

Photo submitted by Gerry Groenewold

*EERC Director Gerry Groenewold stands by the Solar Complex at the Weizmann Institute at Rehovot, Israel. The Solar Complex is one of the most sophisticated solar research facilities in the world. Solar panels (left) are used to generate electricity and to create solar-pumped lasers for use in satellite communications. The solar mirrors are positioned by computers that pinpoint the sun’s position relative to the earth every second of the year.*

## EERC Director discovers unique relationship with Israel

“It is all about the technology and the relationships,” said Gerald Groenewold, Director of the Energy & Environmental Research Center (EERC). He’s talking about the trip he took to Israel in May, but he could as easily be talking about the EERC.

Groenewold was invited to be part of the first U.S. energy delegation to Israel following the enactment into law of the Energy Independence and Security Act of 2007 in December. The Act includes a provision authorizing a grant program to fund joint U.S.–Israeli energy projects and scientific research among industry, government, and academia, particularly regarding

the development of alternative and renewable energy sources. Israel is the only country mentioned in the law for which there is a comprehensive provision for energy cooperation.

“It was a great honor to be one of the few invited to be a part of this delegation,” said Groenewold. “I think the invitation speaks of the high regard in which the EERC is held as a leader in the energy field.”

Groenewold was one of seven participants on the U.S. energy delegation, which included Robert Dixon, Senior Coordinator for Energy Security and Climate Change, Executive Office of the President; Carl

Bauer, Director of the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL); Raymond Hobbs, Manager, Future Fuels Program, Arizona Public Service; Tim McNulty, Associate Vice President for Government Affairs, and Andrew Gellman, Head

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of Chemical Engineering, Carnegie Mellon University; and Scott Smouse, International Group Leader, NETL. The visit was coordinated by world-renowned hydrogen and fuel cell expert David Haberman, President of IF, LCC, a hydrogen consultancy.

“I’ve always said that relationships are the currency of life,” said Groenewold. He sees a “wealth of potential relationships” resulting from this cooperation between the United States and Israel.

Dr. Isaac Berzin, the world authority on algae production and one of *TIME* magazine’s “100 Most Influential People in the World for 2008,” served as the delegation’s host throughout the weeklong visit. Dr. Eitan Yudilevich, Executive Director of the Israel–U.S. Binational Industrial Research and Development (BIRD) Foundation, was a cohost for the visit as well.

“I see nothing but expanded opportunities coming out of this,” said Groenewold. “We share many of the same energy insecurities that Israel does, and the partnerships that come out of this relationship will share expertise, information, and technology for the mutual benefit of both countries.”



*The Honorable Benjamin Ben-Eliezer (left), the Israeli Minister of National Infrastructures, and Groenewold share a laugh at a reception held for the delegation.*



*Groenewold (left) is shown with fellow delegate Carl Bauer (center), Director of the U.S. Department of Energy National Energy Technology Laboratory, and David Haberman (right), President of the hydrogen consultancy IF, LCC, who coordinated the delegation’s visit.*

Israel is a small country about the size of New Jersey, with a population of 7.28 million (New Jersey has nearly 9 million people), and it is the most developed country in the eastern Mediterranean region. While Israel has a highly technological economy, it has limited energy resources. The state-owned (99.85%) Israel Electricity Corporation (IEC) generates almost all of the country’s electricity with about 17 power plants, but it has to import most of its energy resources.

“IEC’s 2000-megawatt Ashkelon Power Plant, which we visited, ships in coal from 20 different locations worldwide to ensure its supply is not cut off and to keep the power on. This poses significant technological challenges for which the EERC has special capabilities,” Groenewold said. “The Ashkelon Plant also uses waste heat and CO<sub>2</sub> from the plant to grow algae. The EERC is particularly interested in algae as a feedstock for production of alternative fuels and anticipates joint projects with the Israelis.”

While in Israel, NETL Director Carl Bauer signed a Memorandum of Understanding (MOU) between NETL and the Interdisciplinary Center (IDC), Herzliya, a leading private university in Israel, for cooperation on various energy topics. The MOU enables cooperation in carbon management technologies, water resource stewardship in power production, alternative fuel development, development of hydrogen and fuel cells, power grid efficiency and reliability, hybrid energy systems, and advanced materials for energy systems. The EERC has expertise in all of these areas.

“We are a strategic partner with NETL, which means the EERC is tied into the MOU automatically and will be involved in the development and demonstration of many of the technologies,” said Groenewold.

“There is a powerful sense of family in Israel, in everything the Israelis do. The discussions of technology were intense, but my sense of it is that this is not for themselves or for their immediate families but for a purpose common to all—Israel itself,” Groenewold added.

“What I found amazing and very gratifying was the immediate understanding of the culture of freedom of the EERC,” said Groenewold. “The Israelis truly understand the meaning of freedom and relate to the culture of the EERC in a way no one else has. I found kindred spirits on a number of levels, in technological approaches certainly, but there was a tremendous commonality. I felt so at home there.”

Relationships are already sprouting from the delegation’s visit. Since Groenewold returned from Israel, the EERC has already received a visit from Professor Ezra Bar-Ziv from the Ben-Gurion University of the Negev (BGU), an expert in coal gasification with an interest in gasification of alternative fuels. The EERC will receive a visit in August from the Vice President of BGU, Professor Moti Hershkowitz, who is an expert in biofuels. BGU is patenting a new type of biofuel called “iso-diesel,” based on plant and animal fats that can be used directly in vehicles. Groenewold met Bar-Ziv and Hershkowitz in Israel through the Israeli government’s Ministry of National Infrastructures.

Groenewold and Berzin have held a conference call to discuss collaboration between the EERC and Berzin. Berzin will visit with Groenewold and Senator Byron Dorgan at the EERC in August. Berzin is a chemical engineer educated at BGU and the Massachusetts Institute of Technology (MIT), who is now a senior faculty member at the IDC. As a postdoc at MIT, Berzin became intrigued with the idea of using algae to “eat up” the CO<sub>2</sub> from power plants burning fossil fuels such as coal and then using the algae as a biofuel. He has beta-tested the technology on MIT’s 20-MW cogeneration plant, reducing CO<sub>2</sub> emissions by as much as 82% on sunny days.

In mid-July, representatives from the Geological Survey of Israel visited the EERC. In Israel, Groenewold met with the Survey’s Director, Dr. Benny Begin, son of former Israeli Prime Minister



A map of Israel shows cities and sites visited by Groenewold during the delegation’s visit.



The algae facility at Kibbutz Ketura, 35 miles north of Eilat, which is at the extreme southern tip of Israel near the Red Sea. The Algatech biotechnology company cultivates pure cultures of the algae in a controlled, closed system and then transfers them to a modular tubular system exposed to long hours of natural sunlight for the final reddening process.

Menachem Begin. Dr. Begin proved to be well informed about the EERC’s Plains CO<sub>2</sub> Reduction Partnership, one of DOE’s seven regional partnerships formed to determine the best approaches for capturing and sequestering carbon dioxide and other gases believed to contribute to global warming.

“This was a groundbreaking trip. For the EERC, this is just the beginning of what I hope will be multigenerational relationships,” said Groenewold. “I have always been a strong supporter of Israel. After this trip, that commitment is magnitudes stronger.”

–Sandy Van Eck



Photo submitted by Gerry Groenewold

Groenewold is shown among the ruins of Masada, a natural fortress developed as a stronghold by King Herod the Great in 33 B.C. After Jerusalem fell to the Romans in 70 A.D., the Zealots, the last holdouts of the Jewish resistance in Palestine, retreated to Masada, where they chose mass suicide over surrender to the Romans.

## Israel: steeped in history

If you didn't know you were in a foreign country, the road signs would be a dead giveaway, says Gerry Groenewold, Director of the EERC, about his recent trip to Israel as part of a U.S. energy delegation. The signs are printed in Hebrew (top), Arabic (middle), and English (bottom). Heading south toward the desert, a sign says "Beware of camels on the road." If that isn't surreal enough, right after the sign for Sodom, there's a sign for "Lot's wife," a rock outcropping overlooking the Dead Sea, suspiciously looking like a pillar of salt.

"I'm an explorer and a researcher," said Groenewold. "Everything I saw in Israel interested me."

"Israel is one of the most technologically advanced countries in the world," said Groenewold. "But everywhere there is archeological evidence of the history that has happened in this area of the world. This is the juxtaposition the Israelis live with every day: they look to the future, and they see the past all around them. We arrived in time for the celebration of Israel's 60th birthday,

but in many ways we were celebrating 5000 years of history."

Groenewold found the Israelis' concept of history to be quite different than ours. One shop owner in Jaffa surprised Groenewold by pronouncing an antiquity fairly modern: "The shop owner said, 'This isn't all that old—only Byzantine!' Well, the Byzantines conquered Jerusalem in the seventh century, which we Americans, with our 230 years, would probably think of as pretty ancient history," laughed Groenewold. "I was told that antiquities were found near our host's home in the Jerusalem suburbs, but building was not stopped because the relics were found to be 'only' 800 years old, so no one was interested in them. They have to be 1000 years old before there is significant interest.

"It is fascinating that there are ruins and archeological sites everywhere in Israel. We were able to walk up a hill and walk through the remains of a 12th-century Crusader fortress on the way to Jerusalem. There was another Crusader fortress near the city of Ashkelon," Groenewold said.

On one of several side trips set up by the delegation's hosts, Groenewold hiked to the top of Masada, a 1300-foot-high butte overlooking the Dead Sea. Masada is a powerful symbol of the Israeli people's desire for freedom, where the Zealots chose death over enslavement at the hands of the Romans in 70 A.D.

"When I go back to Israel, I want my family to camp at Masada," said Groenewold. "One could spend days there exploring all of the excavations.

"I was moved by the way the Israelis handle remembrance," Groenewold said. The energy delegation was in Jerusalem on the Day of Remembrance, a day akin to our Memorial Day. "It's a day when the Israelis remember and honor those who have given their lives in wars fought for their country or who have died as a result of terrorism. It's a somber day, a day of reflection. A siren blows at dusk and at midday the next day for two full minutes.



Taken from Google Images

Masada looms high above the desert floor, alluding to the challenges facing both the 960 members of the Jewish resistance and the Roman army of 15,000, who laid siege for nearly 2 years. Visible atop the stronghold and on two terraces down the front of the butte are the excavated ruins of Herod's elaborate mosaic-tiled palaces, courtyards, and bathhouses. There were cisterns to store rainwater collected by an aqueduct system and storehouses for food. On the right is the earthen ramp built by the Romans to scale the fortress.

It's amazing, because when the siren blows, everything—everything—stops. Cars stop in the streets. People stop walking and talking. It really is a moment of silence, and it would never happen here in the United States," said Groenewold. "Israel is a smaller and newer country, of course, but the Israelis also are constantly educating and reminding their citizens of who they are and where they've come from. We need to do a better job of that here in the United States," he added, "because, after all, what is a country but its people?"

Another especially memorable part of the trip for Groenewold was touring the Old City of Jerusalem and visiting the Wailing Wall, the holiest site in Judaism. "People stand and pray at the Wall," said Groenewold, "and there are thousands and thousands of notes slipped between the stones of the wall.

It was very powerful to sense all of the anguish and desire that has been poured into that wall."

One of the highlights of the trip for Groenewold, a geologist who is particularly interested in water issues, was the Gihon Spring, which supplied water to the ancient City of David, the historical location of the palace of King David, located just outside the walls of the present-day Old City of Jerusalem.

"Water has always been a precious resource in this land," said Groenewold. "The Jews knew that no matter how heavily fortified their city was, if the enemy were able to cut off the water supply, they could force surrender. There were always hidden wells and cisterns, but what they did here was to actually divert the water from the spring through a 500-meter tunnel they dug out of the rock, by

hand, to the other side of the city where the water was stored in secure reservoirs, and then they concealed the location of the spring. It is a marvelous feat of 4000-year-old engineering.

"King David's water diversion tunnel is no place to be claustrophobic," said Groenewold. "We were wading through running water up to our knees, squeezing through the walls in some places where it was just shoulder wide. We were ducking, with just a flashlight, for what seemed like ages.

"Israel is a country full of history and full of biblical and historical references. It was the trip of a lifetime. My wife was with me for this trip. We want to go back as a family and experience it with our sons," Groenewold said.

—Sandy Van Eck

## Benson testifies at Senate hearing



The EERC's Dr. Steven Benson, Senior Research Manager, was one of nine experts from around the country who were invited to present oral and written testimony in May at the U.S. Senate Committee on Environment & Public Works' full committee meeting entitled "Hearing on Mercury Legislation" in Washington, D.C. The hearing was prompted by the recent vacating (or annulling) of the Clean Air Mercury Rule (CAMR) by the U.S. District of Columbia Circuit Court

of Appeals justices who felt CAMR did not have strict enough limits on mercury emissions from power plants.

Since CAMR was vacated, utilities are no longer allowed to follow the more flexible CAMR cap-and-trade approach to meeting emission requirements. Instead, the utilities will need to meet the more stringent Maximum Achievable Control Technology standard at all power facilities as well as bill S. 2643, requiring a reduction in emissions of mercury from new and existing electric utility steam generating units of 90% or more.

In his oral testimony, Benson gave an overview of the EERC's 20 years of work on mercury-related issues facing industry through projects supported by DOE, the U.S. Environmental Protection Agency, state agencies, and industry, which included conducting over 2000 tests over the past decade related to mercury measurement and evaluation of control technologies at more than 60 power plants in the United States and Canada.

"We have made significant progress and have been able to attain greater than 90% mercury removal for selected

coals and system configurations," said Benson. "However, in some plants, we can only attain 50% to 60% mercury control because of fuel type and configuration. Currently, our projects are focused on identifying effective mercury control strategies for the more difficult situations, but funding is limited."

Even though the EERC has attained greater than 90% mercury removal on selected coals, Benson recommended more long-term testing was needed on a variety of coals. Additionally, Benson mentioned that each plant has a unique design, configuration, operating parameters, and suite of fuels fired that make broadly applying mercury control technologies very difficult.

Benson recently received a letter from the Senate with follow-up questions. Benson hopes that there will be flexibility for more difficult units as well as excellent control and reasonably priced electricity.

"We will continue to look for ways to improve our understanding of fuel properties and plant configurations and work methods for improving control," said Benson. "We need to find more funding; that's the priority right now."

—Trish McGuire

# Still running after all these years

The EERC's combustion test facility (CTF) has been in operation since 1967, when the EERC was the Robertson Lignite Research Laboratory, a federal facility under the U.S. Bureau of Mines. At the time, the CTF ran roughly 600 tests on U.S. low-rank coals to determine the ash-fouling characteristics at various operating temperatures. When the EERC became defederalized in 1983, tests were performed on coals of all rank as well as on biomass fuels, fuel oil, and coal-water mixtures.

Today, EERC Research Engineer Jay Gunderson says, "If it burns, we have probably tested it, including municipal solid waste. We have fired many non-U.S. fuels as well, from Canada, Mexico, Indonesia, Turkey, Spain, China, England, and South Africa, to name a few."

The CTF is a two-story-high, 100-foot-long balanced-draft furnace that can be readily configured and reconfigured to meet just about any potential clients' needs, whether it be fouling potential, stack emissions, or testing of a proprietary process or additive. The unit has achieved furnace exit gas temperatures in excess of 2500°F for those processes requiring higher-temperature flue gas. The CTF is fully instrumented, providing online gas analysis, temperature and pressure measurements, and the ability to store the information gathered within a data acquisition and control program. There are many ports for observations or injections of proprietary additives located throughout the test facility, from the radiant zone to the cooler regions of the system where particulates are controlled by either electrostatic precipitator or baghouse. The CTF also has a selective catalytic reduction chamber that can be used

for NO<sub>x</sub> emission testing and will have a permanent sulfur scrubber in the near future.

Tests are generally done to determine a particular fuel's performance, combustion efficiency, ash deposition, and gaseous emission levels. Clients include developers of boilers, coal companies, utilities, and small industrial manufacturers. Entrepreneurs developing a technology or product use the CTF to generate data that enables them to go to the next level at a full-scale facility. Other clients include local, regional, state, or national government organizations. Many of the CTF's clients are repeat customers, with most of the work coming from referrals.

"The EERC's staff has been doing this type of testing for so long now that they provide an expertise to the process and the results obtained that other facilities cannot," said Gunderson. "For this reason, the test furnace has been extremely busy over the past 2 years, as utilities and entrepreneurs develop strategies for dealing with current and anticipated emission regulations. In the past 2 years, we've done more tests in this facility (nearly 200) than in the time from 1987 until 2006. Much of that success is because of the responsiveness of the operations staff and laboratory personnel who provide the best possible work environment for our clients to achieve their goals."

Gunderson has been doing this work since 1988 and says, "The projects are really interesting. There is something new all the time—it's never the same thing. It could be a new client or a repeat client, but the demonstrated versatility of the test facility keeps us busier than ever."



*Research Engineer Jay Gunderson, in front of the CTF, configures the CTF to meet client needs.*

The staff for a project normally consists of Gunderson and two operators along with samplers, if needed, to generate the required data set. Yet there could be up to 20 people working on a project, depending on its need. Generally, a single test is completed in 1 day, with 1 day to prepare the CTF and a second day to perform maintenance following the test. However, tests up to 100 hours in length have been performed on the CTF. In preparing for a test, the graveyard shift will heat up the CTF to the desired operating temperature and will be relieved by the day and swing shifts to complete the testing.

The CTF has been a valuable test unit for over 40 years. As clients continue to develop more efficient and environmentally friendly products, technologies, and fuels that assist in powering our lives, it seems that the CTF will be productive for many years to come.

-Trish McGuire

# New Employees



**Todd Deibert** is a Technology Development Operator at the EERC, where he constructs, operates, and maintains bench- and pilot-scale testing equipment used in EERC research projects.

“I’m fascinated with the technology and research behind all of the alternative forms of energy being explored at the EERC,” said Deibert, “especially the hydrogen.”

Prior to the EERC, Deibert worked as Block Plant Foreman for Strata Corporation and then as Assembly Foreman and Plant Superintendent for Pribbs Steel and Manufacturing, both in Grand Forks. For the past 2 years, he served as a Construction Foreman for Community Contractors Inc. in Grand Forks.

Deibert and his wife, a cosmetologist at the Ultimate Look, are season ticket holders for the University of North Dakota (UND) men’s hockey games. They enjoy boating, camping, and riding their new Harley Davidson Road King. They hope to ride to Milwaukee in August for the 105th Anniversary Celebration of the birth of Harley Davidson.

In his spare time, Deibert likes to hunt, fish for walleye and bass, and ride snowmobiles.

Deibert spends a lot of time in his shop at home, where he builds fish houses and welds trailers just to keep busy, with someone always buying them so that he can keep building.

“I’m always moving,” he says. “That’s also what I really like about working at the EERC. I’m doing something different all the time, and I can build things out of metal and wood.”



**Damion Knudsen** is a Research Scientist at the EERC, where he evaluates the potential for carbon dioxide storage in geologic formations for the Plains CO<sub>2</sub> Reduction (PCOR) Partnership by

characterizing subsurface geologic structures and their physical and chemical properties using 3-D modeling and geostatistics.

“I love it here. It’s great!” he says of the EERC. “This is exactly what I always envisioned myself doing: being an earth modeling geologist, and I wanted to do it here in North Dakota, not in Texas or California.”

Knudsen earned a B.S. degree in Geosciences with a minor in Chemistry from North Dakota State University (NDSU) in 2005. He is currently pursuing an M.S. degree from NDSU in Environmental Sciences with a master’s thesis on the study of 3-D subsurface site characterization management, using high-resolution geophysical data to create a virtual earth system.

Prior to his position at the EERC, Knudsen served as a Graduate Research Assistant at NDSU’s Geosciences Department and also worked as an Earth Modeling Geoscientist with Dakota Technologies, Inc., in Fargo, North Dakota.

Originally from Williston, North Dakota, Knudsen is married with two

girls, ages 1 and 4. Knudsen’s wife has a Ph.D. in pharmacy and works at Altru. The Knudsen family likes to take walks, go swimming, watch movies, and visit family in the region.

Knudsen’s hobby is designing and building customized high-performance computers and electronics. “I tweak them until they do just what I need them to do,” he says.



Accountant **Laurie Kroke** has joined the EERC’s Financial Services, where her duties include preparing, examining, and analyzing accounting-

and budget-related statements, reports, and supporting documents; resolving discrepancies; recording and reporting financial operations; allocating and monitoring expenditures and revenues; and assisting in the development of accounting and budgetary procedures.

“The things I have enjoyed about working at the EERC so far are that the people here are friendly and helpful,” Kroke says, “and I like that it’s a casual, relaxed atmosphere as well.”

After spending 5 years in the Army after high school, Kroke attended the North Dakota State College of Science (NDSCS) in Wahpeton, where she received her A.A. in Business Administration (1996) and her A.A.S. in Business Management (1997). Kroke obtained her Bachelor of Accountancy degree with a minor in international business in 2000 from UND.

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Previously, Kroke worked as an accountant at Vaaler Insurance in Grand Forks for 5 years. Prior to that, she worked as a staff accountant for 3 years at Mercy Medical Center in Cedar Rapids, Iowa.

Now a resident of Reynolds, North Dakota, Kroke's hometown is Breckenridge, Minnesota. Kroke's husband works as a licensed insurance agent for AAA Insurance Company. The two have a 14-year-old son who will be a freshman in high school and a 22-month-old son.

Kroke's hobbies include reading, spending time with her family, horseback riding, and training horses. Luckily, she can engage in those pursuits right at home since, along with her two cats and several chickens, Kroke has three horses and a miniature donkey.



**Daniel Laudal** is a Research Engineer at the EERC, where he is involved in process engineering and design of systems and equipment for

the conversion of coal and biomass to fuels, chemicals, and energy. He's currently working on the continuous fluidized-bed reactor, the hydrogen generator, and the transport reactor development unit, conducting testing for the renewable energy team.

"I like working with new technologies and getting the opportunity to develop them. I also enjoy the hands-on engineering during the equipment tests," says Laudal, who says the job is a great

fit for him. "I want to be involved in the research of renewable energies."

Laudal is not exactly new to the EERC. When he was a senior majoring in chemical engineering at UND, Laudal's senior plant design team worked with the EERC to design a system to produce activated carbon to remove mercury from coal power plant flue gas and to conduct an economic feasibility analysis. The team received an award for the best design project of the year. Laudal received his bachelor of science from UND in 2006.

Prior to his position at the EERC, Laudal worked as a Well Services Field Engineer with Schlumberger Oil Field Services in the Williston Basin.

As far as off-work activities, Laudal says, "I am a very active person. I play a lot of golf and softball in the summer. I was a swimmer in high school and college and have just recently picked it up again."

Laudal follows the discussion of love of sports by saying that he also enjoys singing. He sang in the school choir for years and now sings in his church choir.



**Tedd Halvorson** is a Technology Development Mechanic at the EERC, where he is involved in the construction and maintenance of air conditioning, heating,

ventilation, plumbing, and control systems as well as air compressors, lab equipment, and other equipment and facilities in support of EERC projects. He says this position fits well with his interests in building air conditioning, refrigeration, and automation systems.

"I am working with a great team of people," Halvorson says. "This is a great place to work."

Halvorson holds a plumbing certificate and a cooling and heating diploma from NDSCS in Wahpeton. Prior to his position at the EERC, he served as a Systems Journeyman Mechanic with the UND Facilities department. He also worked for Custom Aire, Inc., in Grand Forks.

A Northwood native, Halvorson is married and has two sons, ages 18 and 4, and a daughter, age 9. Halvorson's wife is a nurse at Altru. The Halvorsons enjoy vacationing every July at Cass Lake with their extended family of about 40 people and enjoy taking trips to the Chicago area to visit relatives. Activities the family enjoys together are UND hockey games, biking, swimming, and taking advantage of the Grand Forks park system.

Halvorson's hobbies include fishing, golfing, home remodeling projects, and watching Pittsburgh Steelers football games. He predicts we'll see the Steelers in the Super Bowl this year.

—Sandy Van Eck

# Transitions



**Jeanie Clement** was recently hired as a Travel Coordinator. In her new position, Clement will work closely with staff members in arranging their

travel needs and coordinating EERC vehicle use. In her previous position, Clement was an Account Technician, working with accounts payable and payroll.

“While I will be working within the same division, and even in the same room,” said Clement, “I am really looking forward to working more closely with the staff of the EERC in my new position.”



**Dr. Sheila Hanson**, Marketing Research Manager, is now working with the energy conversion system group. Hanson will

be involved in current efforts related to conducting market analysis for activated carbon for mercury emission control, coke for metallurgical applications, and solvents/sorbents/other materials for carbon dioxide capture. In addition, Hanson will assist in the preparation of reports and proposals in association with these topics.

“I am excited to become more involved in the technical aspects of projects and work more closely with the technical staff,” says Hanson.



**Kelly Fox** has been hired as a Research Specialist, whose primary duties consist of working with the technicians and researchers of the combustion studies group. Additionally,

he will be working on the conversion and environmental process simulator combustion unit, involved in building and operating the new entrained-flow gasifier in the National Center for Hydrogen Technology demonstration building, involved in working as one of the leads on the combustion test facility, and involved in assisting and designing modifications to several other units that the group is involved in. Previously, Fox was a Technology Development Operator.

“I have really enjoyed what I’ve done for the past 18 years,” says Fox. “I am looking forward to the new challenges, meeting new people, and doing more technical work.”



**Darren Schmidt** has been hired as a Senior Research Advisor and will be working with the PCOR Partnership team, which includes providing engineering, data collection, and

implementation of CO<sub>2</sub> injection activities. Previously, Schmidt was a Research Manager, working on gasification and small power systems.

“I am excited about CO<sub>2</sub> and the host of oil and gas opportunities that center around production and field operation enhancements,” said Schmidt. “I will be continuing as an advisor to gasification activities

which includes the completion of a second demonstration project for a Minnesota grass seed processor.”



**Kirk Williams** was hired as a Research Engineer, working with the Energy Conversion Systems group. Williams is presently involved in several projects

related to renewable energy; carbon capture; hydrogen production; and alternative fuels end use demonstration, education, and outreach. Additionally, his most recent projects involved power plant water minimization studies; air quality measurement and control, particulate capture, and gas treatment technologies at power generation and cement production plants; and advanced hydrogen production and purification methods. Previously, Williams worked as a Research Engineer with the water group.

“It’s an exciting time to be researching alternative fuels,” said Williams. “I welcome the challenge to further develop renewable fuel source opportunities.”

–Trish McGuire

# EERC holds retirement party for Connie Wixo



*EERC Director Gerald Groenewold presents Wixo with a photograph of the EERC signed by its employees.*

Research Specialist Connie Wixo, who retired after 35 years, was honored in June at a reception at the EERC, which was attended by Wixo's husband, Mark Everson, and other family members as well as EERC staff and University of North Dakota friends.

Wixo received good wishes and retirement gifts from coworkers, along with some good-natured teasing. She was serenaded by the EERC Choir with "Oh, Connie Girl," a specially adapted version of "Danny Boy." Many employees shared their memories of

working with Wixo, who worked at the Center through all of its major changes. A slide show with Wixo's face superimposed humorously on various photos offered her the opportunity to visualize an active retirement involving sky diving, skiing, and scuba diving.

Throughout her time at the EERC, Wixo worked as a Clerk Typist, Secretary, Research Assistant, an Information Processing Operator, Administrative Manager – Satellite Systems, and a Research Specialist.

"I came here when I was 20, and I still have friends here from the beginning," said Wixo. "Don't ever underestimate how important you are," Wixo told the audience. "I think it's hard sometimes to believe that we're making a difference, but every day you see that difference in the headlines and in people's faces. This is a wonderful place with absolutely incredible people."

–Sandy Van Eck

## Years of service celebration

At a ceremony held in Discovery Hall on June 4, 52 employees were recognized for their years of service to the EERC. The full staff of the EERC enjoyed refreshments and

anecdotes from EERC Director Gerald Groenewold, who introduced each individual and presented him/her with a gift from the EERC.

–Trish McGuire



*Dennis Pazderic (left), Facilities Maintenance Coordinator, is congratulated on 20 years of service by EERC Director Gerald Groenewold as Linda Quamme, Assistant to the Director, looks on.*

Photos by Trish McGuire



*Enjoying the Years of Service celebration are, left to right, Rhonda Shirek, Assistant to the Associate Director; Michelle Olderbak, Assistant to the Deputy Associate Director; Heidi Vetteson, Administrative Assistant; Lisa Borgen, Administrative Assistant; Shannan Longsdorf, Project Resource Analyst; and Jimmie Kennedy, Project Resource Analyst.*

## SNAPSHOTS:

### Abby McCauley crowned Miss North Dakota Senior Sweetheart



Photo by John McCauley

Abby McCauley, John and Brenda McCauley's 18-year-old daughter, was selected as a state finalist in the 2008 Miss North Dakota National Teenager Scholarship Program held May 30-31, 2008, at Century High School in Bismarck, where she placed as

first runner-up and was crowned Miss North Dakota Senior Sweetheart.

The contestants were judged on their academic excellence, school and community involvement, talent, social and conversational skills in an interview, poise and personality in an evening gown, and personal expression and onstage response to a question. For her talent, Abby sang a Patsy Cline song entitled "Walkin' After Midnight."

"I am so proud of my daughter, Abby. She is truly a wonderful young lady with a heart of gold," said John McCauley, EERC's Network Administrator and Computer Specialist. "Abby worked so very hard for this opportunity to participate and compete in the national teenage pageant. If she gets back as much as she puts in, that would be great."

The first runners-up were invited to Nashville to participate in a National Sweetheart Scholarship Pageant. However, Abby was diagnosed with mononucleosis and strep throat, so the McCauleys had to cancel the trip to Nashville.

Congratulations, Abby, on being crowned Miss North Dakota Senior Sweetheart!

-Trish McGuire

### Lora Evenstad wins Junior Olympic championship



Photo taken by Kathy Lewis, Action Moments

Lora Evenstad, daughter of Dean and Vicky Evenstad, won the Junior Olympic All-Around Title at the Junior Olympic National Gymnastics Championships, in Kissimmee, Florida, May 16-18. Lora has been a member of the Red River Valley Gymnastic Club in Grand Forks for 15 years and has been involved in gymnastics since she was 3 years old. At Kissimmee, she competed in the top Junior Olympic level, which is Level 10, Senior D, and in a field of 55 for the title.

Winning this title has been a culmination of years of training in a state not known for producing excellence in gymnastics. Lora competed in the vault, floor, bars, and beam.

"My wife Vicky gets all the credit for introducing Lora to gymnastics," said Dean Evenstad, EERC Research Specialist. "I just drive the bus."

Lora was recruited by the University of Nebraska gymnastics team and will compete as a Husker next year.

Congratulations, Lora, and good luck in Nebraska.

-Trish McGuire



Jack Nuveen holds up his winning T-shirt design in front of his South Middle School eighth-grade classmates and teacher, Ms. Lanae Brown (back row, third from the right). To the right of Brown are EERC Research Specialist Lucinda Hamre, Project Manager of the CATM Environmental Outreach Program to area middle schools, and EERC Administrative Assistant Lisa Borgen, Teacher Coordinator.

## CATM T-shirt winner announced

In an effort to increase environmental awareness and foster teamwork among students in Grades 6–8, the EERC Center for Air Toxic Metals® (CATM®) sponsored its second annual Environmental Footprint Awareness Program and T-shirt contest.

As part of the program, EERC Research Specialist Lucinda Hamre presented information to students in 15 classrooms from South and Valley Middle Schools in Grand Forks and at Thompson Public School in Thompson regarding air pollution and ways that we individually can reduce energy consumption and, thereby, reduce pollutant emissions.

The students also participated in the T-shirt design contest by creating slogans and designs with an environmental theme. The winning T-shirt was selected by a panel of EERC judges. The winning design for 2008 was from Jack Nuveen of Ms. Lanae Brown's eighth-grade class at South Middle School. Jack's drawing included the words "Warning: Fragile" surrounding a drawing of the earth resting in a pair of hands. Jack's classmates were treated to a pizza party and given T-shirts with the winning design on it.

Second place went to Mikelle Fetsch, an eighth-grade student at Schroeder Middle School, and third place went

to Joey Oncken, an eighth-grade student from South Middle School.

The true success of this outreach program is noted by changes in attitudes and behaviors of the students and teachers. Teachers from last year's event have noted that students report feeling empowered and have made lasting changes in their energy-consumption behaviors, often encouraging their families to make lifestyle changes. Others have noted that the students are now considering energy-related careers as they plan for future classes.

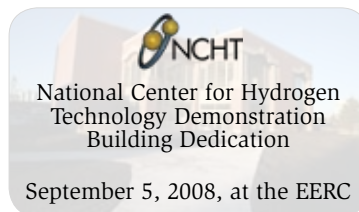
–Trish McGuire

## Upcoming Events



U.S. Senator Byron L. Dorgan's  
Advancing the  
Hydrogen Economy Action Summit II  
A Global Leadership Role for the Red  
River Valley Research Corridor

September 4, 2008, at the EERC



National Center for Hydrogen  
Technology Demonstration  
Building Dedication

September 5, 2008, at the EERC

## Recent Event



October 25–29, 2009, Arlington, VA



July 15–16, 2008, Grand Forks, ND

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

## EERC EDGE

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