe (DOE NETL), J. Jansen and L. Monroe (Southern Company), D. Michaud (We Energies), and R. Valente (Tennessee Valley Authority) coauthored a paper presented by Eric

Prestbo (Frontier Geosciences, Inc.) entitled "Interconversion of Emitted Atmospheric Mercury Species in Coal-Fired Power Plant Plumes." **Stan Miller** (EERC) coordinated a session entitled "PM Control." **Zhuang** presented a paper authored by **Miller**, B. Swanson, T. Hrdlicka (Otter Tail Power Company), J. Rockey (DOE NETL), and J. Caine (Southern Environmental, Inc.) entitled "Operating Experience with an *Advanced Hybrid*™ Filter at the Big Stone Power Plant." **Mike Holmes** and **Chad Wocken** (EERC) coordinated a session entitled "Control: Fundamentals/Science," for which **Jason Laumb** (EERC) served as a session chair. **Holmes** and **Wocken** also coordinated a session entitled "Control: Sorbent Technologies." **Ed Olson** (EERC) presented a paper coauthored by **Blaise Mibeck** (EERC) entitled "Oxidation Kinetics and the Model for Mercury Capture on Carbon in Flue Gas." **Thompson** presented a paper coauthored by **Pavlish**, D. Smith and S. Podwin (SaskPower), L. Brickett (DOE NETL), and L. Lindau (Global Technology) entitled "Sorbent Injection into a Slipstream Baghouse for Mercury Control: Screening and Parametric Results." **David Hassett** and **Debra Pflughoeft-Hassett** (EERC) coordinated a session entitled "Mercury and Coal Utilization By-Products." **Pflughoeft-Hassett**, M. Zin, J. Ericksen (University of Nevada-Reno), K. Ladwig (EPRI), and E. Swain (Minnesota Pollution Control Agency) coauthored a paper presented by Mae Sexauer Gustin (University of Nevada-Reno) entitled "Coal Combustion By-Products: Do We Need to Worry about Hg Releases?" **Dunham** coordinated and chaired a session entitled "PM Measurement." **Wocken** presented a paper coauthored by **Holmes**, **Pavlish**, **Katie Hill Brandt** (EERC), B. Erickson (Basin Electric Power Cooperative), and L. Brickett (DOE NETL) entitled "Field Testing of Mercury Control for Lignite-Fired Systems with Activated Carbon and Sorbent Enhancement Additives: Field Test Results from Antelope Valley Station." **Kevin Galbreath** (EERC) coordinated a session entitled "Transport, Atmospheric Chemistry, and Modeling." **Holmes** and **Wocken** coordinated a session entitled "Control: Scrub/Multipollutant Systems." **Erickson** served as coordinator of the Air Quality V Poster Session. **Ramesh Sharma** (EERC) presented a poster coauthored by **Olson** and **Charlene Crocker** (EERC) entitled "Chlorinated Carbon Sorbents: How Is the Chlorine Attached?"

*EERC on the move continued on page 8*

# Celebrating Sixty



Employees honored EERC Director Gerald Groenewold on his 60th birthday with a song and dance in a twist on the popular tune “Y.M.C.A.” Colleagues, friends, and family joined in the festive celebration at the EERC November 3.

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## **Air Quality V Preconference Workshops, Arlington, Virginia, September 18:**

**Dennis Laudal** (EERC) presented a workshop entitled “Mercury Sampling and Measurement.” **Stan Miller** (EERC) presented a workshop entitled “Fine Particulate and SO<sub>3</sub> Aerosol Control Issues and Approaches.”

**North Dakota Mercury Task Force Meeting, Bismarck, North Dakota, September 14:** **Mike Holmes** (EERC) gave a presentation with assistance from DOE NETL and the Lignite Consortium entitled “Large-Scale Mercury Control Project.”

**Pittsburgh Coal Conference, Pittsburgh, Pennsylvania, September 11–15:** **John Hurley** (EERC) presented a paper coauthored by **Greg Weber** (EERC) and Fred Robson (kraftWorks Systems, Inc.) entitled “Pilot-Scale Test and Cycle Analyses of an Oxygen-Blown IFCC Power System.”

**Coal Combustion Product Optimization Conference, Denver, Colorado, August 31–September 1:** **Debra Pflughoeft-Hassett** (EERC) gave a presentation entitled “Coal Combustion Products – Characteristics and Management.”

**68th Petroleum Environmental Research Forum Meeting, Palo Alto, California, July 26–27:** **Mike Holmes** (EERC) gave

a presentation coauthored by **James Sorensen, John Harju, Kurt Eylands, and Steve Benson** (EERC) entitled “Evaluation of Hg Occurrence in Barite Used for Petroleum Exploration and Production Drilling Muds.”

**25th Annual ESRI International User Conference, San Diego, California, July 25–29:** **Madhavi Marasinghe** (EERC) presented a poster coauthored by **Wes Peck** and **Erin O’Leary** (EERC) entitled “Decision Support System for CO<sub>2</sub> Sequestration.”

**2005 Heat Transfer Summer Conference, San Francisco, California, July 17–22:** **Chris Zygarlicke** (EERC) presented a paper coauthored by **Don McCollor, Lingbu Kong, Li Yan, and Steve Benson** (EERC) entitled “New Methods to Prevent or Mitigate Coal Combustion Fouling and Slagging.”

**Mercury Control Technology Research and Development Program Review, Pittsburgh, Pennsylvania, July 12–14:** **Debra Pflughoeft-Hassett** (EERC) gave a presentation entitled “Mercury and Air Toxic Element Impacts of CCB Disposal and Utilization.” **Mike Holmes** (EERC) gave a presentation entitled “Enhancing Carbon Reactivity for Mercury Control in Coal-Fired, Power Plants – Antelope Valley Station.”

## Upcoming Events

**April 19–21, 2006**

Coal Ash Professionals Training Course, Memphis Tennessee

For more information:  
[www.undeerc.org](http://www.undeerc.org)

## EERC EDGE

The EERC Edge is published for employees of the Energy & Environmental Research Center at the University of North Dakota. Send comments and story suggestions to Janie Solarski, Editor, (701) 777-5023 or [jsolarski@undeerc.org](mailto:jsolarski@undeerc.org).

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