

Mike Bryan, CEO of BBI International, said at the luncheon presentation, “Never ever has there been a more important time to change the world. Be proud of what you’re doing. Change the world for our children and our children’s children.”

Biomass '07 Workshop

This is an exciting time in our region and country. If you didn't know it before the EERC's Biomass '07 Workshop, cosponsored by the U.S. Department of Energy, you felt it in the air when you were there. It was in the presentation hall, foyer, exhibit hall. It was at lunch, on breaks, before and after the workshops. You witnessed animated exchanges between business people, financial advisors, researchers, scientists, investors, tire company representatives, farmers, and forest service personnel, to name a few. All are excited about biomass.

The excitement surrounding biomass isn't exactly new, as people have been making fuel from biomass feedstock since the 1800s. In fact, Rudolph Diesel used peanut oil when demonstrating his compression ignition engine at the World's Exhibition in Paris in 1898.

What is new about using biomass feedstocks for fuel and energy is that there is a groundswell of support

for biomass utilization ranging from citizens to entrepreneurs to researchers to government representatives. This depth of support is promising for the industry. Some supporters are spurred on because they want fuel and energy from sources that are stable, renewable, and environmentally friendly. Others want to bring economic opportunities and life back to small rural towns.

Whatever the reason, the Biomass Workshop, at the Alerus Center in Grand Forks, North Dakota, May 15-16, 2007, was an opportunity for those interested in biomass to learn from those experienced in it. The speaker topics ranged from scientific to organizational to agricultural to historical to inspirational. The Workshop focused on trends and opportunities in utilizing biomass, financing biomass-related projects, new innovations for biodiesel production, biorefineries for chemicals and products, and biomass for heat and electricity.

Betsy Engelking, Xcel Energy Manager, said, “Doing renewables is our best option.”

Shirley Ball, Executive Director of Ethanol Producers And Consumers, has been an “ethanolic” since the 1970s in response to the long lines at gas stations. She said, “You can have food and fuel from the same seed of grain.”

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Ken Smith, District Energy St. Paul, spoke to how that city is now relying on biomass as the primary energy source to heat, power, and cool over 80% of the downtown while reducing sulfur dioxide and particulate emissions by more than 60%.

Amber Pearson, National Biodiesel Board, mentioned that 77 biodiesel plants are under construction throughout the United States.

Several top industry representatives were featured, including Kevin Kephart, Vice President of Research and Graduate School Dean, South Dakota State University; Gregory Loest, Director of Technology Integration, ICM, Inc.; Spencer Swayze, Manager of Business Development, Ceres, Inc.; and Luca Zullo, Technical Director, Cargill Emission Reduction Services.

With such a wide range of Workshop speakers and topics, it was evident that the biomass industry has come of age, even though there is still the need for infrastructure, fuel-flexible vehicles, and laws favorable to biomass-related plants, products, and fuels.

Biomass '07 drew in over 400 registrants and 29 exhibitors representing 232 organizations, 28 states, three Canadian provinces, China, and the United Kingdom. Attendees represented industry, research/academia, government, community and economic developers, financial organizations, investors, landowners, and media.

BBI International, Biomass '07's signature sponsor, is organizing the International Biomass '08 Conference and Trade Show to be held in Minneapolis, Minnesota, April 15-17, 2008. The EERC will be a signature sponsor at that conference. The EERC's Biomass '08 will be held again next year at the Alerus Center in Grand Forks, North Dakota, July 15-16, 2008.

-Trish McGuire



An aerial photo of the Grand Forks region during the flood of 1997. At its widest point, water from the overflowing Red River covered 15 miles of land. The EERC's Waffle program would make use of existing elevations, such as roads, and depressions, such as drainage ditches and wetlands, for temporary storage during spring flooding.

The Waffle®: A Key Element In Holding Back Potential Flood Waters

The April events commemorating the 10-year anniversary of the flood of 1997 that devastated the Grand Forks area and the surrounding Red River Valley also brought renewed attention to the Energy & Environmental Research Center's (EERC's) Waffle flood mitigation plan. Ironically, had it been put in place prior to the April flood, the Waffle plan would likely have reduced the water level in Grand Forks by nearly 5 feet, probably enough to keep the dikes from overflowing. It could have prevented the flood and its tragic consequences in the Red River Basin.

"This would have saved many homes and businesses in Grand Forks and East Grand Forks and averted much of the \$2 billion in flood-related damages accrued in 1997," said EERC Senior Research Manager Bethany Kurz. "The utilization of Waffle-type storage

would have significantly reduced flood levels throughout the entire basin."

The Waffle project, started in 2002 and initially funded by the U.S. Department of Agriculture Natural Resources Conservation Service, is the largest, most comprehensive study of an innovative, basinwide flood control strategy ever conducted for the Red River Basin. The basin extends from northeastern South Dakota and west-central Minnesota in the south to southern Manitoba to the north, where the north-flowing Red River empties into the southern end of Lake Winnipeg. The goal of the Waffle plan is to utilize existing low-lying areas, roads, ditches, and wetlands as a network of channels with control structures such as existing culverts modified with standpipes and slide gates to temporarily store water, which normally drains to the river, in those natural depressions until the Red River

flood crest passes. The water would later be slowly released at a controlled rate.

EERC Director Gerald Groenewold, who adopted the term “Waffle” to describe the plan, says, “Just as squares on a waffle hold syrup, the grid work of existing roads in our region can be used to hold water.”

Although the Grand Forks/East Grand Forks area has buttressed its dike system in a federally funded, multimillion dollar effort to mitigate the effects of future floods, the EERC feels the adoption of the Waffle plan is still critical to augment traditional flood control measures.

“Most of the surrounding rural communities are not protected to the same degree as Grand Forks/East Grand Forks or as prepared to deal with the effects of another devastating flood,” says Kurz.

“In 1997, we had 97–100 inches of precipitation. Fargo, for example, narrowly escaped the flood. If the same precipitation had melted differently, it could have had devastating effects for Fargo 75 miles to the south and the rest of the region south of Grand Forks as well,” says Kurz, who adds that “Fargo has not yet built up its dike system in the wake of the 1997 flood.”

In addition to mitigating flood effects in the entire basin, the Waffle plan is also of critical importance because a future flood with flows 50% greater than the 1997 flood would overflow the Grand Forks dikes even at the current, raised level of 59 feet. If the Waffle plan were adopted in the basin, it is projected that the water level from a 50% flow increase would be reduced to approximately 56 feet in Grand Forks/East Grand Forks. Flows 50% larger than 1997 are not impossible; the area has almost reached that in recorded history. Accounts from the spring of 1826 indicate that a flood occurred with flows 30% larger than the 1997 flows in Grand Forks and East Grand Forks. That same 1826 flood

produced flows 42% larger than the 1997 flood did in Winnipeg, Canada.

Kurz reminds us that since 1826, we’ve lost about 80% of the wetlands in the basin to agriculture. Back in 1826, those wetlands might have helped slow the flow rates and mitigate the flood effects.

“If we experienced an 1826 flood today, with our current drainage system and its unimpeded flow to the river, it could potentially be a very scary situation,” says Kurz, who adds that the Waffle plan, in effect, acts like those lost wetlands by holding the water on the surrounding land.

EERC Director Gerald Groenewold said, “The Waffle plan could offer long-term security from floods like the one in 1997 and provide necessary augmentation to conventional flood mitigation measures such as dikes in order to combat even larger floods.”

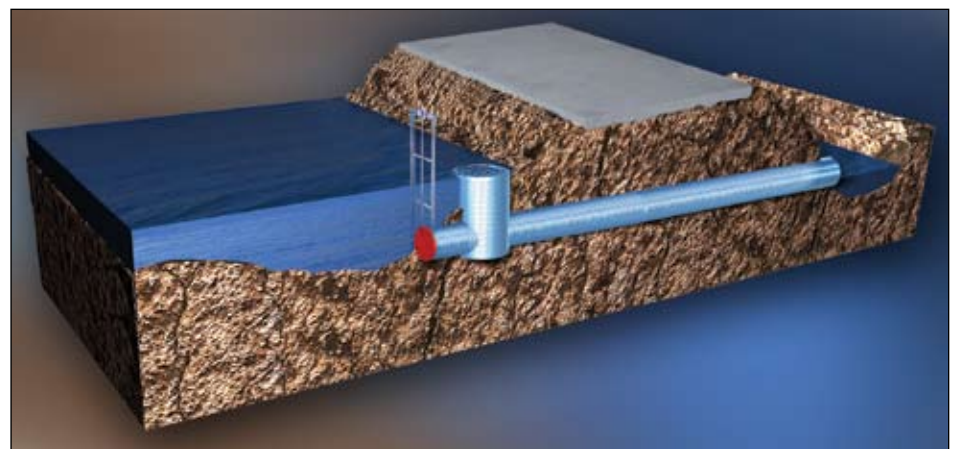
Although the Waffle plan is intended to mitigate flooding in the region, it could have other positive benefits as well. The controlled drainage of the Waffle plan could also save many county roads from the washouts and damage that occur after spring flooding, potentially saving millions of dollars in infrastructure repair. In dry years, the Waffle infrastructure would allow farmers to hold moisture on cropland in the spring and recharge groundwater resources.

“Although the Waffle plan would probably cost millions to implement throughout the entire Red River Basin, it could save billions of dollars,” says Kurz, who adds that we can’t wait for another catastrophic event to occur to implement the plan. Kurz continues, “By adopting the Waffle [plan], you’re slowing down the water, keeping the water level lower, and not relying solely on the dikes to protect you.”

Kurz says that one means of implementing the Waffle would be to focus on mitigation of local issues, such as road damage and flooding of smaller communities, farmsteads, and rural land. This would require buy-in and support of local agencies, such as water resource boards, county commissioners, and city councils. Ultimately, once enough local Waffle projects were in place, regional benefits would accrue.

Pilot-scale evaluation of the plan at the four field trial sites—three in Minnesota and one in North Dakota—wrapped up in the spring of 2006. During the past year, researchers from North Dakota State University assessed the economic impacts of the Waffle plan compared to other flood control measures. The final results from the Waffle study, including the economic impact evaluation, will be published and released in July 2007.

–Sandy Van Eck



This cross-section design illustrates the concept of the Waffle. In the field to the left of the road, rain water is held back by a closed gate to the standpipe and culvert system. The water can then be released slowly and at a safer time, as illustrated underneath the road.



Derek Walters, EERC Communications Manager, begins a tour of the EERC for Grand Forks area high school students prior to their meeting with EERC research engineers. Walters coordinates tours for students from elementary school through college, discussing each request with the instructors to best facilitate the outreach experience to student needs.

High School Students Receive Career Advice

A group of 16 students from Central, Red River, and Community High Schools and their career advisor, Joyce Larson, visited the EERC in March as part of a career exploration program through Grand Forks Public Schools. This was not an ordinary tour, however.

Through Communications Manager Derek Walters' facilitation, the prospective engineering students were able to meet with EERC engineers from each of the engineering disciplines to hear about the energy and environmental projects at the EERC and other types of projects they might be involved in as professional engineers. Civil engineer Brad Stevens, chemical engineer Katie Hill Brandt, electrical engineer Roy Beard, and mechanical engineers Jay Almlie and Ann Henderson shared their backgrounds, expertise, and advice with the students.

For the most part, the engineers met with the students in their normal work environments—Hill Brandt in the Mercury Research Laboratory; Henderson in the technology development facility; Beard in his

office, strewn with computers in various stages of repair, adjoining the networking lab—so that students could get a feel for what a daily routine for an engineer might be like.

The students were attentive and interested throughout the tour and asked thoughtful questions of the engineers. Many of the questions they asked had to do with the advantages of getting an engineering degree.

“With an engineering degree, you can do just about anything,” said Roy Beard, Computer Systems Manager for the EERC. “The core engineering curriculum teaches you to think logically, and logic is needed everywhere.”

“You’ll approach every situation by asking a series of questions,” Research Engineer Ann Henderson said. “What’s the problem? How are we going to deal with it? And what can we, ultimately, do about it?”

Research Manager Brad Stevens, who manages wind and hydrogen energy projects for the EERC, told the students, “You can choose from the

disciplines according to what interests you and how you like to work.”

Students also wanted to know how best to prepare while in high school for the rigorous engineering curriculum at the college level. The EERC researchers told them to take all of the science and math classes they can in high school and work really hard at mastering them—not just earth sciences and chemistry but all of the biology, too.

“Engineering is, more and more, learning from and incorporating the life sciences,” Research Manager Jay Almlie told the students. Almlie should know. He worked for NASA designing life support systems for space travel prior to coming to the EERC.

Henderson told the students that engineers also have to be able to write and communicate with others.

“You can spend weeks, months, or years on a groundbreaking project, but at the end of it, if you can’t communicate that information effectively, you haven’t accomplished much,” Henderson cautioned.

Like communication skills, learning teamwork skills is also important. At the EERC, engineers generally work on projects in teams or consult other engineers for advice.



EERC Research Engineer Ann Henderson shows students the technology development facility at the EERC.

“Everyone has a specialty and area of expertise, and it’s important to call on each other,” Henderson said.

Several researchers mentioned that while in college students should explore gaining hands-on experience and training through internships or cooperative experiences. UND and many engineering programs now build these real-world work experiences into their curricula. Research Engineer Katie Hill Brandt said it was job-shadowing a chemical engineer in high school as well as summer internships at the EERC that convinced her that a chemical engineering degree was the most flexible.

Hill Brandt said, “You can get your hands into just about anything with this degree. And, an engineering degree is a good investment. You can get a job—a really good job—with just a bachelor’s degree.”

Students on this particular tour had unusual access to the expertise of several EERC researchers, but Walters, who leads approximately 30–40 tours through the EERC each year, tries

to accommodate all EERC guests. Although most tours are for present or potential clients or partners, many are given at the request of teachers for regional K–12 and college students, who are often learning about the EERC as part of their studies in energy, the environment, research, or career education.

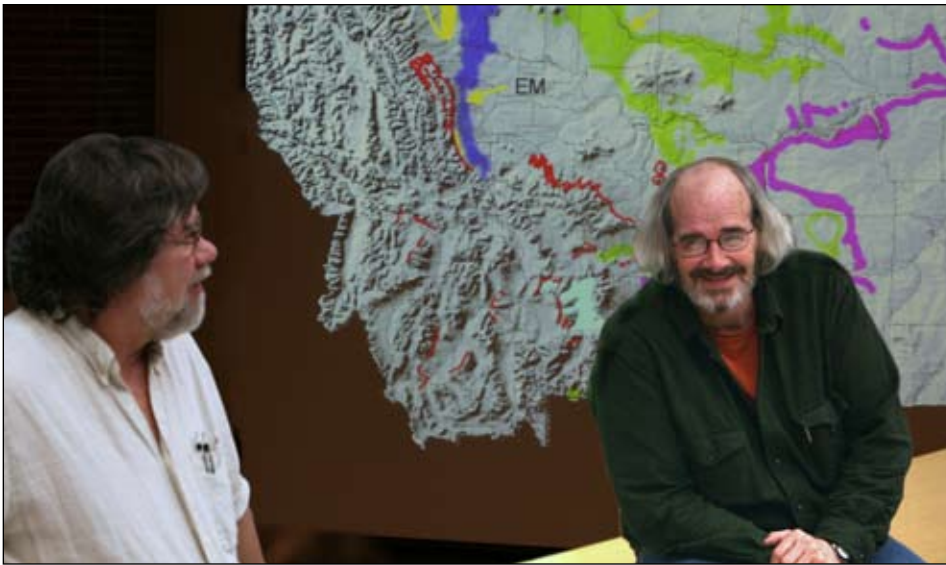
Last year alone, Walters led 250 students and their instructors through the EERC. This type of outreach is one of the aspects of Walters’ job that he finds the most rewarding.

“We’re not just educating students about the EERC and the work we do here, we’re also exposing them to the energy and environmental issues that face our nation and the world today,” says Walters. “We’re also, perhaps, helping them make life-changing decisions as they prepare to inherit those monumental issues.”

–Sandy Van Eck



Students from Grand Forks area high schools listen intently as Jay Almlie explains his position as a mechanical engineer and Research Manager at the EERC during a recent tour.



EERC Senior Research Advisor Joseph Hartman introduces Jack Horner to a group of about 100 students, faculty, and community members at UND on April 20.

Jack Horner Speaks at the EERC

World-renowned dinosaur paleontologist Jack Horner visited the University of North Dakota on April 20 at the invitation of Dr. Joseph Hartman, EERC Senior Research Advisor and UND Department of Geology and Geological Engineering (GGE) Associate Professor. Horner is Curator of Paleontology at the Museum of the Rockies and Regents Professor of Paleontology at Montana State University in Bozeman.

Horner spoke to two groups on the UND campus. Over 100 people, including about 15 children, listened to Horner in the afternoon in the Geology building as he recalled his adventures of “Digging Dinosaurs Around the World.” Approximately another 100 people attended a Geology Department banquet held that evening at the EERC, at which Horner gave a talk entitled “Why Dinosaurs Changed Their Stripes: How Skull Shape Changes Dictate Behavior.” The GGE LEEPS (Leading Edge of Earth and Planetary Science) lecture was sponsored by GGE alumni and the Office of the Vice President for Research.

“Jack is extremely important in the field of paleontology for challenging conventional wisdom,” said Hartman,

whose research into freshwater mollusks at the end of the Cretaceous Period overlaps with Horner’s dinosaur research. Hartman and Horner have had coordinated field activities since 2000. “Jack’s research is groundbreaking, literally, with regular new interpretations based on the discovery of new fossils.”

Horner is widely known outside of academic circles for having been a



Jack Horner at a dig site.

technical advisor for the three Jurassic Park movies; a close role model for Dr. Alan Grant, the lead character in the movies; and perhaps the Michael Crichton novel upon which the movies were based. He’s also written six popular books, including “Dinosaurs Under the Big Sky” and “The Complete T. rex,” and published over a hundred professional papers.

In 1978, Horner and his friend, fellow paleontologist Bob Makela, discovered a large number of dinosaur nests, 20 feet across and often containing 20 eggs, the first dinosaur egg “clutches” in North America, in north central Montana in the Upper Cretaceous Two Medicine Formation at what later became known as Egg Mountain. The nests contained fossils of a new species of duck-billed dinosaur that roamed the area in herds some 77 million years ago. Horner and Makela named the dinosaur *Maiasaura*, or “good mother lizard.” The name was given after the researchers determined that since there was no vegetation in the area of the nests during that time period, the dinosaurs brought food back to the nests for their young. Horner and Makela are thus credited with providing the first evidence that dinosaurs physically raised their young.

“We are still finding hundreds of eggs there [at Egg Mountain],” Horner told the UND audience. [The Two Medicine Formation area] “is an ‘uplands’ area with lots of overbank deposits; the area was used for a very long time by dinosaurs and then was left undisturbed, unlike the lower elevations near the active river.”

Horner has had the funding to dig anywhere in the world for dinosaurs through a program called Intellectual Ventures, founded by former Microsoft technology chief Nathan Myhrvold. Other major backers of his research have included the Discovery Channel.

Although Horner has dug for dinosaur fossils in such exotic places as Mongolia, Transylvania, southern France, Patagonia, Tanzania, and

Spain, he told the UND audience that there is no place like home.

“[Montana] is the ideal place for this project. There is no abundance or diversity of fossils anywhere like there is in Montana,” Horner said.

Of late, Horner keeps coming back to dig in the Hell Creek Formation in the eastern Montana badlands.

The 300- to 350-foot-thick Hell Creek Formation was deposited near the end of the Cretaceous. Although the formation extends into North and South Dakota, Horner is primarily interested in the section exposed between Jordan and the Fort Peck Reservoir in Montana. Many *Tyrannosaurus rex* (*T. rex*) and *Triceratops* skeletons have been found there in the upper part of the formation.

Why are there so many fossils in the Hell Creek area?

“It’s the youngest dinosaur-dominant ecosystem we could get our hands on. It’s right before the extinction event, and the strata are all lying flat. It hasn’t been deformed by mountain building,” Horner says. The goal is to reconstruct the ecosystem and have major scientists independently interpret various aspects of it. What was initially a 5-year research project became an 11-year study, now three-quarters complete. When the study wraps up, the scientists will compare and synthesize their results for publication.

In the Hell Creek Formation in 1990, Horner dug up one of only two complete *T. rex* specimens ever found. That skeleton, and those of 11 other *T. rex* specimens, are housed at the Museum of the Rockies, making it the largest *T. rex* collection in the world. The museum also houses the largest collection of *Triceratops* specimens in the world—Horner said he’s found some 40 to date—including the partial skull and frill of one of only four or five baby *Triceratops* known. Horner is also known for having discovered the largest *T. rex* to date,

which weighed somewhere between 10 and 13 tons and was even larger than *Tyrannosaurus Sue*. Another important Hell Creek find was a female *T. rex* that died during an egg-laying cycle. Scientists working with Horner were recently able to extract protein from the soft tissue and hollow blood vessels preserved in that female *T. rex* thigh bone. Protein sequencing tests suggest a possible genetic link between birds and dinosaurs—three of the seven reconstructed protein sequences are closely related to chickens.

Horner told the UND audience that this summer he will send “nine crews out into the field in the hopes of finding another five to six *T. rex*.” Finding more well-preserved soft tissue would allow more extensive cellular analysis. Horner would like to discover as much as possible about *T. rex*’s daily behavior as well as find evidence to support the hypothesis that *T. rex* was a relatively common dinosaur, a scavenger that traveled in packs, rather than the predatory killer it has long been thought to be.

Horner’s discovery of a dinosaur bone at age 6 led to his passion and subsequent career digging for and studying dinosaurs. A nearly intact dinosaur egg he found many years later led him to focus his research on juvenile and baby dinosaurs and “the changes animals undergo as they grow up.” Horner has since put forth many important hypotheses about dinosaur development and behavior. Of special interest to him is ontogeny, or development, versus variation.

“Without knowing how much variation there is within [individual growth] stages, there is no way to study dinosaur evolution,” Horner said, “since some variation could be attributed to transitional species.”

Hartman notes that the UND banquet audience was privy to the results of some of Horner’s most recent research into dinosaur ontogeny, which will be presented at a major conference later this year.

—Sandy Van Eck



Patchwork of Possibilities

Nestled in an entry hall between the EERC’s Building W and Building Z lobbies is a 3 x 3-foot vibrant splash of color. Designed and stitched by Barb Jenson, the quilt was sponsored by the EERC in support of the Women’s Fund, an endowed fund of the Community Foundation™ of Grand Forks, East Grand Forks, and Region. The special fundraiser is entitled “Patchwork of Possibilities,” which is also the name of the quilt on display at the EERC. A total of 30 quilts were made by area quilters and sponsored by 30 community organizations all in support of the goals of the Women’s Fund. Those goals are to raise awareness of the challenges, concerns, and opportunities facing girls and women today and to support opportunities to build leadership skills and confidence. The quilts will be on display through September 15 throughout the region at the various sponsor sites. Maps showing the location of all of the quilts are available at the EERC and the Greater Grand Forks Convention & Visitors Bureau. The stand for the quilt at the EERC was made by David Badman of Badman Design in Grand Forks, North Dakota.

—Trish McGuire

New Employees



Mark Kobe is the Supervisor of Building Services at the EERC. He is responsible for supervising a staff of four in keeping the EERC buildings looking their best. Kobe

says he was interested in coming to work at the EERC because of all of the good things being done here and the EERC's continued growth.

Kobe notes that he "likes working with all the friendly, helpful people at the EERC." He says that even though he's new here, "Everyone says 'Hi' and acknowledges me when they run into me going from job to job."

Before coming to the EERC, Kobe worked for just over 8 years at the Grand Forks Human Nutrition Center, where he found "another group of friendly people." In August, Kobe will have been an employee of the University for 25 years. The EERC is his ninth position during that time.

Kobe graduated in May of this year with a bachelor's degree in Management at UND. One of his professional areas of interest is personnel management. In particular, he finds interesting the challenges of integrating the different generations of workers, from the retirees returning to the workplace, often technologically illiterate, to the "millennials," the youngest generation of workers, those digital natives for whom technology is intuitive.

Kobe jokingly says he has no hobbies, but it's easy to see that he really does have "no free time," as he says, what with working full-time, taking classes, and helping

his 89-year-old mother maintain her independence.

Although he's been living in Grand Forks for a number of years now, Kobe is definitely a world traveler. Kobe was born on Guam where his father, a native of Ardoch, North Dakota, was stationed in the Navy. When Kobe himself "won the draft lottery" in 1970, he decided to enlist instead of being drafted and spent 8 years in the Navy. Between growing up in a military family and his own military experience, Kobe has lived in California; Florida; Washington, D.C.; Virginia; Eleuthera, in the Bahamas; the Panama Canal Zone; and Guantanamo Bay, Cuba. As a young boy, he "lived in Hawaii before it was a state," right on an undeveloped Waikiki Beach, an experience he recalls as "paradise."



Dr. Paul D. Pansegrau is a Research Scientist at the EERC, where his work focuses on process chemistry and chemical synthesis related to developing advanced catalytic

technology and thermochemical conversion technologies for coal and other hydrocarbons, such as biomass, to fuels and chemicals.

"The people, both at the EERC and our clients, are facing difficult challenges and problems," says Pansegrau. "Working with them toward a solution is a fantastic journey. Their interests and problems are quite varied and always interesting."

A native of Grand Forks, Pansegrau holds a B.S. in Chemistry from the University of North Dakota and a Ph.D. from Colorado State University

and was a postdoctoral fellow at Ohio State University. Prior to his position at the EERC, he served as a Senior Research and Development Chemist in Plant Diversification at Dakota Gasification Company since 1994, a Research Investigator II in Chemical Process Research at Bristol-Myers Squibb Company for several years, and a Senior Research Chemist in Process and International Technology at Monsanto Company for several years before that.

Trained as a synthetic organic chemist, Pansegrau's principal areas of expertise include gasification of lignite and other low-rank fuels, flue gas desulfurization and related environmental technologies, and utilization of biological means to effect chemical transformations. He is a member of the American Chemical Society Division of Organic Chemistry, holds seven U.S. patents, and has authored numerous professional publications.

Pansegrau and his wife have two children, a German short-haired pointer, and a very busy household. Pansegrau's wife has been an active volunteer in the community, while their kids, a son age 15 and a daughter age 12, are involved in annual piano festivals. Their daughter is a dedicated figure skater formerly with the Hazen Figure Skate Club. Their son was on the Beulah High School cross country and track teams. The family will bring these talents with them when they move to Grand Forks this summer. Besides supporting each other's interests, the family enjoys watching college hockey, especially UND hockey.

In his spare time, Pansegrau enjoys bicycling, fishing, gardening, and digital photography. Beside an interest in dogs, and German short-haired pointers in particular, Pansegrau has a special interest in restoring vintage

National Center for Hydrogen Technology Center Update

black and white photographs and finds that bringing a photo from the 1930s or 1940s “back to life” is a good challenge.

–Sandy Van Eck



Jay Almlie, EERC Research Manager and Project Manager of the Pratt & Whitney Rocketdyne Pilot-Scale Hydrogen Generator Test Project, oversees the installation of a hydrogen generator in the National Center for Hydrogen Technology (NCHT) Laboratory Building. The NCHT Laboratory Building is filling up with equipment even before workers apply the finishing touches to the building. EERC staff are eager to begin work on the many new projects that have come their way as a result of the new space.

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SNAPSHOT:

- Lalangi Marasinghe, daughter of EERC Programmer/Analyst Madhavi Marasinghe, took first place in the girls 12-and-under division at the Midwest Tune-up Championships in tennis in Eden Prairie, Minnesota, recently. Marasinghe defeated Mimi Yunker 6-3, 6-4 in the final. Marasinghe and Yunker are ranked Nos. 1 and 2, respectively, in the USTA Northern Section, which includes North Dakota, South Dakota, Minnesota, and western Wisconsin. Congratulations, Lalangi!

Diane Skean: Accountant, Quilter, Jewelry Artist

Diane Skean, EERC Accounting/Budget Specialist, calls her quilting and jewelry hobbies “my affliction. It’s detail-oriented, like accounting, but I don’t have to follow the rules.”

She comes by her love for detail and creativity naturally from her family. She grew up on a farm in Ambrose, North Dakota, located in the northwest corner of the state. Skean developed her love for quilting and sewing from her grandmothers. Her grandmother from Ambrose did sewing, quilting, knitting, and crocheting. Her grandmother in Williston, North Dakota, was the person to go to for alterations on formal wear such as wedding dresses and coats.

Skean began crocheting when she was around 9 or 10 years old and started sewing at 13, using the sewing machine her father gave to her mother.

“I think my dad always thought my mother would take up sewing, but she had no interest whatsoever,” Skean said. “The sewing machine just sat there in the dining room for several years before I started to use it.”

Skean sewed her own clothes until she was 19. Back then and in her grandmothers’ day, sewing and quilting, etc., were a necessity.

“Today, it’s hard to find the fabrics I want,” says Skean. “And it’s cheaper to buy the clothes ready-made.”

About 5 years ago, Skean made her first quilt at a quilt retreat in Cooperstown, North Dakota. It took her a year and a half to finish the quilt, working on it whenever she could. The quilt was big enough for a queen-size bed.

“It remains one of my favorites,” says Skean. “The colors and pattern work well together.”

Skean says that her basement is full of her quilting equipment, supplies, and fabric samples from quilt-specific stores in East Grand Forks, Minnesota, and Mayville, North Dakota, as well as from stores when she goes on vacation.

About 2 years ago and around the time that the Urban Girl store opened in Grand Forks, North Dakota, Skean made the switch from making quilts to making jewelry. She became a member of the Design Club at the Urban Girl, where she and 10 to 12 others meet once a month to share their knowledge and inspiration.

In the Design Club, Skean has made some jewelry in response to theme challenges. Under the separate themes of science fiction, Versailles, and ocean, Skean created necklaces, bracelets, and earrings.

Skean says, “Not every theme appeals to you each time. If you don’t like the theme, you don’t put in the time and effort. If the theme means something to you, your creativity explodes.” Skean’s inspiration comes from color. “When I see a color I love, I build around it.”

Skean uses a lot of natural stones and seed beads in her designs. In addition to basic bead stringing, she uses various stitching techniques such as Peyote, Ndebele, and Right-Angle Weave to create flat, tubular, braided, and three-dimensional designs. Skean stores all of her equipment for making jewelry in a 5 x 7-in. notebook.

“One of the best things about making jewelry is that it’s portable. You can easily take a project with you,” said Skean. “The most rewarding aspects have been teaching classes locally and making things for other people. And on a purely selfish note, I can wear a different piece of jewelry everyday.”

–Trish McGuire





Photo submitted by Katie Hill Brandt

EERC's Katie Hill Brandt, far right, with the other cast members of the musical, "I Love you, You're Perfect... Now Change."

A Thespian in Our Midst

You might think that when Katie Hill Brandt leaves her job as a Research Engineer at the EERC she goes home and ponders emission control or hydrogen production—you know, whatever chemical engineers might do in their spare time.

Nope. Hill Brandt puts on her acting cloak.

After a 5-year break from acting, Hill Brandt recently appeared in the Greater Grand Forks Community Theatre production of Off-Broadway's longest-running musical, "I Love You, You're Perfect . . . Now Change," which ran from February 22 through March 3 at the Empire Arts Center. The musical comedy explored the theme of love and relationships, from dating through marriage, through more than 24 characters and multiple storylines. That meant that Hill Brandt and her five costars each portrayed several characters a night and sometimes more than one character in a scene.

"It was fun to be able to put something new into each scene," says Hill Brandt, who has never portrayed more than

one character in the same play. "With every new scene and character, there was at least one costume change for everyone, so it got pretty wild backstage."

Hill Brandt loves musicals, probably because she loves to sing. As a student at Central High School in Grand Forks, Hill Brandt performed in numerous plays and musicals. She continued acting in local shows in the Grand Forks area during summers off from high school and college. Her favorite role was when she played Maria, the female lead in "West Side Story," through the Summer Performing Arts Program while she was still in high school.

She had a different kind of experience during summers off from college, acting in musicals like "Oklahoma!" and "Big River: The Adventures of Huckleberry Finn," at Frost Fire Mountain near Walhalla. There the troupe performed in an outdoor amphitheater and put on performances every weekend for 2 months in the summers.

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“That was the first time I got paid for acting,” says Hill Brandt, who says she thought about music as a career choice but decided to stick with a more “stable career.”

She took classes and lessons in piano and voice and sang in an a cappella group on her college campus, but she went on to earn a Bachelor of Science degree in Chemical Engineering with a concentration in biomedical engineering from Northwestern University in Illinois. Despite singing in a church group more recently, Hill Brandt found that she still missed acting, so she auditioned for “I Love You, You’re Perfect. . . Now Change.”

“It’s a good use of my free time. And with ‘I Love You,’ I knew the director, so I knew it would be a good experience,” says Hill Brandt, who adds that acting is a great way to de-stress from work.

With Hill Brandt’s recent career move to the Natural Resource Group in Minneapolis, Minnesota, we’re certain she’ll find her way to the stage there, too. Break a leg, Katie Hill Brandt! Thanks for everything.

–Sandy Van Eck



Hannah Ness winner of the T shirt contest and her teacher, Patty Krebs, from Thompson Middle School.

CATM® T-Shirt Design Winner Announced

The winner of the Energy & Environmental Research Center’s Center for Air Toxic Metals® (CATM®) Environmental Footprint Awareness Activity 2007 T-shirt design contest is Hannah Ness from Patty Krebs’ 7th grade class at Thompson Middle School. The judges were very impressed with Hannah’s attention to detail and thoughtful slogan, which looks great on the T-shirts that Hannah and her classmates received. The entire class also enjoyed a pizza party as part of Hannah’s winning efforts.

The two runner-up designs were from the team of Jordy Fugere, Jade Stanislawski, and Nate Janes of South Middle School and from Liz Otto of South Middle School.

The winning T-shirt design was displayed at the UND Memorial Union and also at the EERC. Additionally,

Hannah’s winning design is on the EERC’s Web site at www.undeerc.org/catm/footprint.

EERC EDGE

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