



Photo by Janet Crossland

The crew of Eagle Well Service drill into a deep lignite seam in preparation for CO<sub>2</sub> injection and storage.

## Major milestone reached in PCOR Partnership Program

The Plains CO<sub>2</sub> Reduction (PCOR) Partnership, led by the Energy & Environmental Research Center (EERC), reached a major milestone in its efforts to demonstrate geologic sequestration's role in mitigating greenhouse gas emissions and combating climate change. The PCOR Partnership is one of seven partnerships in the U.S. Department of Energy's Regional Carbon Sequestration Partnership Program formed to help determine the best approaches for capturing and permanently storing CO<sub>2</sub>. In early March, the PCOR Partnership lignite field validation test injected

approximately 90 tons of CO<sub>2</sub> over 16 days into a deep lignite coal seam in Burke County in northwestern North Dakota. The lignite test is one of four field validation tests being conducted under the PCOR Partnership's Phase II efforts.

"The lignite field validation test is the first of its kind," said Lisa Botnen, EERC Research Scientist and task manager for the test. "Until this project, no field studies had been conducted on the ability of lignite coal seams to store CO<sub>2</sub>. It was a very interesting project, and the knowledge

gained will provide valuable insight regarding the sequestration of CO<sub>2</sub> in low-rank coals."

Ed Steadman, EERC Senior Research Advisor and PCOR Partnership Project Manager, said, "The lignite field validation test was designed to

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demonstrate that storing CO<sub>2</sub> in lignite may be a viable option when injected in areas that are properly characterized for this purpose. The postinjection monitoring continued through the end of June. The information gathered from the test will assist us in understanding

the best methods currently available for the safe and practical storage of CO<sub>2</sub> in unminable lignite seams.”

Next steps for the PCOR Partnership include synthesizing the information gathered while conducting the Phase II

field validation tests and continuing the development of Phase III activities.

–Trish McGuire



Compressed CO<sub>2</sub> is delivered to the site by railcar.

## Holmes elected to NHA Executive Committee

**M**ichael J. Holmes, Deputy Associate Director for Research and Program Manager of the EERC’s National Center for Hydrogen Technology, was recently elected to the Executive Committee of the National Hydrogen Association (NHA), where he has been serving on the Board of Directors for the past 2 years.

“I am honored to take on this expanded role in the NHA, an organization where many of the members continue to partner with the EERC on hydrogen and other energy projects,” said Holmes. “If we continue on this path, hydrogen can help the United States by providing energy security, economic growth, and environmental benefits.”

NHA is a membership organization founded in 1989 by a group of ten industry, university, research, and small business members. Today, NHA has over 100 members who play a critical part in fostering the development of hydrogen technologies and their utilization in industrial, commercial, and consumer applications and promoting the role of hydrogen in the energy field.

–Trish McGuire





Photo courtesy of Jackie Lorenz/Grand Forks Herald

Three generations together (from left): Manu Anumendem, Alexander Azenkeng, Jaden Azenkeng.

## EERC fund-raising events for Alexander Azenkeng's father

**E**ERC Research Scientist Alex Azenkeng was excited that his father, Manu Anumendem, was coming from Cameroon to visit him. It had been 4 years since they had seen each other, and it would be the first time that Anumendem would see his three grandchildren, ages 6 years, 3 years, and 8 months.

Azenkeng purchased medical insurance for his father's 6-month stay prior to his father's departure from Cameroon, where little or no medical services are available. When his father arrived in Grand Forks, he went in for some checkups and found out that he needed treatment for prostate cancer, glaucoma, a cataract, and hernia

repair. Unfortunately, the insurance company refused to pay for the impending expenses, citing preexisting conditions.

When Azenkeng's coworkers heard of the mounting medical costs, they developed a plan to help defray the expenses.

The first scheduled fund-raising event consisted of dinner, a silent auction with donated items from local businesses and organizations, and entertainment by EERC musicians on July 17 at the American Legion in East Grand Forks, Minnesota.

The next event is a spaghetti lunch scheduled for August 2 at Holy Family Church in Grand Forks, North Dakota. A pancake breakfast is in discussion.

For more information or to volunteer, contact the cocoordinators (Laura Raymond, EERC Research Manager; Jason Laumb, Senior Research Manager; and Angie Morgan, Administrative Assistant). Those who wish to donate can do so with one of the coordinators at the EERC or by sending checks to the Manu Cancer Fund, Alerus Financial, Grand Forks, North Dakota 58206.

-Trish McGuire



*When they were discussing modes of transportation in South Korea, Julie Kim told Lacey and Kevin Niceswanger she'd never ridden a bicycle. The Niceswangers promptly rectified that situation.*

## It's more than the language

Lacey and Kevin Niceswanger wasted no time filling up the empty bedrooms in their house when their four children left home. It all started during the World Juniors hockey tournament in 2004, when hotel rooms were scarce for everyone who descended upon Grand Forks. The Niceswangers posted a notice on the board at the Ralph Engelstad Arena and soon found themselves hosting a Swedish hockey agent in town for the tournament.

“Getting to know him and learning about the Swedish culture—that experience was so much fun,” said Lacey, an Account Technician at the EERC. So much fun, in fact, that a few months later, when a former coworker became director of the ELS Language Center on the University of North Dakota campus, the couple decided to try being a host family for international English language students who wanted

to stay in a private home rather than on campus.

“Lacey came home one day and said, ‘What do you think about becoming a host family for international students?’” laughed Kevin, who is the public information officer for the city of Grand Forks. “I thought, ‘Well that’s interesting. We JUST became empty nesters, and now we’re going to have kids around again!’”

As of June 2009, the Niceswangers have hosted 21 students from the countries of Korea, Japan, Saudi Arabia, Taiwan, China, and Panama. The students—19 men and 2 women so far—have stayed anywhere from 1 to 6 months, depending on their ELS level.

The Niceswangers are currently hosting 28-year-old Julie Kim, who comes from Seoul, South Korea. Julie

came to Grand Forks in July of 2008 and initially stayed in the UND dorms. She had to find a temporary place to stay when her dorm closed for the Christmas break, so the Niceswangers opened their home to her, and Julie liked it so much she decided to stay there for the rest of her time at UND. Julie graduated from the ELS program this spring and has been accepted into the master’s program in music this fall at UND.

“I have many friends here, but I miss my family. I meet so many kind people, but I was lonely in the dorm. I feel comfortable here with this family. They are my American family,” said Julie. She feels strongly that the ELS program—especially when living with a host family—is a wonderful way to learn English or improve on one’s English skills. “[The Niceswangers’] pronunciation and their intonation is—I think—perfect, and they teach

me words that are like idioms, that I wouldn't learn otherwise."

"We try to provide opportunities for the students to practice communicating so they can get better with both pronunciation and comprehension," Lacey said. "We take the time to speak slowly and explain what something means or how it is pronounced."

"We believe that being in a home environment helps students feel more comfortable," added Kevin, "and the more comfortable they feel, the more easily they'll be able to concentrate on learning."

In addition to the English language, the Niceswangers make sure the students are also exposed to American food, holidays, customs, and culture. Surprisingly, Julie said there are many restaurants that serve American food in South Korea, and American is her favorite type of food. Still, the Niceswangers have managed to surprise her with homemade fare like sloppy joes, cornbread muffins, angel food cake, pancakes, and "grilling out."

"We try to provide fun experiences for them—like movie nights at home with popcorn or going bowling or to the Farmer's Market—that reinforce their learning," said Kevin. "We try to make the students feel like a part of our family."

Recently, the Niceswangers took Julie to the Paradiso restaurant for her birthday so that she could experience another American tradition. In addition to the free birthday meal, she was treated to "Happy Birthday" sung by the staff and accompanied by the clanging of kitchen utensils. (One can only imagine what the young music major thought of that!)

"One of the things we always do with the international students is to show them how to make a snowman and a snow angel," said Kevin. "For many of them, this experience in Grand Forks is the first time they've seen snow. They just laugh and laugh and have such a good time."

"After we did that, the three boys from Panama called me outside one day—'Mama Lacey! Mama Lacey! Come look!' They had made a snow volcano!" laughed Lacey.

"I appreciate learning about each of the countries and learning about these young people," said Lacey, who previously taught elementary school and students with disabilities for 17 years. "We take an interest in their goals and encourage them, and we learn things about their culture."

In August, the Niceswangers will welcome another ELS student to their home: a woman from the Kubota Company of Japan, which makes tractors and tools.

"We're looking forward to meeting her," Lacey said with a smile. "Hosting these students has turned out to be a life-changing experience. It keeps us young, and we laugh so much together, experiencing life again for the 'first time' with them."

—Sandy Van Eck

*The ELS Language Center at UND offers several programs for nonnative speakers of English who want to improve their English language skills for a job working with English-speaking clients or to go on to college in the United States.*

*Each of the 12 levels in the ELS Intensive English Program lasts about 4 weeks, and students must pass a comprehensive exam before going on to the next level. Because ELS students become familiar with the campus and programs at UND, many choose to continue their education here after they've graduated from the ELS program.*

*Host families get a monthly stipend for providing students with lodging, two meals a day, and transportation to and from the UND campus.*

*For more information on the ELS Program, contact Director Bela Hettich at (701) 777-6785 or at [bhettich@els.edu](mailto:bhettich@els.edu) or visit [www.und.nodak.edu/dept/oip/html/esl.htm](http://www.und.nodak.edu/dept/oip/html/esl.htm) and click on "Visit their Web site" under the ELS Language Centers section.*



# New employees



**John (J.P.) Hall** is a Technology Development Operator at the EERC, where he constructs, operates, and maintains bench- and pilot-scale equipment and

performs field sampling in support of multiple EERC projects.

“The projects at the EERC, such as the PCOR Partnership Program, are right in line with my interests. I am very excited about developing a career here at the EERC and sharing the knowledge I have of the oil fields. I hope to become a great asset,” said Hall, who plans to continue his bachelor’s degree studies in mechanical or environmental engineering at UND in the near future.

Hall spent 14 years in Japan before his father, a civil engineer for the Air Force, retired with the family to Larimore. Hall played football for 2 years for the University of Nebraska Cornhuskers, until an injury ended what he’d thought could be his career. Because Hall no longer had an athletic scholarship, he came back to North Dakota and found work for almost 15 years in the oil, natural gas, and pipeline industries in Wyoming, Colorado, Utah, Texas, the Gulf of Mexico, western North Dakota, Japan, Indonesia, and Russia. He worked as a human resources associate, health safety and environmental field operations administrator, rig manager, derrickman, motorman, and floorman with Nabors Drilling USALP out of Casper, Wyoming; Nabors Drilling International Ensign/Caza, a Canadian company; and Helmrich & Payne Drilling USA. Hall also worked as a directional driller and mud engineer, operated heavy machinery, and welded. He holds an International Certification

in Wild Well Control on a supervisory level, is certified by the International Association of Drilling Contractors accredited program W414, and has a Level C4 boiler certification.

Residents of Larimore, Hall and his wife have two sons and a daughter, ranging in age from 11 to 14. Hall’s wife, who is from the Philippines, is completing her LPN degree. She works at Larimore Good Samaritan Nursing and Retirement Home. Both are intensely involved in their children’s musical and educational activities. The Hall family can often be found at work in their garden, but they also enjoy going fishing and camping at Lake of the Woods, Bemidji, and Turtle River. They are very involved in their church in Larimore and have an interest in missionary support work in Nova Scotia, The Pas in Manitoba, and Oaxaca, Mexico.



Research Scientist **Ryan Klapperich** started his job at the EERC in mid-May. Klapperich works with the PCOR

Partnership, evaluating geologic storage

of CO<sub>2</sub>. He is currently working on two projects: the water issues surrounding carbon dioxide sequestration and a database to help understand which, if any, specific drilling practices have led to successful oil and gas production from the Bakken Formation in western North Dakota.

“The aspect of my job that I’ve enjoyed most so far is the people. All of my coworkers and the EERC staff at large have been very friendly and helpful. It really is a joy to come in to work every day,” said Klapperich.

Klapperich received an M.S. and B.S. in Geology, with an emphasis in Hydrogeology, as well as a B.A. from the Honors Program—all from UND. He also earned a graduate certificate in geographic information systems (GIS). His professional interests include hydrogeology, water resource management, GIS, and CO<sub>2</sub> sequestration and related environmental issues.

Most recently, Klapperich worked as a laboratory technician for the North Dakota Geological Survey (NDGS) Core Library at UND, managing the existing inventory of rock samples and processing new samples and the associated data. He previously worked as a research and teaching assistant for the UND Geology Department.

Originally from Fargo, Klapperich lives in Northwood, North Dakota. His wife recently received her master’s degree in social work and is working toward licensure in addiction counseling. Their son will enter the fifth grade this fall.

“His areas of expertise include Pokémon and light-saber combat,” joked Klapperich.

The family is active in Cub Scouts and involved at their church. They like to take trips, hunt for rocks, watch movies, go bowling, and care for their mini-Dachshund.

Klapperich enjoys outdoor activities like bicycling and camping. He admits to being “a bit of a Minnesota sports nut” who hopes to make it to a Twins game later this summer. He also likes music.

“People are typically surprised that I am a big fan of Metallica and heavy metal music in general, although I’d like to think my tastes are a bit broader than that. I do draw the line at country music. It just doesn’t resonate with me,” said Klapperich.

# Transition



**Teresa Bonev**, Assistant to the Deputy Associate Director, recently expanded her position to include the role of Administrative Assistant Supervisor.

Bonev will continue to provide direct assistance to Deputy Associate Director for Research Chris Zygarlicke and associated technical staff, including scheduling, communications, document production, and other related activities. In addition to her previous duties, she will now supervise two administrative assistants and provide training for new hires. She holds a B.S. in Business Administration (Management) from Oklahoma State University.

“I’m excited about expanding myself and my responsibilities, and I look forward to sharing my energy and ideas to support the continued growth and success of the administrative group,” said Bonev.



**Curt Foerster** has been hired as a Research Specialist for the Renewable Fuels Group at the EERC, where his work will involve the development, fabrication, and

operation of fuel processing reactor systems, with an emphasis in the electrical wiring of reactor system components for new and existing reactor systems.

“This opportunity to work with the DARPA project is one I jumped at to expand my responsibilities at the EERC. I’m learning new equipment

and procedures to support the fuel conversion research,” said Foerster.

Foerster was previously a Research Specialist for the Technology Development Group at the EERC, where his expertise was in the technical aspects of soil and groundwater field work.



**Bonnie Hillerud** has been hired for the position of Research Information Associate/Administrative Assistant for the Water Management

Group, where she will provide direct assistance to two Senior Research Managers and technical staff associated with the group, including scheduling, communications, document production, and other related activities. Hillerud was previously a Research Information Associate in the Front Desk area at the EERC.

“I am truly grateful to have the opportunity to join Beth Kurz and Dan Stepan and the Water Management Group,” said Hillerud. “I am looking forward to my new job duties, and I feel that my previous experience at the EERC has given me the knowledge that I need to carry out my new position. I am truly fortunate to be working for a great organization like the EERC.”



**Corey Irion** has been promoted to the position of Contracts and Legal Research Officer in the EERC Contracts and Intellectual Property Office, where he will be

providing limited legal research on a case-by-case basis. Irion was previously a Contracts Officer at the EERC, and he will continue to perform those duties of preparing, reviewing, negotiating, and administering numerous types of agreements, including sponsored research agreements; cash-equivalent agreements; subrecipient, subcontractor, and vendor agreements; proposal teaming agreements; purchasing agreements; and confidentiality agreements in accordance with federal and nonfederal contractual requirements, government and university regulations and policies, and EERC policies. He also assists with intellectual property matters.

Irion received his J.D. degree from the UND School of Law and a B.S. degree in Biology from UND.

“The EERC has provided me with tremendous opportunities to broaden my experiences and expertise,” said Irion. “I am truly fortunate to continue to further my understanding of federal regulations and their practical application.”

–Sandy Van Eck



Shown front row, left to right: LaRae Foerster, Lacey Niceswanger, Carol Schimetz, Jan Lucht, Linda Quamme, Clara Chambers, Ann Henderson, Melanie Jenson, Patti Reimer, Laura Raymond, and Ramesh Sharma. Shown back row, left to right: John Pavlish, Tom Erickson, Brad Stevens, Dave Brekke, Toby Larson, Kurt Eylands, Steve Hawthorne, Josh Mason, Mike Collings, Hal Rugroden, and Ron Kulas.

## EERC staff honored for years of service

**C**ongratulations go to the 28 EERC employees honored at the EERC Years of Service gathering on June 10, 2009. Gift bags and heartfelt appreciation were bestowed on the honorees by Director Gerry Groenewold, while everyone at the Center enjoyed cake and collegiality. Those 28 employees were also honored at the campuswide UND Recognition Ceremony for Staff Personnel on May 19, 2009.

The following employees were recognized for their years at the University: **35 Years** Jan Lucht; **30 Years** Ron Kulas; **25 Years** Nancy Adsero, Mike Collings, Steve Hawthorne, Melanie Jensen, Mary McLaughlin; **20 Years** Dave Brekke, Tom Erickson, Steve Evanson, Kurt Eylands, Ann Henderson, Carolyn Nyberg, Linda Quamme, Ramesh Sharma; **15 Years** Clara Chambers, Tobe Larson, John Pavlish, Patti Reimer, Hal Rugroden, Carol Schimetz;

**10 Years** LaRae Foerster, Lacey Niceswanger, Darren Schmidt, Brad Stevens; **5 Years** Anastasia Dobroskok, Josh Mason, Laura Raymond.

–Sandy Van Eck

### 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 Trish McGuire, Editor, (701) 777-5025 or [tmcguire@undeerc.org](mailto:tmcguire@undeerc.org).

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### Upcoming Events

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

#### GASIFICATION SHORT COURSE

September 9–10, 2009, Grand Forks, ND

#### INTERNATIONAL CONFERENCE ON AIR QUALITY

Mercury, Trace Elements, SO<sub>x</sub>, Particulate Matter, and Greenhouse Gases



October 25–29, 2009, Arlington, VA