‘We can do great things together’
Heather Wilson, a former member of Congress, Rhodes Scholar, and small business owner who has worked with large defense and scientific companies, will become the 18th president of the South Dakota School of Mines & Technology.

The South Dakota Board of Regents unanimously voted on April 25 to name Wilson to succeed the late Robert Wharton, who passed away in September. She will begin her duties on the Rapid City campus on or about June 17 and will become the first female president in the school’s 128-year history.

“Heather Wilson is a high-energy leader who brings exceptional communication skills and public-sector experience to her new position,” said Regent Terry Baloun, chair of the search committee. “At a time when higher education increasingly must make its case for more external funding and sustained research support from the federal and private sectors, our search committee took particular note of Dr. Wilson’s Capitol Hill experience, as well as her connections to decision makers in Washington and throughout the scientific research community,” Baloun said. “We are excited to have her join our team.”

As president of Heather Wilson & Company LLC of Albuquerque, N.M., Wilson has worked as a senior adviser to top-tier national laboratories such as Sandia, Los Alamos, Oak Ridge, the Nevada Test Site, Battelle Memorial Institute, and others. She served New Mexico in the U.S. Congress from 1998 to 2009, where she was on the House Energy and Commerce Committee and was the chair of the House Subcommittee on Technical and Tactical Intelligence.

“Higher education is facing serious challenges,” Wilson said. “The South Dakota School of Mines is showing how great schools can meet those challenges. Mines provides a rigorous, world-class education that prepares graduates for leadership in science and engineering at a price families can afford. It’s a great school and I’m very proud to be the newest Hardrocker,” she said.

About 96 percent of Mines graduates have jobs upon graduation, at an average starting salary of $62,696 last year. That’s better than Harvard and Yale, and, on average, Mines students have less than $25,000 in student debt upon graduation.

“I look forward to leading the expansion of Mines that Bob Wharton inspired and, tragically, was unable to finish,” Wilson said. “We will increase research, build needed facilities, and expand the student body so that more young people are prepared professionals for the 21st century.”

Wilson is married to Jay Hone, an attorney and retired Air Force colonel. They were foster parents and have one adult adopted son, Scott Hone, and two biological children, Joshua Hone, 19, and Caitlin Hone, 16. The family is active in Boy Scouts, soccer and music. They enjoy skiing, walking, reading, musical theater and film. They have an overly friendly King Charles-Beagle cross named “Miss Moneypenny” and two sugar gliders (Australian marsupials) named “Scout” and “Jem.”

Since last fall, Duane Hrncir, provost and vice president for academic affairs, has served as acting president. Baloun conveyed the Board of Regents’ special thanks to Hrncir, who will continue to serve as acting president until Wilson’s arrival. “Duane has been a solid and steady presence on this campus,” Baloun said. “He brought students, faculty and staff together during a time of loss and heartache, while diligently pursuing the university’s long-term goals and future vision. We look forward to Duane’s continuing service as provost and vice president for academic affairs.”

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Wilson has ‘always been called to public service’

School of Mines president-designate Heather Wilson promises to grow enrollment, research and facilities, leading “in the expansion that Bob Wharton inspired and, tragically, was not able to fulfill.”

Wilson said her range of life experiences has helped prepare her to lead the School of Mines into the next century and said she fully expected at some point in life to be immersed in higher education.

She began her professional career as an Air Force officer and attended Oxford University as a Rhodes Scholar. Wilson later managed a large state agency in New Mexico and served in Congress for 10 years. “My experiences are transferable to a college presidency. Though I’m an academic with a non-academic work history, I’ve always been called to public service,” she told the media in press interviews immediately following the board meeting.

When asked about the Regents’ unanimous vote of confidence in front of her immediate family and future Mines family, Wilson acknowledged the exhilaration and challenge. “It feels great, but it also sets a high standard. I hope to meet that standard. Nobody can do this kind of job alone. The great thing is that when you reach out, people reach back, and we can do great things together.”

She paid homage to late President Wharton’s legacy and thanked Acting President and Vice President for Academic Affairs Duane Hrncir “for leading this school in a tough time.”

Wilson described Mines as “an exceptional school” and is impressed with its 96 percent placement rate and average starting salary of $62,696, and said the university has not only educated students well but has created leaders for the future. One of its strengths, she added, is the curriculum. “There is not a lot of fluff, and that’s not going to change.”

She also promised community involvement. “The mission of this school is not just to educate scientists and engineers, it is to prepare scientists and engineers for leadership in their community, in their state, in the region and in the nation. And that starts here at this school. Mines is not just in this community, we are of this community and we will serve this community,” she told a standing-room only crowd in the Surbeck Center ballroom during the Board of Regents meeting.

Wilson acknowledged faculty “took a risk” and said, “I admire and respect everything you do and have tremendous interest in what you do, and you’ll find I ask a lot of questions. That’s not to tell you what to do, but to learn about what you do, and to learn not only about your research but those magical teachable moments that happen between teacher, professor and student. I’ll learn about those things in order to identify new ventures and new opportunities for research, and new ways to attract the next generation of young scientists and engineers to experience this university.”

“This is a great campus and a great school, and I really look forward to moving here and leading it forward to even greater things,” Wilson said.

Campus cooler: Students react to newest Hardrocker

Henrietta Kasaini
Sophomore, Chemical Engineering
“I was very excited. As a woman in engineering, it’s exciting to have the first female president. The school definitely needs somebody with a diverse perspective within the administration. Her background will help attract corporate sponsorships and the school’s visibility will increase – which is good for students. It gives us bragging rights.”

Jake Hladysz
Senior, Civil & Environmental Engineering
“There are enough people here who are knowledgeable in science and engineering that the president can be informed even though she comes from a different background. And now that the school is funded more by private support rather than public, or the state, her business sense to know where to find money is important. Ultimately, the president needs to be a politician.”

Michelle Kelley
Senior, Environmental Engineering
“I’m excited the president is a woman. She’s very accomplished and will bring a different perspective and different priorities to the school. Her political background gives her the knowledge and ability to speak to people about the university.”

Anthony Amarasinghe
Senior, Mechanical Engineering
“I was really glad. She has a lot of experience and she’s well-rounded. That’s what the school needs to achieve our Mines 2020 strategic plan. It’s great to have a female president in a university where females are underrepresented. I think she can make a difference, especially with the Congressional experience she brings.”

Read more reactions at http://www.flickr.com/photos/sdsmt/sets/721576333596777302/
Nearly 1,600 miles from their Gulf Coast Mississippi home, Roy and Rhonda Fore prepared to dig in to life as paleontologists. What was to be an impending record snow storm was no match for their enthusiasm to unearth treasures tens of millions of years old.

“I am in a learning place,” Rhonda Fore said. “I’m excited but I’m cautious because they’re saying to be careful with notes and be careful with this and that. Out in the field it’s just open. They’re using pick axes and chisels and beating it out of the ground.”

The Fores, both retired Postal Service employees from Perkinston, Miss., were among 18 volunteers from across America assisting with intense fossil preparation at the South Dakota School of Mines & Technology’s Paleontology Research Laboratory in April.

The volunteer paleontologists cleaned and prepared fossils that could one day find a home in museums or be the subject of groundbreaking research. The program was held over a two-week period, and the Fores and fellow participants worked full days in the laboratory.

The specimens have been excavated over time and are stored at the university’s new research laboratory, which is home to half a million fossils. Protective jackets range in size from a foot in diameter to those covering an entire tabletop, said Sally Shelton, associate director for the School of Mines’ Museum of Geology.

Volunteer work requires opening protective jackets made of burlap and plaster, carefully cleaning the fossils with brushes and other tools of the trade and meticulously recording notes for future researchers.

While the Passport in Time program is a voluntary program, the largely retiree volunteers are assisting much needed work that the Forest Service doesn’t have the manpower to complete, said Forest Service paleontologist Barb Beasley, who is based in Chadron, Neb. “Some of the volunteers, I really consider them experts. I’m glad to have them. The Forest Service just doesn’t have the money to put into it so there is a lot of backlog.”

The Fores, like Minnesota brothers John Ludwig of Lake George and Tom Ludwig of Grand Marais, have been on several digs in nearby states with Beasley.

“You don’t get to keep it but it’s kind of fun to uncover something that’s been buried for millions of years and suddenly there it is seeing the light of day,” said John Ludwig, who retired as assistant manager for Minnesota State Parks.

Tom Ludwig, who also worked for Minnesota State Parks and retired as a park ranger, said he enjoys the work and camaraderie he’s found through participation in Passport in Time. “We got exposed to a lot of stuff (working in the state park system) but we never got to play, so this is really fun and you get to meet some neat people,” he said, adding he first met the Fores on a different Passport in Time trip through Louisiana and Texas.

Among the many fossils to be cataloged are invertebrates, dinosaurs, prehistoric crocodiles, tortoises, rhinoceroses, flying reptiles and marine reptiles such as mosasaurs.

The School of Mines’ Museum of Geology preparator Mindy Householder is leading instruction for the volunteers. She advised prep notes are just as important as field notes for future research and should include everything from the types of tools and abrasives used to what some might consider silly details, which may help to paint a picture for researchers who may someday examine the specimen.

The Paleontology Research Laboratory, which opened in 2009, serves as a repository for the forest service. This is the first professional lab prep course offered in the new building, Shelton said.
Punky Cruiser heading to nationals

A team of South Dakota School of Mines & Technology students will compete nationally in San Francisco later this year after a car powered by chemical reactions they engineered recently took second place at a regional competition.

The "Punky Cruiser" is one of 31 teams eligible to compete in the national competition after finishing second at the Rocky Mountain Regional Conference of the American Institute of Chemical Engineers (AIChE) Student Chapter meeting held at New Mexico State University in Las Cruces, N.M.

The ChemE car competition involves shoe box-sized cars powered by chemical reactions engineered by students. Cars are required to start within a given time frame and then travel a set distance carrying weight, both of which are set on the day of competition. Teams must configure their chemical reactions to accommodate the variables on short notice. The three top teams whose cars stop closest to the set distance will advance to the national competition.

Trent Nelson, a chemical and biological engineering student from Sisseton, took second in the research paper competition for his research presentation entitled "A Wavelength Shifting Polymer to Enhance Growth and Production of Cyanobacteria."

In all, 19 School of Mines students traveled to the conference and comprised the largest university group, excluding the host university.

Students on the "Punky Cruiser" team were Jacob Chambers of Pierre, electrical engineering; Wyatt Hunter-Johnson of Vermillion, chemical engineering; Alison Barnes of Sioux Falls, chemical engineering; Jonathan Lindgren of Crystal, Minn., chemical engineering; Austin Hembry of Glenwood, Iowa, chemical engineering; Seth Ostlie of Truman, Minn., chemical engineering; Cody Buehner of Canistota, mechanical engineering; Heather Hensman of Powell, Wyo., mining engineering; Megan Bradley of Chadron, Neb., chemical engineering; Jesse Hinricher of Pipestone, Minn., chemical engineering; Kathryn Starr of Eureka, Nev., chemical engineering; Elias Hoffmann of Dell Rapids chemical engineering; Joseph Houck of Russell, Minn., chemical engineering; Stephen Hansen of Dassel, Minn., chemical engineering; Barbara Hadrava of Bemidji, Minn., chemical engineering; and Tyler Punt of Aberdeen, mechanical engineering.

Hembry, Barnes, Ostlie, Bradley and Hinricher were Mines student team members on the line running the car.

Other Mines students attending the conference were Adelyn Crabtree of Pierre, chemical engineering; Daniel Hines of Dell Rapids, chemical engineering; Trevor Moheit of Vacaville, Calif., chemical engineering; Evan Sellers of Volga, chemical engineering; and Zachary Kroehler of Henderson, Minn., mechanical engineering.

Generating sustainable hydrogen energy goal of splitting water molecules

South Dakota School of Mines & Technology researchers have successfully split water molecules during multiple thermochemical cycles at low temperatures, sparking hope that sustainable hydrogen energy will one day be feasible.

Rajesh Shende, Ph.D., and Jan Puszynski, Ph.D., of the Department of Chemical and Biological Engineering, have been awarded a $299,975 National Science Foundation (NSF) three-year grant to investigate a high-temperature thermochemical water splitting process. The ultimate goal is to exponentially double hydrogen levels, causing very little hydrogen regeneration. The hydrogen levels, enhancing knowledge of the physical and chemical processes involved in thermal stabilization of redox materials' morphologies without deterioration of complex ferrites. "Others might be splitting water by other methods, but there has to be a lot of novelty to get funded," says Shende, who built a fully instrumented reactor in his campus laboratory.

Their research was featured on the NSF’s Science360 News Service for Earth Day.

Six South Dakota School of Mines & Technology students have been inducted into the 2013 Leadership Hall of Fame for their service to fellow students, campus organizations and the Mines and Rapid City communities.

A prestigious award that honors a select group of student leaders from the School of Mines, the Leadership Hall of Fame honors those who have demonstrated excellent leadership skills while making a significant impact on the campus community.

Only four to six students are chosen annually by a selection committee comprised of faculty, staff, administration and a past inductee. The selection committee also considers any off-campus involvement that positively reflects on the school.

This year’s inductees are:

Anthony Amarasinghe – Amarasinghe is a mechanical engineering major from Sri Lanka. He has been involved with Campus Safety, the Student Association Senate, the Leadership Development Team, Rotaract, Student Ambassadors and the newly formed Professional Development Institute. He has also served as a peer advisor. He plans to seek a position in the energy industry following graduation.

Carlos Beatty Jr. – Beatty is an industrial engineering student from Box Elder. His involvement has centered on the Student Association Senate, American Society of Mechanical Engineers, Rapid City Statutory Planning Committee, Pershing Rifles, KTEQ, Rotaract and Newman Club, and he has served as a peer advisor. After graduation, Beatty will join Peabody Energy at the North Antelope Rochelle Mine in Gillette, Wyo., as an Operations Associate Engineer. Simultaneously he plans to pursue a Six Sigma Black Belt Certification and an M.B.A. through the University of South Dakota.

Belema ‘Bella’ Boyle – A chemical engineering major from Nigeria, Boyle has been involved with the National Society of Black Engineers, Cultural Expo Committee, Orientation Leaders, American Institute of Chemical Engineers, Circle K International, Rotaract and International Students Incorporated. She has also served as a peer advisor.

Haley Galvin – An interdisciplinary sciences/pre-physical therapy student, Galvin has been involved with Student Association Senate, Leadership Development Team, Future Health Science Professionals, M-Week Committee, Para Substitute, Circle K International, Black Hills Workshop and Paint the Town. She has been a peer advisor and was recognized as the "Most Fired Up Frosh." Galvin plans to attend graduate school to get her doctorate in physical therapy.

Megan Mahowald – Mahowald is an electrical engineering major from Bismarck, N.D., and has been involved with Alpha Omega Epsilon, Society of Women Engineers, Ski & Snowboard Club, Institute of Electrical and Electronic Engineers, Student Ambassadors, Order of Omega and Eta Kappa Nu. She has also assisted as an orientation leader. She has accepted a position with Archer Daniels Midland in Decatur, Ill.

Hayden Waisanen – Waisanen is a computer science major from Deadwood. He has been involved with Residence Life as an assistant hall director, Association of Computing Machinery Programming Team, Circle K International, Gamers for Service and has served as a teaching assistant. Waisanen is currently seeking a position in industry.
Students receive scholarships to attend Denver conference

Mines students and faculty will participate in the 2013 Corrosion, Mining and Infrastructure conference “Digging Down and Building Up with Composites” May 15 and 16 in Denver. The conference will bring together composites industry manufacturers, distributors, suppliers, end users and engineers from around the country to discuss the next generation of technologies in the corrosion, mining, infrastructure and energy markets.

Presented by the American Composites Manufacturers Association (ACMA), SDSM&T students Eric Schmid, a nanoscience and nanoengineering doctoral student from Park Rapids, Minn.; Kerrick Dando, a nanoscience doctoral student from Murrysville, Penn.; and Trent Nelson, a senior chemical engineering major from Sisseton, received conference scholarships. David Salem, Ph.D., director of the Composites and Polymer Engineering Laboratory, will also attend and host an exhibit space.

The School of Mines is a partner organization. Previously held in Las Vegas, the Denver conference is expected to attract more than 175 people.

“The goal of the conference is to contribute to the success of each attendee by providing technical information that is applicable to their field and a forum to build longstanding relationships between customer and supplier,” says CMI committee co-chair, Matthew Parmental of Composites One. “The conference will give engineers in mining, infrastructure, corrosion and architecture an opportunity to see what new composite technology advancements have been developed for their industries.”

With “Digging Down and Building Up with Composites” as its theme, attendees will gain a competitive edge at CMI as they learn about the next generation of composites and how they compete against traditional materials to lower costs in the construction, corrosion, mining and infrastructure markets.

New Society to improve grad student experience

A new group has formed with the goal of improving the graduate student experience at the School of Mines. The Graduate Student Society (GSS) will serve as a platform for students to bond through common issues and provide updates on recent policies.

The group is open to graduate students in all majors and disciplines, as well as undergraduates who are prospective grad students.

Vinod Singh Amar, a Ph.D. student within the Department of Chemical & Biological Engineering, is a graduate student senator and president of the Society; Ramazan Alizadeh, a Ph.D. student within the Department of Civil & Environmental Engineering, is vice president; and Anthony Kulesa, a master’s student within the Department of Civil & Environmental Engineering, is secretary and treasurer. Doug Wells, Ph.D., dean of Graduate Education, is faculty advisor.

With a majority of graduate students involved in diverse fields of research at the university’s state-of-the-art facilities, the Society is organizing an in-depth safety workshop series in the fall. The group is also organizing a Graduate Research Expo.

Maptek gift honors longtime mining professor Hladysz

The South Dakota School of Mines & Technology has received a $280,000 donation from Maptek, a leading software and services provider to the mining industry.

Maptek and SDSM&T have created the Ziggy Hladysz Maptek Endowment in honor of the recently retired Ziggy Hladysz, Ph.D., longtime professor and mentor to mining and engineering students.

The endowment, which will be managed by the SDSM&T Foundation, will be used for scholarships in the Department of Mining Engineering & Management, and to maintain the Maptek Advanced Mine Design Center.

The lab, which was unveiled in 2008, serves about 200 mining, engineering and geology students. It is home to 25 computers equipped with Maptek Vulcan geological modeling and mine planning software. Maptek has more than 6,000 Vulcan licenses active at mine sites across the world.

“The lab is unique as it is the only lab in the U.S. solely dedicated to Vulcan training,” said Shashi Kanth, head of the School of Mines Department of Mining Engineering & Management.

“The support that Maptek gives to this program directly translates into high-quality students who graduate with knowledge of the industry in terms of the latest technology, making them highly sought after and more marketable,” said Kanth.

“Maptek has had a long relationship with the university. Ziggy has truly been a pioneer in implementing the practical use of technology in the mining engineering curriculum,” said Jon Larson, general manager of Maptek North America. “We believe this is a great way for us to show our support to the industry.”

Larson, a School of Mines alumnus, was one of Hladysz’s students during his 39-year professorship at SDSM&T. “This is an incredibly honorable way to continue Ziggy’s legacy,” said Kanth. “We are very grateful for such a generous contribution from Maptek, which affects the students as well as the industry as a whole.”
Entrepreneur awarded $20K for clean water technology

Water, an integral part to sustaining life, constitutes around 60 percent of our bodies, and though around 70 percent of the world’s surface is covered by it, only 1 percent is drinkable.

CalxAqua, LLC, a Rapid City-based firm and South Dakota School of Mines & Technology start-up, aims to change the tides.

Mines entrepreneur-in-residence and alumnus, Mat Peabody, who started CalxAqua and oversees its operations, explains CalxAqua’s innovative approach – and importance. “The technology embodies a much cheaper, safer alternative to currently used systems for removal of arsenic and heavy metals from water. Potable, safe water is paramount to good health worldwide, and there are regions of the world where arsenic poisoning is endemic and a huge health issue.”

The company’s explosive potential and global good have not gone unnoticed. CalxAqua was last week’s winner of the top $20,000 prize in the Governor’s Giant Vision Business Competition.

Peabody already has plans for his winnings. CalxAqua will “initially target municipalities and point of use systems for households and businesses, but eventually it will also go after the remediation of mine tailings and fracking fluids. My initial thought is to leverage the money along with the Dakota Edge program, and matching funds from industry and SDSM&T to sponsor one or two Ph.D.-level students to do some additional studies to continuously improve on a good thing and make it even better.”

Yet CalxAqua’s future wasn’t always so clear. In fact, it wasn’t always CalxAqua.

Seven years ago, as regulations on arsenic levels in drinking water became stricter, researchers at the School of Mines developed a process using earth-friendly materials to build filtration systems that removed arsenic and other toxic contaminants from drinking water. In 2005, Hydrotech was formed to commercialize the technology.

Despite its promise, the company was languishing. So the university reached out to Peabody last July to use his considerable expertise to put together a business plan and complete product optimization.

The result: resounding success, and a new name.

Peabody has since partnered with Pete Lien & Sons, a local limestone, cement and building materials company, and CalxAqua will build a plant and be headquartered at the Lien facility. For Peabody, the partnership is ideal: “They know how to handle limestone. Our technology adds a lot of value to limestone, and I really like the integrity and knowledge that the Pete Lien people bring to the party.”

And though the company may be local, Peabody’s aspirations are larger. “I hope that we can build a global business based right here in Rapid City, South Dakota.”

The Governor’s Giant Vision business awards were created as an opportunity for entrepreneurs to compete for seed money and a chance to achieve their dream of starting a successful business. Giant Vision also features a student awards competition, in which this year’s third place went to Hay Camp Brewing Co., represented by Sam Papendick and Karl Koth of the School of Mines.

Continued from page 2

Before being elected to Congress, Wilson was the cabinet secretary of New Mexico’s Children, Youth, and Families Department, where she was chief executive of the state agency which had a $216 million budget and 2,000 employees. She also served on the National Security Council staff in Washington after she concluded her service as a U.S. Air Force officer.

Wilson earned her bachelor of science degree from the U.S. Air Force Academy in the third class to include women. She completed her master’s and doctoral degrees in international relations as a Rhodes Scholar at Oxford University in England. She is the second Mines president to have graduated from a U.S. military academy (the first being Harvey Fraser, who served 1966-1975) and the third to have served in the U.S. Air Force.

View news conference video at http://youtu.be/zTgwRGDPXQc

See more photos at http://www.flickr.com/photos/sdsmt/sets/72157633357084308/show/
The School of Mines student chapter of the American Society of Civil Engineers (ASCE) placed second out of 13 schools at the 2013 ASCE Rocky Mountain Regional Conference April 4-6, in Logan, Utah. The steel bridge team finished in third place overall and will continue on to nationals held May 31 in Seattle, Wash. The steel bridge competition requires students to design, fabricate and construct a steel bridge scored on efficiency, measured by weight and stiffness, and economy, measured by construction speed. The 17-foot bridge was constructed in 6:56 minutes with two penalties and weighed in at 119 pounds, making the SDSM&T bridge the second fastest and the lightest bridge at competition.

The concrete canoe team had the lightest boat, placing fourth overall and in racing. This year’s theme for the canoe was The Tippy Hippie based on Hippie Hole. The concrete canoe competition requires students to design and construct a canoe that is judged on a design paper and presentation; appearance and conformance to specified dimensions; and speed in sprint and endurance races.

The pre-design team placed third overall in a competition that challenged students to design a ventilation system for an orphanage. In the two paper competitions, Mines student Gina Rossi received third place for her non-technical paper and presentation on engineering ethics and licensure and Kaleb Nielsen-Sheffield took sixth place with his technical paper presentation.

In addition, the ASCE student chapter took third place in the Construction competition. In this event, competing teams showcase their talents by building giant sculptures made entirely out of canned foods. The School of Mines students collected approximately 2,300 cans for their project. The food was donated to local pantries and shelters after the competition ended.

**Civil engineers student chapter wins top awards**

The South Dakota School of Mines & Technology student chapter of the American Society of Civil Engineers has been awarded several top national and regional awards. They are:

**2013 ASCE Student Leadership Award**
- Graduate student Tony Kulesa was awarded the 2013 ASCE Student Leadership Award. “It is the enthusiasm and positive role-modeling of student leaders like you that inspire others and advance the development of strong, active student organizations,” according to the award letter.

**2013 ASCE Scranton Award**
- Named for the long time advocate and supporter of community service, the 2013 ASCE Richard J. Scranton Award was given to the SDSM&T student chapter for its outstanding participation in public service. The School of Mines student chapter was the only one among nearly 300 universities with civil engineering programs to receive the award.

**2013 Distinguished Chapter Award for Region 7**
- Awarded annually for the most outstanding student organization in a region, the SDSM&T student chapter has received the 2013 Distinguished Chapter Award for Region 7. The chapter was recognized based on activities recorded in the Student Chapter’s 2012 annual report.

**Robert Ridgway Award finalist**
- The SDSM&T student chapter was among four Ridgway finalists in the country. “This was quite an accomplishment, as this distinction was earned by less than 2 percent of all ASCE student chapters,” according to the award letter.

**Hansen honored as ASCE outstanding faculty advisor**

Rapid City Mayor Sam Kooiker (right) proclaimed April 25, 2013, as M.R. Hansen Day. Hansen (center) is retiring after 28 years at the School of Mines. Molly Gribb, civil and environmental engineering department head, (left) helped to organize his retirement party.

Marion R. Hansen of the South Dakota School of Mines & Technology’s Department of Civil & Environmental Engineering, has been honored for his role advising students throughout his career. Hansen, Ph.D., has received the American Society of Civil Engineers (ASCE) Certificate of Commendation for outstanding activities as faculty advisor. He was nominated by students in the Mines ASCE chapter. Hansen, who has served as faculty advisor for more than 20 years, is retiring after 28 years at Mines. Prior to coming to Mines, Hansen worked for nine years as an engineer achieving his PE, SE and LS registrations in four states and also taught for six years at other places.

“Even after 34 years of teaching and nine years of working in industry, his enthusiasm for civil engineering, ASCE, and teaching continue unfettered,” students wrote in their nomination form.

Hansen has been a part of the SDSM&T family since 1985; teaching and leading students toward their engineering goals. He became an ASCE fellow in 2005. Under his guidance and leadership the student chapter consistently brings home numerous awards from competitions. Last year, the Mines chapter received the Award for Academic Excellence from the South Dakota Board of Regents and was among the top five national outstanding student chapters, out of 228.

Among the group’s many community service projects he has helped to spearhead: last year’s restoration of Willy the Whale for Storybook Island.

Hansen also organized and accompanied students to the Waste Isolation Pilot Plant in Carlsbad, N.M., and this year took eight students to the National ASCE Conference.
Dino day at the museum


Student contender for international award

Receiving the District C nomination for the American Society of Mechanical Engineers (ASME) Charles T. Main Award, School of Mines senior and industrial engineering student Carlos Beatty will contend for the most prestigious honor conferred to a student member, with only nine students honored worldwide.

Established in 1919, the award encourages young engineers to become active in public service, recognizing a select few for leadership and service qualities who have contributed to the program and operation of a Student Section of Society.

In addition to his years of service, Beatty, along with mechanical engineering junior Colin McGowan, developed an innovative monitoring system to identify student sections in need of assistance. The result: triple the number of sections that submitted year-end-reporting to ASME International in District C – a success so compelling, the system is being implemented globally.

Beatty and McGowan served back-to-back terms as chair of the ASME Student District Operation Board (SDOB) in District C, which extends east to Indiana, south to Kansas and Kentucky and north into the Canadian provinces.

Also at the ASME Professional Development Conference, Mohamed Hakeem Mohamed Nizar, a junior mechanical engineering major, placed third in the Old Guard Poster Presentation with his work summarizing carbon nanotubes and composite fiber materials.

Mechanical engineering junior Megan Frager was recognized with the ASME Outstanding Student Member Award and served as the 2012-13 Mines ASME student section chair.

Receiving $1,000 from ASME International for K-12 outreach events, junior mechanical engineering student Tyler Nack visited Roosevelt High School in Sioux Falls for a bungee presentation and demonstration. The group also toured Daktronics in Brookings, helping to foster invaluable industry connections.

Professors collecting water samples in central Black Hills

A group of professors at the South Dakota School of Mines & Technology are asking homeowners to participate in a study providing free water tests for the 100 private wells distributed across the central Black Hills from the Keystone to Hill City area. After collecting water samples on Sunday, May 5, and again on Sunday, May 12, professors will analyze for nitrates, hardness, iron, arsenic and bacteria, components which may affect public health or the functioning of water well systems.

Principal investigator of the study and professor emeritus Alvis Lisenbee, Ph.D., stresses that the increasing urbanization of the area and abundance of water wells make it necessary to collect data on water quality. Moreover, he explains that “the quality and quantity of well water from sedimentary aquifers along the eastern flank of the Black Hills is generally well known and consistent within individual formations. Water wells in the central Black Hills, in contrast, are from rocks such as granite and quartzite and the quality of that water varies from place to place.”

Previous water samples have been taken at varying times of the year, in differing years, with conditions ranging from drought to heavy precipitation and without inclusion of some of the components of greatest interest to the investigators. Lisenbee’s intent is “to work with 100 home owners to determine the character of drinking water in the central Black Hills during a single season when conditions should be similar across the area.”

The samples will analyzed by Mid-Continent Testing of Rapid City. Lisenbee, along with principal investigators and Mines professors Arden Davis, Ph.D., and Maribeth Price, Ph.D., of the Department of Geology & Geological Engineering and graduate students Jennifer Bednar, geological engineering, Micheal Tekle, geological engineering, and Matthew Morton, geology, will then compile the results to obtain an understanding of the water quality and to determine any possible concerns.

The specific results of tests will be shared with the individual homeowners and compiled into an overview of water quality across the study area. No personal information or test results will be released to the public. The final results will be presented to the research sponsor, the West Dakota Water Development District and posted on the website aquifers.sdsmt.edu.

Individual homeowners may sign up for participation in this study by going online to http://geology.sdsmt.edu/224953/ and completing a form. They will then be instructed on where to pick up the water sampling bottles that are used in the tests, given a list of instructions on how to collect the samples and notified of the location in which to leave the samples when bottles are filled.
Awarded $10K, Mines student’s eco-friendly research packs economic boon

Essential to a robust economy, mining contributes more than $500 million to South Dakota’s annual gross domestic product. But the profit comes at a cost. Mining may cause significant environmental and human health threats from discharges of acidic and toxic water. South Dakota School of Mines & Technology civil and environmental engineering student Aditya Chivukula Venkata has found a promising solution. And RESPEC has awarded him the first-ever $10,000 RESPEC Undergraduate Research Grant to transform his ideas into impact.

Acid mine draining is a major source of both surface and water contamination, especially in coal and metal mining districts. The acidity and high metal concentrations in this drainage are toxic to aquatic life, wildlife and vegetation. And they have a domino effect, impacting human health through fishing and swimming, which in turn impacts tourism – another integral component of the state’s economy. Contaminated groundwater and surface water can also infiltrate into agriculture zones resulting in contaminated food products.

Simultaneously, the coal power plant industry is experiencing a growth in the production of the waste product high carbon fly ashes (HCFAs) in recent years. Sixty-eight percent of HCFAs end up in landfills with the potential to leach heavy metals into the surface and groundwater.

The connection: Venkata found that the high carbon content in the fly ash is an excellent property for the sorption of acid mine drainage and tailing contaminants and its high pH has the potential to neutralize drainage and tailings. In short, he’s taken two critically important environmental challenges and used them to solve each other – and done so in a sustainable manner. All three waste materials used, high carbon fly ash, acid mine drainages and mine tailings, will be recycled.

The RESPEC award will be used to investigate the feasibility of implementing the fly ash as sorptive barriers for the neutralization and remediation of acid mine drainages and mine tailings in South Dakota. If the approach pans out, its impact will be considerable. As Ronald White, Ph.D., vice president for Research Affairs, notes, “This is the first time we’ve had this level of funding dedicated to undergraduate research.”

The company will also offer Venkata an internship during the summer following his senior year, with the intent “to provide an opportunity for the student to gain valuable experience within industry while still obtaining their education,” Todd Kenner, Ph.D., president and CEO of RESPEC, explains.

Kenner is hopeful that the grant will encourage students to pursue graduate education as well, to mutual benefit. “We believe our continued support of this public/private partnership is critical to the future success of both organizations. The growth and vitality of the company is directly related to the talent of our employee professionals. RESPEC emphasizes education and experience. Having a strong theoretical science and engineering foundation helps us solve our client’s complex problems in the applied world.”

The award comes as part of a larger commitment by RESPEC of $250,000 over five years to the School of Mines’ research efforts. RESPEC has committed to match employee donations up to a combined total of $50,000 per year for five years. A portion of the funds will be used immediately to support research, and the remainder will be endowed for the same purpose. Endowments allow the principal to be invested with the earnings funding the annual awards, thus enabling the fund to continue in perpetuity.

Nearly 70 recognized for excellence in academics and public service

The 62nd annual Honors Convocation celebrated the accomplishments and contributions of exceptional students, outstanding high school teachers and generous friends and community members. Sixty-nine students received special recognition for departmental awards, substantial scholarships and academic achievement. J. Scull Construction Service, Inc., a company that recognizes the importance of sustainable building and shares the Mines’ commitment to excellence, was awarded the 2013 Mines Award for Outstanding Public Service. Patrick Sayler, a high school math teacher from Langford High School in Langford and Dr. Andrew Smith, a physics teacher from Rapid City Central, received Outstanding High School Teaching awards in recognition of their innovation in teaching and dedication to their students.

Gribb accepted for an ELATE fellowship

Molly Gribb, Ph.D., head of the South Dakota School of Mines & Technology Department of Civil & Environmental Engineering, has been accepted as a fellow in a leadership program at Drexel University.

Gribb, a licensed professional engineer, will participate in the 2013-2014 Executive Leadership in Academic Technology and Engineering (ELATE at Drexel®), a collaborative project of Drexel University and Drexel University College of Medicine. This year’s class, which begins in May and continues through March 2014, includes 19 experienced and diverse women faculty in science, technology, engineering and math (STEM) fields from throughout the nation.

The program focuses on increasing personal and professional leadership effectiveness, leading and managing change initiatives within the participants’ institutions, using strategic finance and resource management to enhance the missions of organizations and creating a network of exceptional women who bring organizational perspectives and deep personal capacity to the institutions and society they serve. Facilitated by leaders in the fields of STEM research and leadership development, the curriculum includes classroom lessons and activities, online instruction and discussion and on-the-job application at each fellow’s home institution.

“I am honored to be selected to participate in the ELATE academic leadership program, and look forward to implementing knowledge gained to serve the School of Mines as we move forward with our strategic plan,” said Gribb, who will begin the first of three week-long, in-residence sessions in Lafayette Hill, Penn., on July 31.

The year concludes with the completion of an institutional action project, developed in collaboration with the fellows’ dean or provost. These action projects are not only designed to address an institutional or departmental need or priority but also to help fellows understand the challenges institutions face and the skills a leader must possess in order to address these challenges.

Math contest promises fierce competition and fruitful rewards

Nearly 400 area middle and high students will converge on the South Dakota School of Mines & Technology campus, Monday, May 6, for the 63rd annual West River Math Contest with the hope that their calculated moves will launch them into mathematics stardom.

Sponsored by the School of Mines, the contest begins at 9:30 a.m. with a campus welcome at the King Center. Five exams follow – Algebra I, Geometry, Algebra II, Advanced Math and The Masters Exam – all for a coveted award, given to the top five individuals in each exam and the top team in each class, presented at a 1:30 p.m. awards ceremony.

Winning an award is no easy feat. “This test is not multiple-choice so students can’t just guess in order to score well, very few contests like this are graded by hand and there are very few regional academic competitions,” Kyle Riley, Ph.D., department head and associate professor of the Department of Mathematics & Computer Science, explains.

Riley’s commitment is no less commendable. “There are countless hours spent in preparation of this contest along with editing the exams, printing costs, and coordinating proctors to supervise administration of the tests.” The mathematics and computer department writes the test, the faculty grades them, and Julie Dahl, assistant professor in the department, coordinates with teachers and compiles the results.

But at the end of the day, it’s worth it for Riley. “Our mission is to promote mathematics and recognize excellence,” and this year’s contest promises to do just that.

This year’s donors are Black Hills Power and Great Western Bank. For more information on giving, please contact the SDSM&T Foundation at foundation@sdsmt.edu or (605) 394-2436.

Mines bids adieu to Goss, Henderson

Sid Goss, senior lecturer in Social Sciences, and Tim Henderson, vice president for finance and administration, were recently feted in celebrations honoring their longtime service to the School of Mines. Goss is retiring after 39 of years at SDSM&T. Henderson has retired after 32 of years at Mines.

Conference spotlights careers, inspires girls in STEM education

Nearly 450 girls from 17 middle and high schools will gather on the School of Mines campus on May 16 for the annual Women in Science conference. Professional women from dentists and physicians assistants to entomologists will attend as mentors and role models, exposing young females to the wide range of science, technology, engineering and math careers available.

Sponsored by Youth in Science Rapid City, the one-day workshop has been an annual event since 2003.

About Legacy News

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