

Photo by Wes Peck

Crews at one of the EERC's Plains CO₂ Reduction (PCOR) Partnership lignite field validation test sites in western North Dakota.

EERC economic impact to region and state

According to the U.S. Department of Energy (DOE), energy research at the University of North Dakota (UND) Energy & Environmental Research Center (EERC) has been responsible for over 7300 private sector jobs in the state and throughout the region, through 16 different ongoing DOE projects. The EERC has conducted approximately \$258 million worth of coal, hydrogen, emission control, water management, CO₂ sequestration, oil, and natural gas programs in North Dakota, which included DOE and private sector funding.

“If you drive out to western North Dakota, the amount of business opportunities and technologies that are being created from research conducted at the EERC is absolutely incredible,” said EERC Director Gerald Groenewold. “But it’s not just the technologies that

are being created, it’s new jobs as well, which is even more impressive.”

DOE used the U.S. Department of Commerce’s (DOC’s) Regional Input-Output Modeling System II formula in its analysis, which uses the average of 28.5 direct and indirect jobs being created for each \$1 million in research and development funding.

Sheila Hanson, EERC Marketing Research Manager, said, “DOC’s formula is based on averages, so it’s a bit similar to the idea that every family has 2.5 kids. Maybe the first \$1 million really generated ten jobs and the next \$10 million really generated 43 jobs and so on, but it will all average out to about 28.5 jobs (X new EERC jobs + Y new jobs generated in the region).

“Say the EERC gets \$1 million and hires ten new employees who move

to Grand Forks with a spouse and 2–4 kids each, resulting in about 50 new people moving to Grand Forks,” Hanson continued. “The spouses get jobs. The kids go to school, supporting more teaching positions. A new house or two gets built, and a couple of others get remodeled. The retail and service sector benefits, too. Maybe there’s a new position at a local hardware store, a new waiter gets hired at a local restaurant, and a clerk gets hired at a local grocery store and so on. It’s a rippling effect.”

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The EERC's work in North Dakota involving DOE awards, which total over \$132 million, includes a wide variety of topics. Projects include everything from the testing of coal types, power plant emissions, and control devices to the development of advanced combustion processes and CO₂ sequestration. Other projects involve solving ash-related problems and promoting environmentally safe, economic uses for coal combustion by-products; developing mercury control technologies; performing strategic studies on coal-to-liquid fuels; and examining selenium's role in seafood safety.

Groenewold said the federal government is the only entity that awards funding for basic fundamental research and development. "Only 6% of EERC contracts are with

federal entities, but because the EERC leverages every federal dollar with at least a two-to-one cash match from the private sector, our research has a much deeper impact on job creation," he said.

Among the major EERC programs supported by federal funding are the Cooperative Agreement with DOE, the National Center for Hydrogen Technology (NCHT), and the PCOR Partnership.

The Cooperative Agreement involves hundreds of partners supporting national energy goals and homeland security by advancing sustainable supplies of affordable energy, ensuring clean water supplies, and protecting and restoring the environment. The NCHT Program has more than 70 partners advancing the production,

storage, and delivery of hydrogen. The PCOR Partnership, which is a regional collaborative framework for testing and demonstrating CO₂ sequestration technologies, has 77 Phase II partners in nine states and four Canadian provinces within the central interior of North America.

In FY08, the EERC was awarded more than \$95 million in contracts. Operating like a business within UND, the EERC has had more than 1000 clients in 50 states and 51 countries since 1987.

"We are pleased that the work generated here at the EERC, through our partnerships with the federal government and private-sector clients, is providing significant economic benefits to North Dakota and the region," said Groenewold.

Hydrogen fuel today!

"Hydrogen is not the fuel of the future—it is the fuel of today!" said EERC Director Gerald Groenewold at the 4th Annual Hydrogen Implementation Conference in Laramie, Wyoming, in July. "Depending on the world's energy situation, certain fuel cell vehicles could be commercially available in 4–5 years."

As a result of the EERC's over 50 years of hydrogen research involving fossil and renewable energy, the EERC was designated as the National Center for Hydrogen Technology (NCHT) in 2004. In 2006, construction began on the NCHT building, where numerous technology and product tests are now conducted.

"The EERC is involved with a wide array of projects to make hydrogen available using the current refueling infrastructure, including the development of a unique on-demand hydrogen production technology," said Groenewold. "Additional projects include hydrogen production from biomass and fossil fuels; battlefield hydrogen from JP-8; hydrogen



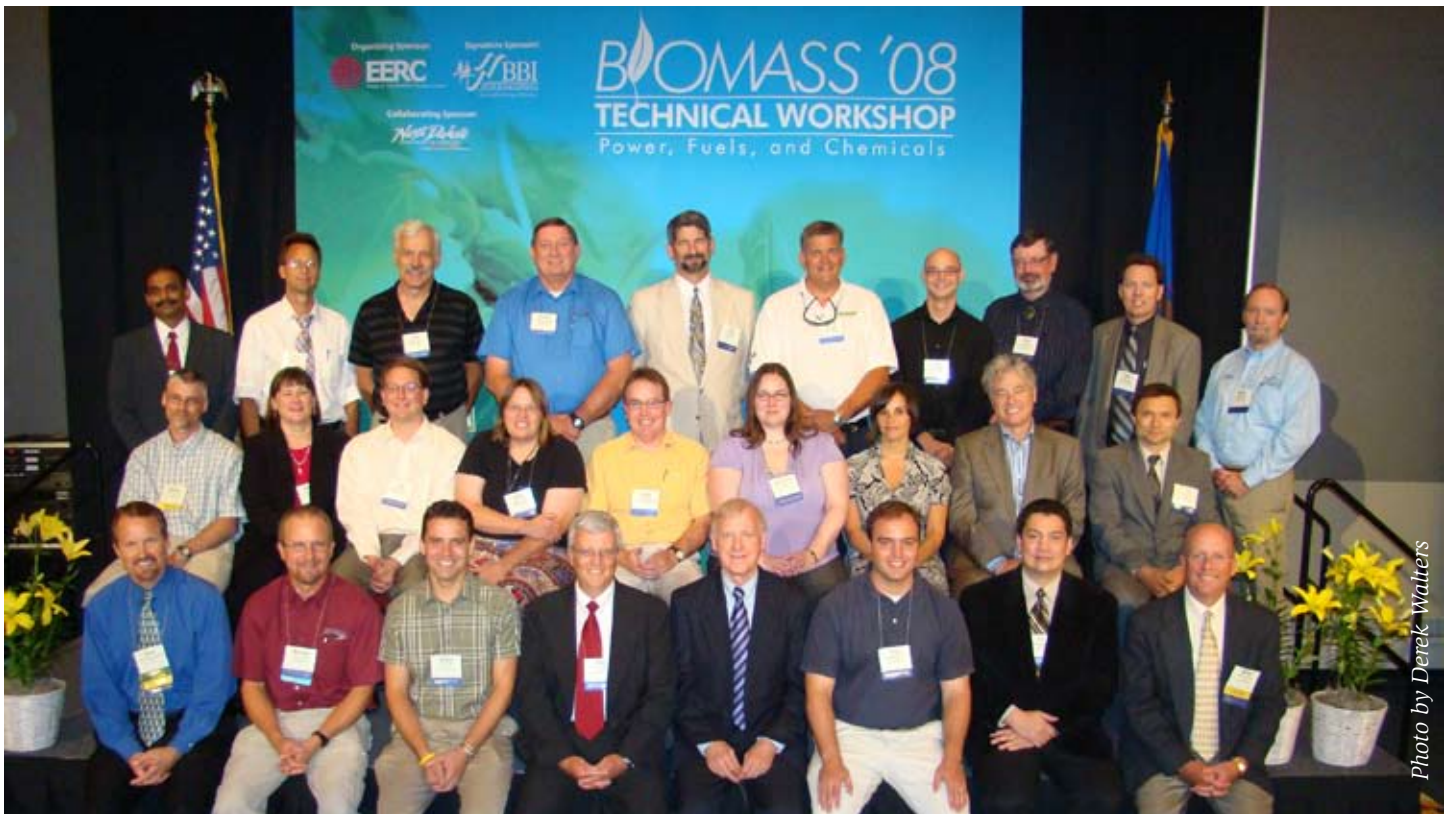
General Motors provided a ride and drive opportunity in the Chevy Equinox Fuel Cell vehicle as part of the Hydrogen Summit and NCHT facility dedication events.

production from wind energy; hydrogen purification, separation, and storage; and end uses, such as small-scale power systems and fuel cell vehicles. We have the technologies to move forward with hydrogen as a viable fuel, but we lack the commercial infrastructure to make it available to everyone."

On September 4 and 5, the EERC hosted a 2-day event related to

hydrogen. The first event was sponsored by U.S. Senator Byron Dorgan, the EERC, and the Red River Valley Research Corridor and entitled "Advancing the Hydrogen Economy Action Summit II." The second day, the EERC dedicated its new \$3.5 million NCHT facility. More information on these events will be available in the September–October issue of the newsletter.

–Trish McGuire



The Biomass '08 Technical Workshop presenters.

Biomass '08: Real-world information for real-world solutions

At the Biomass '08: Power, Fuels, and Chemicals Workshop, held July 15–16, 2008, at the Alerus Center in Grand Forks, North Dakota, attendees learned about gasification, financing options, fuel options, viability, and the nuts-and-bolts of biomass as a feedstock for fuel.

The Technical Workshop explored the latest trends and opportunities in utilizing biomass, biomass feedstocks and agriculture, policies and incentives for renewable energy, the latest technologies for ethanol and biodiesel production, and biomass for heat and electricity. This year's program featured a preworkshop tutorial and four main sessions, which included over 40 speakers representing all aspects of the biomass industry. North Dakota Governor John Hoeven kicked off the workshop with a keynote address. Special comments were provided by video from U.S. Senator Byron Dorgan.

The workshop attracted more than 290 participants from more than 30 states and Canada and India. Of those, 130 people attended the preworkshop tutorial, which focused on the fundamentals of biomass gasification. This year's attendees represented more than 175 organizations, the majority from private industry.

Attendees heard cutting-edge presentations on new technology developments; discovered opportunities for economic production of power, transportation fuels, and chemical feedstocks from biomass; networked with researchers and potential partners; and learned how to become a part of this growing multibillion-dollar industry.

Workshop attendee Jon Erickson of Black & Veatch said, "Great presentations, exhibits, and participants. Lots of opportunity for partners, clients, and suppliers. I highly recommend."

The Exhibit Hall had 31 exhibitors with a connection to the biomass industry. Susan Ehrlich, of W.R. Grace, felt the Exhibit Hall was "a great way to get informed and connected to this emerging industry."

As an added bonus to the workshop, a tour of the G F Truss Plant provided a real-world example of a fully functional biomass gasifier designed and built to specifications by the EERC. The gasifier provides power for the plant while disposing of its wood waste, with the available option of giving power back to the utility if run on a 24-hour basis.

The 2009 Biomass: Power, Fuels, and Chemicals Workshop will be held at the Alerus Center in Grand Forks, North Dakota, on July 14–15, 2009. More information on the event will be posted at a later date on the EERC's Web site at www.undeerc.org.

– Trish McGuire

Building relationships

EERC Director Gerald Groenewold often says that “relationships are the currency of life.” On his recent trip to Israel, Groenewold met Professor Moti Herskowitz, Vice President and Dean for Research and Development, Ben-Gurion University (BGU) of the Negev, Beer-Sheeva, Israel. As a result of that meeting, Professor Herskowitz traveled to the EERC in August to discuss potential collaborations with Groenewold and EERC Associate Directors.

“This is the fourth such visit to the EERC of people I met when I was in Israel,” said Groenewold. “The fact that Professor Herskowitz took the effort to come to the EERC shows the level of commitment for cooperation.”

Professor Herskowitz is an expert in biofuels, and BGU is patenting a new type of biofuel called “iso-diesel,” based on plant and animal fats, that can be used directly in vehicles. While



EERC Director Gerald Groenewold and Professor Moti Herskowitz.

at the EERC, Professor Herskowitz also toured the EERC’s facilities, including the NCHT.

“The Israelis and the EERC see numerous opportunities for collaboration,” said Groenewold. “I’m

sure that major new opportunities will come forward as a result of our complementary expertise.”

–Trish McGuire

Little-known service offered by the EERC

One of the most unusual certifications at the EERC has to be the odor evaluator certification, which conjures up visions of people going around sniffing the air. While that’s what they do, those certified use this specialized skill when called upon for a specific reason or purpose and with the full knowledge of the state air quality rules and regulations. They also use an instrument designed to aid in determining whether a business or location is in compliance or in violation of the North Dakota Air Quality rules and regulations.

Recently, Richard Shockey, EERC Research Engineer; Janet Crossland, EERC Research Scientist; and Ken Grohs, EERC Facilities and Safety Coordinator, received the odor evaluator certification from the North Dakota Department of Health (NDDH)

Division of Air Quality. The NDDH Air Quality Program, which is responsible for protecting and fostering the state’s air quality resources, comes to Grand Forks once a year to conduct the tests that are designed to make sure that one can smell and recognize different scents. The certification is valid for 1 year.

“Richard and Janet could be utilized on a contract to address odor concerns,” said Grohs. “I carry my certification mainly



EERC Research Engineer Richard Shockey puts his nose to the test.



Photo by NDDH

The intensity test bottles, one of the three tests for odor evaluator certification.

to be able to address complaints, should they arise, from within the EERC.”

The goal of the odor certification program is to screen out individuals who are insensitive to odor detection. The screening procedure consists of three odor tests: the triangle test, the intensity test, and the multicomponent test.

The triangle test consists of three bottles of odor samples, all colored differently. Two are the same odor, and one is a different odor. The task is to select the different odor. This test consists of a total of five different sets of samples.

The intensity test consists of twenty bottles of the same odor but at different intensities, from weakest to strongest odor. Nineteen of the bottles are displayed in a row. The tester must place the twentieth bottle in the correct position within the row. The test is repeated three times, each at a different odor concentration.

The multicomponent test consists of three bottles that use food coloring to mask the sample. Two of the bottles contain a mixture of two odors. The third contains three odors of equivalent odor concentration. The tester must identify which odors are in the sample bottles, using nine reference odors.

“I had a perfect nose one time,” said Shockey. “I didn’t miss anything on the test! Of course, my wife says I can’t smell anything, but I passed!”

While Dan Stepan, Senior Research Manager, no longer has his certification, he was initially certified back in 1998 when a hog farm that had received complaints about malodors inquired about testing. Stepan and others subsequently developed an odor monitoring plan and developed a strategy that reduced odors from the farm. “Because of our research and laboratory experience, the EERC is in a unique position to find solutions when a business has been declared in violation of the rules and regulations,” said Stepan.

An objectionable odor, or one that is in violation, is one that measures 7 odor concentration units (OCUs) or higher at the property boundary or beyond within a city or at a ½ mile or more within an agricultural area. The rules and regulations state that an odor cannot be within 100 feet of a school, residence, business, etc., as long as those buildings or structures were built prior to the building or establishment of the source of the odor. Also within the rules and regulations is a provision where counties or townships can rezone an area that extends the agricultural area beyond the ½-mile range.

When out in the field investigating the source of the odor, Shockey said, “The smell can exceed 7 OCUs or more within the farm or plant’s property boundary, but if the smell exceeds 7 OCUs beyond the boundary, they [the business] could be in violation, subject to the distance rules. And wind could be a factor if they are in violation.”

Stepan said, “Odor monitoring in the field can be a challenge because shifting winds have a significant impact on odor intensity, and oftentimes, the same odor may have multiple sources, so it is difficult to assess the contribution from a downwind source.”

Both Shockey and Stepan think that the testing weeds out those who are hypersensitive or not sensitive at all to smells, leaving way for those in the midrange for certification. The peculiar thing is that certification testing is conducted with fruity and spicy scents, but in the field, one is generally assessing putrid smells.

Because of the availability of the test in Grand Forks, the EERC will continue to offer this unique service to clients.

–Trish McGuire

In search of treasure

By workday, Janet Crossland is a Research Scientist for the PCOR Partnership Program at the EERC, working on regulatory issues involving CO₂ sequestration, researching information on terrestrial sequestration and carbon markets, and assisting with field sampling. On her own time, however, she's a geocacher, a high-tech treasure hunter known to others in the geocaching community as "turtle_145."

"Geocaching is essentially just a modern-day treasure hunt," says Crossland. "There are objects hidden in caches, or treasure boxes, all across the globe. You sign up to become a member on www.geocaching.com, the first and largest organization for geocaching. It's free. You enter an area you want to search, and you're given a clue and a set of coordinates—latitude and longitude—to a cache. You plug those coordinates into a handheld GPS (global positioning system) or cell phone with GPS capabilities, which guides you much like a car's navigation system does, and then try to find it."

GPS is a satellite navigation system developed by the U.S. Department of Defense. After the U.S. military turned off the scrambling of GPS signals in 2000, fairly small items could be pinpointed by GPS with much greater accuracy. Geocaching was born within days.

Sounds easy, doesn't it? Crossland says it can be like looking for a needle in a haystack. Finding the general area is not a problem, she says, but finding the cache can take a few minutes to a few hours.

"The coordinates get you as close as maybe 20 feet, but then you have to hunt for it—up in trees, behind signs, under park benches. Caches are watertight and can be hidden very well. One of the rules is that you can't bury objects, but you can hide them," says Crossland.

The Web site helps by listing the approximate size of the cache, difficulty of the terrain, and difficulty of finding the cache. Cache sizes are listed as micro (film canister), small (a small Tupperware container), regular (an Army ammunition box), and large (a bucket). A very small micro cache is called a nano (fingernail size just big enough for a slip of paper). Crossland has found nanos attached magnetically to signs and inserted into tree trunks.

"Difficult' terrain can mean you'll be climbing up a rocky hill, but even in 'easy' terrain, we've gotten into all kinds



Photos provided by Janet Crossland.

Janet Crossland holds the cache she found after climbing this tree near Glendive, Montana.



Crossland (right) reads the coordinates of the cache to her nephew, who enters them into the GPS.

of thickets. It's best to wear good hiking boots and long sleeves and pants," says Crossland. "I got poison oak last year."

Crossland says when you find the cache, it is customary to take an object out and leave one behind of equal or greater value. Usually there's nothing of great value, although she's found a compass and coins from Mexico, Spain, and even New Zealand. Some people leave their "calling card."

"I know a woman who always leaves pens with her user name on them. I always leave something to do with turtles," says Crossland. "Then you sign the logbook in the cache, which is what makes it a legitimate find, and when you get back to a computer, you register your find on the Web site."

Crossland started geocaching in late 2006 and has logged 133 caches to date. Her mother, who got her interested in the game, has logged 322. For Crossland, the adventure game's attraction is the combination of using technology and being outdoors, often in beautiful scenery, but also learning something about places she has never been. Crossland is going to Alaska next year, where she will search for a cache in an area accessible only by helicopter. In 2 years, she plans on going to Australia and will search for caches while there.

Geocaching is a family experience for Crossland, who often goes with her mother and her niece and nephew who like to find "treasure." Crossland has searched for caches in Fargo, Bismarck, Montana, Kansas, Winnipeg, her native Saskatchewan, and all around the Grand Forks area. For city searches like those in Winnipeg, she uses a laptop to connect via satellite to a street map that shows caches marked by the block. In rural areas, she uses the GPS and coordinates.

"There are 82 caches in the Grand Forks area now," she says. "I've found about 20 of them so far, but there is one I cannot find. I don't know if muggles got it or what."

Muggles—a term borrowed from the Harry Potter books—are nongeocaching people who stumble onto a cache by accident and inadvertently or deliberately destroy or move it. When caches are hidden in public places, Crossland says, you will often see geocachers searching furtively so as not to draw a cache to the attention of possible muggles.

There are currently 650,000+ caches hidden around the world that are registered on www.geocaching.com. There are all kinds of variations to traditional geocaches. Crossland says some caches have themes: kids' caches may contain only toys; mug caches involve trading coffee mugs; historical caches may be located at historical sites or, say, along the Lewis and Clark Trail; virtual caches are landmarks like statues or tombstones where the finder answers a question about the

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At left is a Travel Bug® metal tag attached to a California Raisin figurine found in a cache. At right is Crossland's handheld GPS unit. To get started in geocaching, you only need access to the Internet and a handheld GPS, which can cost as little as \$100.

New Employees



Scott Ayash is a Research Scientist working in the PCOR Partnership group. Among other tasks, he is currently focused on

creating a risk management plan for the Phase III large-scale CO₂ sequestration demonstrations. Ayash is also supporting efforts to develop a set of coefficients that will unify and simplify the estimation of CO₂ storage capacity of oil and gas reservoirs and saline aquifers.

“I really love the atmosphere of the EERC. I like how even though everyone is focused and motivated, they are also casual and inviting,” Ayash says. “I also like the emphasis on personal relationships, whether that’s between coworkers or with clients.

“I am interested in work that benefits people and the environment. I could see myself working on any number of different projects at the EERC that accomplish those goals,” says Ayash.

A native of Garrison, North Dakota, Ayash graduated from North Dakota State University in Fargo with a B.S. degree in Physics and a minor in Mathematics and has begun a second bachelor’s degree program in environmental geosciences at UND.

When he’s not working, Ayash enjoys spending time with friends and family. His hobbies include reading fantasy like the Rings trilogy and Harry Potter and Christian nonfiction. He likes to

listen to all genres of music and is always looking to add new artists to his collection. Ayash recently became a certified scuba diver and looks forward to pursuing that as a hobby.

Ayash and his fiancé, a Communications student at UND, enjoy spending time together at the local coffee shops, watching movies, and preparing for their wedding in September.



Phillip Bellmore is a Technology Development Operator at the EERC, where he is responsible for the construction, operation, and maintenance of bench- and pilot-

scale test equipment for EERC projects. His job currently has him working with the transport reactor test unit and the combustion test facility. He’s looking forward to working with some of the new energy technologies at the EERC.

“My supervisor (Butch Riske) told me I’d be doing different things all the time,” says Bellmore. “I like being busy and having a variety of jobs to do, and so far, that’s really true of this job.”

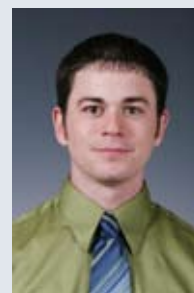
Bellmore is a journeyman plumber licensed in both Minnesota and North Dakota, with over 13 years of experience in the plumbing and pipe-fitting field. He worked for Lunseth Plumbing and Heating in Grand Forks for 6 years and, most recently, for 4 years for 1st Mechanical Construction LLC of Crookston, Minnesota. Bellmore attended the University of Minnesota, Crookston, for 2 years, taking classes toward an accounting degree.

Although he grew up in Grand Forks, Bellmore has lived in East Grand Forks

since 1996. His parents moved to the Bemidji area a few years ago, and Bellmore has enjoyed snowcatting, hiking with his two yellow Labrador retrievers, and photographing wildlife on the trails on their rural property.

An avid watcher of baseball and football, Bellmore has found that playing fantasy football has him watching football games all day on Sunday so that he can see how his players are doing. He likes all sports and has been active in many, playing hockey and softball in city and community leagues in the past. His biggest passion now, though, is golf. He plays in a league one night a week and on his own nearly every other night.

“Considering how much I play, I should be a lot better at it,” Bellmore laughs.



Research Engineer **Greg Dvorak** works with the EERC’s Environmental Technologies Group in the area of process engineering and design

related to conversion of coal and biomass to fuels, chemicals, and energy. Currently, he is working on design and development of advanced materials for use in conjunction with Dr. John Hurley’s Oak Ridge National Laboratory project involving electrical swing adsorption technology. Dvorak is also beginning design work on a small gasifier for use in the north woods of Minnesota, where biomass is abundant.

“I like the EERC’s practice of having a commercial partner,”

says Dvorak. "It's a good feeling knowing that the projects that are developed here will be used in the world."

Dvorak holds M.S. and B.S. degrees in Mechanical Engineering from UND. At UND's Engineered Surfaces Center, he spent 2 years designing, assembling, and operating an S-RCF (sliding-rolling contact fatigue) tester, which tests a material's contact fatigue strength under sliding or rolling conditions.

An avid hockey fan, Dvorak especially likes watching the UND men's hockey team. Dvorak plays table tennis, tennis, racquetball, soccer, Frisbee golf (also called disc golf, "frolf," or "folf"), golf, darts, and foosball. Dvorak has a 5-month-old black lab/rat terrier-cross puppy, Ebony, a quick learner who has already mastered the usual commands and has moved on to "high fives" and dancing a basic two-step.

Dvorak is a native of New England, North Dakota, and comes from a large, close-knit family of seven boys and three girls ranging in age from 13 to 30. The family usually tries to go on a family vacation every summer and gets together for holidays at Dvorak's grandparent's farm.

"My dad also comes from a large family, so we always have enough people to play any sport," Dvorak says. "On the Fourth of July, we played baseball AND soccer."



Kory Eidsness is a Technology Development Operator at the EERC, where he is responsible for the construction, operation, and maintenance of bench- and pilot-scale test equipment in support

of EERC projects. One of the current EERC projects he's working on is the operation of the biomass gasification plant at G F Truss Inc. of Grand Forks.

Before coming to work at the EERC, Eidsness worked as a welder for Summers Manufacturing of Devils Lake, North Dakota. Prior to that, he operated fertilizer equipment and repaired hydraulic and air pressure-regulated equipment for Rush Valley Ag Services in Devils Lake.

Eidsness spent 6 years in the U.S. Army, attaining the rank of sergeant, and spent 5 years in the North Dakota Army National Guard before that. Eidsness worked as a water treatment/chemical specialist, readying reverse-osmosis water purification units and other equipment for deployment and training the troops to use them. Eidsness earned six U.S. Department of Defense-level water purification operations and repair certificates from the Army.

Eidsness lives in Brocket, North Dakota, and has two daughters, ages 14 and 11. Eidsness's fiancé works at the Anne Carlsen Center for Children. The couple will marry this winter. The family enjoys spending time at the lake in the summer and snowmobiling in the winter. His daughters have even adopted his passion: stock car racing at Devils Lake. Eidsness has been involved with racing for a few years now, but this is the first year he's owned his own car.

"Racing's my passion in my spare time," says Eidsness, who would love to get a motorcycle again one day as well. As if he's not busy enough, Eidsness also works with a local hobby farmer raising small grains and soybeans in the Brocket area.



If she looks familiar, it's because **Janelle Hoffarth** worked for the EERC from 1981 to 1997 as a Laboratory Technician.

This time around, Hoffarth is back as a Research Specialist, where she works in the Fuels and Materials Research Laboratory, specializing in the analysis of coal and coal by-products. Hoffarth prepares samples and performs analyses, including ash fusion, Btu, CHN, loss on ignition, moisture, ash, Malvern particle sizing, proximate-ultimate, wet and dry sieve, HEPY, and sulfur percentage.

"I really enjoy participating in the various EERC projects as well as learning new skills," she says.

Hoffarth holds an Associate of Science degree in Dental Hygiene from the North Dakota State College of Science in Wahpeton, North Dakota. She has over 16 years of laboratory experience and expertise in a wide range of laboratory analysis techniques, having performed over 50 unique laboratory tests.

Prior to the EERC, Hoffarth worked as a regional laboratory technician for MeritCare in Wahpeton, as a phlebotomist at Alexandria Clinic in Minnesota, and as a front office associate for the Center for Diagnostic Imaging in Alexandria, Minnesota.

Hoffarth has three grown children, two in southern Minnesota and one, the youngest, here at UND.

When she's not in the lab or spending time with her family and friends, Hoffarth enjoys walking, riding bike, cross country skiing, reading, and cooking. Hoffarth is a

person who likes to get involved, so when she's not attending sporting, cultural, and community events, she's volunteering at them.

"My volunteer work has followed my children through the years. It's been school fund raisers and classroom activities, Boy Scouts, and church-sponsored activities," Hoffarth says.



Jake Phillips, Project Manager in Intellectual Property Management at the EERC, works with the commercialization team and researchers to

manage intellectual property for EERC projects.

"I really enjoy working with the people here at the EERC. Everyone has a very practical, efficient, and friendly attitude. It is an exciting mix to be a part of," says Phillips.

Phillips holds a J.D. degree from the William Mitchell College of Law and a B.S. degree in Biology from the University of Wisconsin (UW)-Madison. His professional areas of interest and specialization are intellectual property and corporate law.

Prior to his position at the EERC, Phillips worked as a law clerk for U.S. Investigation Services, Eagan, Minnesota, where he drafted commercial and intellectual property licensing agreements and worked with outside counsel to resolve ongoing litigation on a variety of disputes. Phillips also worked as a patent law clerk for Locke, Liddell & Sapp in Minneapolis and as a Summer Associate for Hylands Law Firm in Beijing, China. In Beijing, he assisted with monitoring and prosecuting intellectual property

infringement actions on behalf of multinational clients.

"In other words, I helped close down factories that were producing counterfeit goods. I worked cases ranging from name-brand shirts to brake pads to vitamins," Phillips says. "China was an interesting environment to work in."

Phillips is an outdoor enthusiast, enjoying fishing, hiking, and canoeing. He's also interested in classic cars, especially the Mercedes-Benz. He and his father have restored several. Phillips is also a UW-Madison Badgers fan ("Go, Bucky!" he says).

In addition to his new job, Phillips will be embarking on another major life change soon. Phillips' fiancé is currently a quality assurance specialist for Paddock Laboratories in Minneapolis, but she will join him in Grand Forks after they marry in September. The two enjoy their two miniature dachshunds and like to travel to "anywhere new," according to Phillips.



Jeff Schuetzle is a Research Engineer at the EERC, where his work involves process engineering and design related to hydrogen production technologies and emission control technologies.

Currently, his work is primarily focused on development of the Pratt & Whitney Rocketdyne hydrogen generator technology, where he is responsible for system modifications, test operations, and test data interpretation.

This position fits well with Schuetzle's professional areas of expertise and interest in mechanical design, hydrogen technologies, and materials selection.

"I am excited to be working in

the research area of hydrogen technologies, which has such great potential in our future economy," says Schuetzle. "I've met a lot of great people here so far, and everyone has been tremendously helpful."

Schuetzle holds a B.S. degree in Mechanical Engineering from UND. Prior to his position at the EERC, he served as a design engineer at Ingersoll Rand, Bobcat Company, in Bismarck, North Dakota, working with a team responsible for design changes on current production excavators. Schuetzle is originally from Bismarck.

As far as spare time goes, Schuetzle reports that all of his is spent hunting or fishing. A long-time walleye fisherman, Schuetzle recently has enjoyed catching catfish on the Red River. He looks forward to fall, which brings bow hunting or waterfowl hunting. His most recent trip was a weeklong bear hunt this past May in the Clearwater National Forest in Idaho.

-Sandy Van Eck

SNAPSHOTS:

EERC'S annual picnic held

Kudos once again to the EERC Annual Picnic Committee of Sue Bartley, Linda Quamme, and Butch Riske for planning and implementing another fun event to mark the end of summer and the start of a new school year. This year's picnic on August 26, 2008, was held at Lincoln Park in Grand Forks. Quality Catering of Ada, Minnesota, outdid themselves, and many lucky employees went home with door prizes.



Picnic Committee members Sue Bartley, Manager of Human Resources (left), and Linda Quamme, Assistant to the Director.

"It was a bit windy," said Quamme, who was accused of understatement by Bartley, "but no one blew away, and we had a wonderful time."

The wind didn't keep anyone away from the festivities either. Bartley reported that employee and family attendance was good once again this year.

–Sandy Van Eck



Deb Haley, Associate Director for Marketing, Outreach, and Administrative Services (left), shares a table with Grace Sondreal, wife of Principal Research Advisor Everett Sondreal.

EERC teams compete for links honors

Ten teams competed in the EERC Annual Golf Invitational held the evening of July 10, 2008, at Valley Golf Course in East Grand Forks.

First place was taken by the team of Austin Theisen, Josh Mason, Jeremy Olson, and John McCauley. Second place honors were taken by the team of Josh Stanislawski, Josh Strege, Tony Snyder, and Steve Snyder. Two teams tied for third place: the team of Jay Gunderson, Debby Johnson, Ray Butler, and Garrie Etherton and the team of Andy Palmiscno, Ronda Palmiscno, Linda Palmiscno, and Don Palmiscno. Five teams tied for fifth place. As in previous years, special honors were awarded to the last-place team. This year, those honors go to the team of Wes Peck, Carmen Peck, Brent Lahr, and Terry Bailey.

"The tournament was about as close a tournament as we have ever had. Other than the teams in first and last, all the other teams were within two strokes of each other, which meant eight teams were within two strokes of 2nd place," said Andy Palmiscno. "In all, ten teams participated, and thanks to donations from local businesses, we were able to send every golfer home with a prize."

Thanks go out to the Golf Committee for their hard work organizing yet another successful golf tournament and awards celebration. The Committee included Sue Bartley, Steph Wolfe, Cory Irion, Earl Battle, Brent Lahr, and Andy Palmiscno.

–Sandy Van Eck

SNAPSHOTS:

Published cartographer

Wes Peck, EERC Research Scientist and mapmaker extraordinaire, recently had a map he made published in the “ESRI Map Book, Volume 23 – Geography in Action.” ESRI International designs and develops the world’s leading geographic information system technology. Peck’s map, which shows the PCOR Partnership region, is located in the Environmental Management section of the map book. ESRI, which presented the map book to all 14,500 attending a recent ESRI conference, will distribute the book worldwide.



EERC Research Scientist Wes Peck in front of the map he created.

“I am thrilled to be included in this book,” says Peck. “I have admired the cartographic creations from users of the ESRI software for years and feel very honored.”

–Trish McGuire

Continued from page 7

site as proof of the find. Caches are not allowed to be hidden on federal property, but some municipalities and state parks (Minnesota, for example) are now hiding caches containing educational information, and some parks will even loan visitors the GPS units.

Some objects are meant to move from cache to cache. Caches may hold a registered Geocoin or a Groundspeak Travel Bug, a coded tag bought and attached to something like a toy car or a beanie baby. The finder takes the Geocoin or Travel Bug and leaves it at another site. When the find is registered on the Web site with that number, it displays where and when the Travel Bug originated and where it has “traveled.”

“My first Travel Bug originated in British Columbia,” Crossland says as she shows a picture of a plastic troll wearing a metal tag. “It went all the way out to New York and made its way back to the Midwest.” She also has a picture of a Viking figurine with a tag that started in Norway and traveled around Europe before coming to the Midwest to visit its “Viking relatives.”

There are also multicaches or multiples, where the cache found at the first coordinates contains a clue or a puzzle to get the coordinates to the next cache site and so on. One of Crossland’s favorite caches, called “Cappuccino,” was in Minot, where she deciphered clues at four different coffee shops around the city before she was able to ask for the cache at the last shop. Another interesting multiple in Bismarck involved a narrative that had Crossland retracing a Cold War spy’s last steps by combining information from four caches to get to the final cache and the end of the story.

Crossland advises beginning geocachers to start by reading the www.geocaching.com Web site, which has background, guidelines, and safety information.

“Look out,” she warns. “Geocaching is fun, but it’s addictive.”

– Sandy Van Eck

Upcoming Events

Hydrogen Works Training Course
February 16–18, 2009, San Diego, CA

International Biomass Conference & Tradeshow
April 28–30, 2009, Portland, OR

Biomass Technical Workshop
July 15–16, 2009, Grand Forks, ND

International Conference on Air Quality
October 25–29, 2009, Arlington, VA

See www.undeerc.org for more information.

EERC EDGE

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