PHONATHON 2006

It is Fall in the Ozarks and the 2006 Phonathon is right around the corner. As in previous years, mining engineering students will work the phones and we hope you will take the call. Our Phonathon is scheduled during the period November 5 to 8, 2006. We will call between 5:30 pm and 9:00 pm Central. We hope that you will take the time to talk with our callers and continue to support the Mining Engineering Program.
Hello from the Department Chair!

At the end of June 2006, Larry Grayson passed on the leadership torch as Department Chair to me. As Department Chair, Larry engineered many academic leadership initiatives that have grown UMR Mining Engineering in many dimensions. I joined the Department in July 2004 as the Robert Quenon Chair and Professor from the University of Alberta in Canada, where I was Professor and Director for the Center for Advanced Minerals and Energy Research. My previous positions include Associate Professor (University of Alberta), Assistant Professor (Technical University of Nova Scotia), Underground Miner (Tarkwa Goldfields), Mining Engineer (Ashanti Goldfields) and Research Engineer (State Gold Mining Corporation) in Ghana.

Effective December 31, 2006, Lee Saperstein, Dean Emeritus and Professor of Mining Engineering has indicated an intention to retire from active duty as a faculty member at the University of Missouri-Rolla. Lee leaves UMR after 11 years of a distinguished career as Dean of the School of Mines and Metallurgy from 1993 to 2004. Since his retirement as Dean in 2004, he has continued to contribute to the Mining Engineering program in a number of significant ways. On behalf of the Department, I congratulate Lee for an outstanding career and we wish him and his wife a great retirement.

The boom in the minerals and energy sector has created a surge in demand for Mining Engineering graduates. Out of a US industry demand for 300 Mining Engineers in 2003, only 85 students graduated from US universities, and this trend will continue into the future due to closure and marginalization of US Mining programs. It is against this backdrop that UMR has taken strategic initiatives to position its Mining Engineering program at the forefront of education and research. UMR has developed strategic initiatives in the pursuit of excellence and global leadership in Mining Engineering as part of its 5-year strategic plan. This strategic plan focuses on creating additional faculty through industry endowments, recruiting undergraduate and graduate students, expanding the Explosives Engineering program, and renewing existing and building new laboratories for quality instructions. As we move forward, we will continue to seek input from industry through our Development Board and our alumni.

UMR continues to attract many students into its Mining Engineering programs. Undergraduate enrollment is up by 30% from 102 in the Fall of 2005 to 126 in Fall 2006. The online ME program in Mining Engineering is also up significantly with 60 enrolled and 20 registered candidates for Fall 2006. As part of its recruitment efforts, UMR hosted 2 successful Explosives Summer Camps in June 2006. The two camps attracted 41 high school students from 13 states including Missouri. Newspapers across the United States reported the events from the Summer Camps, including a short article in Scientific American. This year we have 55 companies (33 through Career Fair and 22 through the Department) that are scheduled to recruit graduates and interns from UMR Mining Engineering. Twenty-one students are expected to graduate in the December 2006 and May 2007 Commencements. UMR also graduated the largest number (5) of PhD students in Mining Engineering in 2006.

One of the greatest strengths of UMR Mining Engineering is the contributions by our students. This year, our students showed leadership, enthusiasm and commitment through hard work, to register successes in major competitions. UMR did it again!! Our Mine Design Team once again won the SME-NSSGA Student Mine Design Competition at the SME Annual Meeting in St. Louis in March 2006. In Australia, UMR was second, after the host university, in both the Men’s and Women’s competitions. UMR also posted a strong performance in the Mine Rescue Competition in New Iberia, LA. We take pride in their hard work and achievements!! Congratulations students!!

This year 96 scholarships were awarded to Mining Engineering students. These scholarships range between $500 and $7,000 per student per year. On behalf of the Department, I would like to express our gratitude to the companies and individuals whose generosity made these scholarships possible. These companies and individuals include Caterpillar, Robert Dye Memorial, Steve Feder, Granite Construction, Gary Hubbard, Peabody Energy, International Society for Explosives Engineers, Pat Hell Memorial, Joy Mining, P&H Manufacturing, Samuel Krauss Memorial, TXU, Alliance Coal, Kennedy Metal, Peter Kiewit and Sons, The Lang Family, Pollard, Rinker Materials, Rio Tinto, Society for Mining, Metallurgy and Exploration - Coal, June Allan Spokes, Stone, Bill Summers Memorial, TLT Babcock, US Gypsum, Guy H Waring Memorial and Witt Memorial.

The mining faculty assisted the nation, industry and communities in a number of areas. Larry Grayson was tapped to serve as the Chair for the Mine Safety Technology and Training Commission after the Sago mine disaster. Jerry Tien and I participated in the 2006 Big Iron University organized by Caterpillar in St. Charles, IL. David Summers and I visited Syncrude in Canada as part of a research strategy into alternate fuels. Derek Apel was part of a 2-expert team that was tapped to conduct geophysical survey scans on a sinkhole, which had swallowed a house in Nixa, MO. Dave Summers, Lee Saperstein and Greg Galecki visited Poland to work on an academic exchange initiative with a Polish University in the Fall 2006. Paul Worsley, after completing the two Summer Camps, left for a 6-month sabbatical in Brazil, and is back at UMR in January 2007.

We also have some new staff. Tammy Shortt decided to leave us in June. With the increasing workload due to the growth in the department, we have added Shirley Hall and Judy Russell to our team. Together with Barbara Robertson they make up the “Three Musketeers” and we all depend on them.

As another year begins, we set our eyes on the mountain top, and with energy and wisdom, we solemnly declare our determination to climb upward to this goal of excellence in education and research in Mining Engineering. Our strength to climb comes from our allies in industry, our great community of alumni, our faculty, students and staff. May we continue to push all buttons for the required horsepower to climb this mountain, until at the top, while we can confidently present to the mining community a Mining Engineering program, without equal, on the face of the earth!!

Samuel Frimpong
New Faces in the Department

If you called the office over the last few months, you noticed different voices on the phone. In May 2006 Tammy Shortt was married and decided to leave us shortly after that. In June Shirley Hall joined the office from outside the campus. Shirley is working mainly on procurement and purchasing cards. In August Judy Russell transferred over from Electrical and Computer Engineering and now we are complete on the staff side. Judy is working with Dr. Grayson on the Western Mine Safety and Health Training and Translation Center and the On-Line Program. In early September Barb had to go out for surgery with very short notice and both Ladies kept the office going. We are very glad to have both of them. Our program has grown in so many ways, our “Three Musketeers” will stay busy.

Commencement May 2006 - 5 New Ph.Ds

The May 2006 Commencement was a big event for our Department. If you have a chance to see the program, you will notice five new Ph.Ds - three of them were graduate students of Dr. Worsey and he was able to hood two of them. We saw Dr. Braden Lusk, Dr. Seok Bin Lim, Dr. Piotr Szmigiel and Dr. Kwame Awuah-Offei walk across the stage and receive their degree. Dr. Mark Schmidt didn't attend the commencement ceremony. Dr. Szmigiel was hooded by Dr. Grayson and Dr. Awuah-Offei was hooded by Dr. Frimpong. This is the first time that mining engineering had such a large group of Ph.D. candidates - and the best news: everyone is employed! Congratulations to everyone in the group.
UMR wins 2\textsuperscript{nd} SME/NSSGA Design Contest

Our design team did it again! At the 2006 Annual Meeting of SME in St. Louis in March 2006, the UMR team walked away with 1\textsuperscript{st} place. This team had two returning members from the first competition – Chris Davis and Rich Trynoski. The other four members are first timers at this event: Charles Hoyt, Adam Eatherton, James Guise and Seth Reeves. First place came with a check for $2,000 – the funds were divided between the six members of the team as scholarships. Since three of the members are scheduled to graduate, the search is on for replacements and interest is very high among our students. While the first two projects were surface operations, supposedly the next one will be an underground project. Only time will tell, but we are very proud of our team and wish them luck for the 2007 competition.

MICHELIN SELECTS JOSHUA HOFFMAN AS WINNER OF ITS INAUGURAL MINING ESSAY CONTEST

GREENVILLE, S.C. – University of Missouri-Rolla student Joshua Hoffman was selected as a winner of the Michelin Mining Essay Contest. The contest was inaugurated in 2005 and Mr. Hoffman is one of two initial winners of the award sponsored by the Michelin Earthmover Group.

Hoffman, a junior majoring in mining engineering at the University of Missouri-Rolla, received a plaque and a check for $3,000 at a ceremony held at the university. He was selected from a pool of 23 applicants.

All essays addressed the topic: What major advancements in surface mining methods and technology will be used in the next 10 years, especially those that relate to safety and productivity? A panel of judges from throughout the mining industry selected the winners and selection was based on whether the essay addressed and answered the topic chosen, originality, writing ability and communications skills.

The Michelin Mining Essay Contest will be an annual event. The contest is open to all full-time undergraduate students pursuing a degree in a mining-specific field at an accredited university. Students must have at least 30 credit hours and not graduate on or before Spring 2007.

Michelin believes that it has a responsibility to provide support to future mining engineers and mining professionals. The Michelin Mining Essay Contest is designed to provide prizes to mining engineering students throughout the U.S. and Canada, and help support future leaders of the mining industry.

(Partial Reprint of the Michelin News Release announcing the Winners)
New Addition to Mining Hall of Fame

In April 2006 we welcomed the third member of our Mining Hall of Fame. Jeff Zelms, MinE 1970, was the keynote speaker at the 5th Annual Student Awards Banquet. Jeff recently retired from his position as CEO of The Doe Run Company and now makes his home in Camdenton, Missouri. We were very glad that Jeff and his wife Carol were able to join us. Jeff’s address outlined his career in the industry and the students very much appreciated the advice he passed on. We want to thank Jeff and Carol for all their assistance and wish them all the best in the future.

Old Timers Award

William "Ford" Roes was the recipient of the Old Timers Award for 2006. The award was presented at the Annual Awards Banquet in April 2006. This award is very befitting for Ford. From the time he came to the Department, Ford was interested in coal. No other sector of the industry was interesting to him. However, it did not just have to be coal — it had to be in the Powder River Basin! Ford was able to reach his goal. After graduation, he accepted a position with Kiewit Mining Group near his home in Gillette, WY. We want to thank Kiewit Mining Group for making it possible for Ford to come back to campus and accept the award in person. Dr. Grayson presented the traditional pocket watch and plaque.

Dr. Grayson ‘winding down’ as Department Chair

After five years Dr. Grayson has decided to step down as Department Chair and concentrate on what he really loves: teaching. Over the past few years, he has maintained a high teaching load, in addition to his administrative duties. The student organizations wanted to say “Thanks” for all his efforts on their behalf. At the 5th Annual Student Awards Banquet in April 2006, he was surprised when the presidents of the four organizations presented him with a Gary Prazen figurine for his efforts. The appreciation for his efforts were recognized again at the 2006 Annual “Kick Off” meeting when Dr. Frimpong presented him with another Gary Prazen figurine on behalf of the Department. As you can see in the photos, Dr. G was surprised and he realized that “he doesn’t know everything that goes on”.

UMR MUCKING TEAMS COMPETE IN AUSTRALIA

In April three UMR Mucking Teams traveled to Australia to compete in the 28th International Intercollegiate Mining (Mucking) Competition – this was the 2nd time the competition was held in Kalgoorlie. After a long trip across the globe, it was a disappointing loss to the Australians for the men’s and women’s mucking teams, but our national champion status has not changed. UMR took second on both the men’s and women’s divisions this year in Kalgoorlie Australia, and the second men’s team took 7th, a tie with the Mackay School of Mines in Reno. Despite the loss of the trophies, we still had a great time exploring Sydney, Perth, and Kalgoorlie. The sights were incredible, and we took advantage of every opportunity to experience the country. In Sydney we took advantage of a very long lay over to explore the city by bus. Due to the size of our group we had our own bus and enjoyed as much of the city as we could. Of course we had to stop at the Opera House and drive across the Harbor Bridge. In Perth we participated in a tour to Rottenest Island – which then prompted some of us to spend the next day in Freemantle on the beach. Thanks to a great public transportation system it is easy to get around in Perth. If you are ever in Perth, go to “Miss Maude’s” for breakfast – you will not be disappointed! Due to the dates of the competition, we didn’t have extra time to travel in Australia. It was too close to finals; however, it was a great trip and introduced the team members to “Aussie hospitality”. As in the previous two years, due to some excellent fund-raising, the trip was COMPLETELY paid for. Airfare, train tickets, hotel fees, everything was covered. By the time you receive this newsletter, UMR teams will be practicing for the next competition. We have always been a competitor to be reckoned with since the beginning of this competition, and hope to bring the trophies back home next year from Arizona.

The 2007 competition is scheduled to be in Tucson, Arizona, March 24-25. With the addition of the alumni division a few years ago, all you alumni muckers can get a team together and compete again.
UMR Mine Rescue

The mine rescue teams are looking very promising this year. We have enough interest to field two teams for the Rolla contest, the second team being mostly new people who have little to no mine rescue experience. Our veteran team consists of several older experienced members from the past 3-4 years. Despite the inexperience of the new team, they will definitely give some teams a run for their money.

New to the team this year are Biomarine Bio-Paks. This fall UMR received a very generous donation of four refurbished rebreathers from the Biomarine Company. With the removal of the BG-174a packs from service, the Biomarines are the direct competition to the Draeger rebreathers. With the addition of these four rebreathers, and two rebreathers purchased by the department, the mine rescue team is at a completely new level of competition.

We look forward to competing in the contest in New Iberia. Last year, UMR finished quite well in the two contests and we hope to raise our scores and perform better and better each year.

NEWS FLASH!  UMR Mine Rescue Teams placed 3rd and 4th in the 2006 South-East Missouri Mine Rescue Contest held at UMR on September 27 and 28, 2006. UMR Gold placed 3rd and UMR Black (this team is all first timers!) placed 4th in a field of 13 teams. In addition, Adam Kresler placed 2nd in the Draeger competition and Margaret Howard placed 3rd in Gas Detector Bench competition. Join us in congratulating our teams!

And the Oscar Goes To...

Mining Engineers as movie stars? You might find this title a little strange; however, over the past year we were visited several times by film crews from the Discovery Channel. In March, the Discovery Channel wanted to do a program about our mine rescue team for their program: The Daily Planet. The producers of the program had learned about our mine rescue team and the fact that we are the only student mine rescue team. It amazed all of the participants that it took a day to shoot a program that airs for about 20 minutes! We received a copy of the final program and it really turned out good. If you have a chance to browse the segments of The Daily Planet, look for this program.

In July we received an inquiry from Discovery Times Channel. The purpose of this project was to investigate a mining accident and see what was learned. The focus was on the 2001 accident at Jim Walter’s Resources in Alabama. Dr. Grayson and his background in mine safety played a big role in this production. However, we had one problem. In July almost all of the students are working somewhere in the industry and we needed ‘actors’. Fortunately we had two incoming students working at the Experimental Mine, Robert Wilkerson and Tristan Worsley. But we needed a few more. We want to thank Morgan Blackwell and Jimmie Taylor Jr. for helping out. Both are working in the McNutt Shop and agreed to help us out. For two days the crew was working with all the ‘actors’ and now we are waiting to see the final project. It is scheduled to air sometime in October 2006.
Student Chapter of the Society for Mining, Metallurgy and Exploration (SME) has another busy year!

By Adam Eatherton, President

The SME Student Chapter for the 2006-2007 school year has four new officers; President Adam Eatherton, Vice President Toni Donovan, Secretary David Lloyd, Treasurer Brian Sandhaus. This year will see many new projects including the GEM projects. One reoccurring project is our Haunted Mine Project. This project helps fund all four student professional societies and is organized this year by the SME Student Chapter. Late October will once again see the department’s experimental mine transformed into a “haunted mine”. As in past years, we will collect canned donations that will go to the Russell House, a shelter for victims of domestic abuse. In the last few years we were able to fill a pickup truck with the collected goods. A six-person committee was formed to organize the event this year with the department as a whole putting forth effort to achieve the goal of a record-breaking year. Dates for this year’s Haunted mine are October 20, 21, 27, 28, & 31.

New projects include the GEM Billboard Project. Working with WIM, SME is supporting WIM’s billboard project. A roadside billboard will be used to educate the public on the benefits of mining. Several years ago the first GEM billboard displayed a poster showing many items used in a normal household and what we had to mine for each specific item. The final poster was selected after a contest held at the Rolla Middle School. For the new billboard we will try a different approach. Watch out for more news on this project.

Another new GEM project includes one that is in the planning stage. A SOMEER Fair/Open house will be proposed to SOMEER. The project will enable all majors of SOMEER to operate booths with hands-on demonstrations to promote and educate people about their field. This is targeted for the student population and possibly the public. The mining booths can educate the public about our field and also about the benefits and importance of the mining industry. Other projects include field trips that will be organized in partnership with the student chapter of NSSGA, society bowling nights and camping trips to promote camaraderie of the society and improve networking for future contacts. The student chapter will attend the national conference located in Denver, Colorado, this coming February, using money raised from projects like Haunted Mine. The SME student chapter has many exciting projects for this year and hopes to see many more in the future.

Our final note for this newsletter is a big “THANK YOU” for all the support we received last year. Thirty students were able to attend the 2006 SME Annual Meeting in St. Louis, Missouri, - probably the biggest group we ever had at an annual meeting. We want to say thanks to Joy Mining and P&H Mining – their student reception at the annual meeting has become a tradition. Thanks also to Peabody Energy for their support – their donation ensured that all the students were able to stay in the same hotel close to the convention center. The whole group was able to attend the awards banquet thanks to Kennedy Metal Inc., Martin Marietta Aggregates, Weir International Mining Consultants, Kiewit Mining Group, US Gypsum, and Vulcan Materials Company. We cannot repeat enough that we would not be able to send so many students to the annual meeting without all the industry and alumni support. On behalf of all the students, we want to say “THANK YOU VERY MUCH”.
WOMEN IN MINING
By Toni Donovan-President

It's fall semester already and we’re back in the swing of things again with classes. Our chapter had its first meeting of the year on August 31 and had 15 people attend. We have two new freshmen, Brianna Drury and Carolyn Jennings, along with many other new members. Our chapter currently boasts a 40% male population and is continuing to recruit both men and women. Most of our upperclassmen worked at internships over the summer at locations and companies all over the country and some overseas as well. A list of such undertakings follows:

Britney Parker-Rinker Materials Tanya Stephan-Asarco
Dennis Sullens- Martin Marietta Adam Eatherton-Lafarge
Brian Sandhaus-Asarco Emily Carter-RNMC
Alex Warren-Consol Toni Donovan-Glamis Gold
Adam Kresler-Barrick Matt Angle-Vulcan Materials

This year is sure to be a full and educational one. Already we have begun work on our second year of “What’s Mined is Yours”, a program where we make placards for everyday items that state what minerals are associated with it and post them on the object. We intend to post these in our largest residential hall, Thomas Jefferson, as well as the Quadrangle complex the day before parent’s weekend. This will give us exposure to over 1500 people, 400 more than last year. This program had a great impact last year and I still receive comments from people, now a year later, saying that they saw a placard up in a bathroom stall the other day and they were impressed with the information.

Currently we are planning an ice-cream social on campus during lunch where we will be distributing free ice-cream along with information about mining to students and faculty. In addition we have been in contact with the local area schools and have received interest from several teachers about us coming to talk to their classes about mining as well as taking a tour of our experimental mine. We are looking to start classroom visits as soon as October, depending on their curriculum.

We are extremely excited about the upcoming year and the interest that we have received from our new members. With the projects we have planned for this year it should be a fun year and hopefully we will make a stamp on the university as well as a small part of the world.

5th Annual Student Awards

High GPA Freshman
Casey J. Slaughter

High GPA Sophomore
David A. Richey

High GPA Junior
Daniel J. Tabacchi

High GPA Senior
Michael J. Scherr

Student Activity Award
Richard D. Trynoski

Student Recruiter Award
David E. Floyd

External Relations Award
Adam T. Kresler

Outstanding Aggregates Graduate
John H. Combs

Outstanding Metal/Nonmetal Graduate
Fiorella Giana

Old Timers Award
W. Ford Roes

Outstanding Graduate Student Teaching
Braden T. Lusk

Outstanding Graduate Student Research
Kwame Awuah-Offei
News from ISEE Student Chapter
By Cary Cooper, President

UMR’s Student ISEE Chapter kicked off its 2005-2006 school year with its annual camp and float trip. The trip set spirits high for the upcoming year and spirits remained high as more new students were recruited for our chapter! During the fall, we set up pyro shows for more UMR football games. These events give the new members a chance to learn about commercial pyrotechnics and the regulars get a chance to light up the skies! The fall firework season culminated last year with a delayed, but much anticipated, Guy Fawkes Day show that was set up by ISEE members at Dr. Worsey's farm.

ISEE headed up the Mining Department’s Haunted Mine in October where visitors came once again to experience one of the spookiest haunted mines ever! All student organizations of the Mining Department helped make this year’s key fund raiser a successful one. Proceeds from this event benefit the entire student body of the Mining Department. We were even able to help our men’s and women’s mucking teams travel to compete in Australia in the 2006 competition.

The spring semester began in late January with the National Conference of ISEE held in Dallas, TX. Braden Lusk and Bin Lim, two graduate students of the department, were able to present technical papers at the conference and about fifteen students were there to support them. This was the last time we will see Braden and Bin presenting papers as students, they will now be teaching the trade, Braden at the University of Kentucky and Bin at New Mexico Tech. Congrats Guys! The rest of the spring semester was highlighted by pyrotechnic shows done for block parties put on by our Student Union Board. New students even got a chance to see ISEE in action while at their weekend preview and registration sessions.

Whether the event includes academic interests or is just done in fun, our chapter will always have a professional attitude towards being the best student society on campus!

National Stone, Sand and Gravel Association

By Charles Hoyt, President

During the last school year, the student chapter of the National Stone, Sand and Gravel Association (NSSGA) finally became a recognized student organization on campus. This was a long hard trek, taking nearly two years to complete, but without the commitment and perseverance of past officers and members this would not have happened. One might ask, what is the benefit of becoming a recognized student organization. Well for one thing, it allows NSSGA to seek funding from Student Council for activities such as field trips and site visits.

With the new school year, we plan on increasing our membership through campus publicity, trying to diversify our membership from solely mining students to other disciplines on campus such as civil engineering and geology. Along with trying to increase our membership, we will also be hosting aggregate companies to come in to the department and give informational presentations on their company to interested students. We will also be helping out the student chapter of SME in the annual Haunted Mine fund raiser, along with working at the Phonathon in early November. Even with all this work, we will be doing some fun stuff such as field trips and plant visits to various local manufacturers and producers. All in all it looks to be a busy year.
**2nd Truck Donated!**

Yes, our transportation “fleet” is getting better. Thanks to Jason Lovejoy and his efforts on our behalf at Mississippi Lime, we received another pick up. Last month we picked it up and we are currently working on the few repairs needed. Watch for photos in the next newsletter - our repair crew is currently working on the truck. This is a Ford Diesel and now we are in great shape as far as trucks are concerned. We can finally surplus the old white Ford. We want to thank Mississippi Lime and Jason for all their efforts. One item we are still looking for is a box trailer. If you have one sitting around, and would like to help your ‘old’ department, let us know.

![2nd Truck Donated!](image)

Chris Davis, Senior in Mining Engineering, and Jason Lovejoy pose in front of the truck when it was picked up. Watch for more photos!

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**2006 SME Alumni Reception has Record Turnout**

The 2006 Annual Meeting of the Society for Mining, Metallurgy and Exploration was held in St. Louis, Missouri, in late March 2006. This provided a great opportunity for record attendance from our Department. One event that is always a high point is the Alumni Reception. The 2006 Alumni Reception was co-sponsored by The Doe Run Company and the UMR Mining Engineering Department. In most years we have between 40 and 50 alums attend - in St. Louis we quit counting at 125! We had to quit - we run out of name tags. The reception was standing room only and we were taking over the hallway. It was really great to see so many of our alums - not just mining. We hope to see many of you next February at the 2007 Annual Meeting of SME in Denver, Colorado.

![2006 SME Alumni Reception has Record Turnout](image)

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**Remember when?**

Many of you probably remember Jimmie Taylor in his red jacket. In May 2006, Dr. Braden Lusk graduated and Jimmie presented him with this red jacket. At the time Braden promised to teach his first class in the red jacket - a sign of gratitude for all the help Jimmie Taylor has given him and other students. Braden, or shall we say Dr. Lusk, was true to his word. He taught his first class at the University of Kentucky in Jimmie's red jacket - and had one of his students take the photo to prove it.

![Remember when?](image)
News from Dr. Apel

This summer was especially busy for Dr. Apel because he worked on several mining projects; however, the projects he wanted to describe here didn’t have much to do with mining.

The first project started with a phone call from the Missouri Department of Natural Resources, Division of State Parks. They asked Dr. Apel and Dr. Summers to evaluate the stability of rock slopes in the Rock Bridge Memorial State Park near Columbia, Missouri. The request for evaluation of the rock slope stability was prompted when a 20-foot-long slab of rock fell and crushed the boardwalk beneath the front of the Rock Bridge Memorial State Park.

In the course of the examination of the area around the rock bridge, several areas of significant concerns were identified, as they were related to a potential threat to visitor traffic along the existing boardwalk. In the report submitted to the park officials, both recommended using a water jet to blast away debris around the slab and then use wedges to bring it down. They also recommended using rock bolts to support some of the rock pieces. Currently the proposal is being reviewed by the Department of Natural Resources.

The other non-mining project that Dr. Apel participated in involved conducting a seismic survey around the area of a sinkhole that developed underneath a house in Nixa, Missouri. When Dr. Apel and Dr. Anderson, Geological Engineering, arrived at the site, the sinkhole had already swallowed a garage and most of a house. UMR’s role on this project was to conduct geophysical scans around the sinkhole to create a subsurface image. The scan results showed that there were no more voids in the immediate vicinity and that this sinkhole is directly attached to no other underground geological formations.
Experimental Mine Update
By Jim Taylor and Bryan Lewis

Greetings from the UMR Experimental Mine: It was a busy year at the mine. As of September 1st, it is a little quiet since Dr. Worsey is in Brazil. We have made many improvements to the mine in the last year. Last May Physical Facility installed central air and heat for the classroom and offices. The temperature throughout the building is really nice. The central air helps in the summer with all the summer camps and the Jackling students here for a tour. During the summer the explosives camp shot down the back in part of the mine. We had to take down electric and air water lines to do this. I took at least a month to get the mine back in order after the two camps. We are getting ready to have our annual mine rescue contest here at the mine. This year we are having two UMR teams compete in the contest. A special thank you to Jason Lovejoy with Mississippi Lime for the donation of a 2000 Ford 250 Power stroke Diesel. (We promise to destroy the photo of Jason receiving a first place award in New Iberia!) This truck will be useful in replacing the old 1982 Ford that has rusted away. Have a good year and if you are ever in Rolla and want to see the improvements to the mine, stop by and see us.

Yes - you are seeing correctly. Jim Taylor is now Grandpa Taylor. Earlier in the year Jim’s first grandchild, a grand daughter, was born.

What’s Dr. Grayson Doing Now?

Well … he finally got back to doing the important jobs – teaching students and bringing in grants and contracts. Dr. Grayson stepped down as chair June 30 after 5 ½ years at the helm. Now he is teaching 4 courses this fall, coordinating the online Master of Engineering program in Mining Engineering, directing the Western Mining Safety & Health Training & Translation Center, which was funded for another $727,000 for the next year, and finishing up a Graduate Assistance in Areas of National Need project focusing on Energy Research Linked with Sound Public Policy Making ($126,000 in final year).

Early in 2006, Barb Robertson became a virtual press secretary as Dr. Grayson fielded over 40 media hits on the Sago and Aracoma mine tragedies, including TV spots on CNN and CNBC as well as local stations; quotes in the Wall Street Journal, New York Times, National Geographic News and many other newspapers across the U.S. through news services such as Associated Press, Knight-Ridder, and Scripts-Howard; and numerous radio spots from Delaware to California, including a spot on National Public Radio. It was not a good time, given the gravity of the situation and the public perception of the safety performance of our industry (underground coal). He gave testimony and answered questions on communications and mine safety technology issues at the U.S. Senate Committee on Health, Education, Labor and Pensions: Subcommittee on Employment and Workplace Safety. In August he was also interviewed by the General Accounting Office, the research arm of Congress, concerning mine safety and health issues.

Following on the heals of the media blitz, Dr. Grayson was asked by the National Mining Association to chair the Mine Safety Technology and Training Commission, which had its first meeting in March 2006. The commission is comprised of high-profile experts from industry, labor, government, mine rescue, communications technology, and academia. The independent commission report is under external review now, and should be released in final form by mid-October.

Dr. Grayson expressed his sincere appreciation to you (our alumni), Development Board members, friends, and the current students, staff and faculty colleagues for the privilege of serving as chair. He is happy that the undergraduate student majors in Mining Engineering are 126 now, the research program is growing, and the online ME program boasts over 60 active students with six graduates. He hopes that you will continue to support the programs robustly under Dr. Frimpong’s leadership.
Update from RMERC
by Dave Summers

The RMERC has continued to widen the range of subjects that it is working on, particularly as we fill the mission of acting as a focus and support base for larger groups working on the multi-faceted problems that increasingly face us. Thus, for example, this year the Center has seen projects continue with Boeing to improve the way in which the components for aircraft are cut, the construction of a device for segmenting unused ammunition so that the contained explosive can be recovered for re-use; work on intelligently mining minerals, without the transport of waste (with Dr. Saperstein) and work on the development of permeable reactive barriers underground as a means of cleaning up contaminated ground-water plumes.

However, as the technology gets closer to commercial use, so the contracts that we see are increasingly with commercial ventures that see benefit in the research and products that are being developed. As a result the ability to “brag” about this work is becoming more restricted and so a fair number of the programs this year must remain, for now, under wraps.

Dr. Summers classes provided through Distance Learning now include not only the Strata Control class, but also one on water jetting, as this is becoming an increasingly popular tool for a wide variety of uses.

News from “Mr. Windy”

It has been an eventful year!
DPM Workshop – with the new diesel rulings for metal and nonmetal mines, DPM has continuingly been a major concern in the field. Dr. Grayson's Western U.S. Mine Health and Safety Training and Translation Center is playing an important role in disseminating useful and critical information to help the industry. Three workshops (Des Moines, Iowa; Viburnum, Missouri; and Kansas City, Missouri) were conducted and all were well attended and received. Guest speakers from MSHA and industry and equipment manufacturers were invited to help with the workshops. Two more are planned for the coming year in the West; most likely they will be in Denver, Colorado.

Drs. Grayson and Tien also co-authored two papers last year, one on the Center, which was presented at the Mining Diesel Emissions Conference in Toronto in October 2005, and the other also on the Center, but with the emphasis on occupational safety training. The latter was presented at the 2006 International Conference on Occupational Safety Training in Beijing this last summer.

China remains to be the talk of the town this last year. Two papers were presented on China; both were on methane and methane control practices in China’s coalmines. The former was presented at the SME Annual Meeting in St. Louis and the latter at the 11th U.S. and North American Ventilation Symposium in Penn State University in June.

Dr. Tien was also invited to give a presentation at Caterpillar’s Big Iron University in Chicago. This week-long bi-annual BIU has been a long tradition of training excellence. Starting in 1993, it was designed to provide Cat’s employees, from all over the world, with updates of mining products, mining economics, mining applications, and mining technology in order to improve their ability to sell and help customers. Dr. Tien's presentation was on underground mining methods and mineral economics. It was an interesting experience.
Dr. Worsey and his wife Jill are currently spending a six-month sabbatical in Brazil working with the UFRGS mining department in Porto Alegre (his first sabbatical in 25 years). Porto Alegre literally translated means “happy port”, which Paul thinks has something to do with cachaca. Before he left this summer he was very busy with 3 PhDs finishing and graduating in May. Braden Lusk has taken an assistant professor position with the Mining Engineering Department at the University of Kentucky, Seok Bin Lim has taken an explosives teaching position at New Mexico Tech, and Mark Schmidt, who finally finished his thesis after working for ARA for some time. Paul now has past students teaching blasting at universities on three continents.

This summer before he left for Brazil he also hosted 2 five-day explosives summer camps for a total of 42 high school students. The camps were very successful and are becoming one of the key items for the department’s recruiting efforts. Last semester Paul received two teaching awards, one for laboratory classes from SoMEER and the other a top award from the School of Extended Learning for his distance-based classes.

He made the “big 5 0” this year and is looking forward to being 50 no longer in October. Paul will be back at UMR in January and hopes that we will further expand our explosives offerings in 2007. He can still be reached easily by email. On a final note, one of the most interesting things he has learned in Brazil to date is how to open a champagne bottle with a sword (Napoleon style! this has to be seen to be believed!).

This summer we ran two explosives camps from Sunday evening through Friday morning. We had 42 students between the two camps from 13 states. This included campers from Kansas, Texas, Oklahoma, Arkansas, Iowa, Minnesota, Nebraska, Louisiana, Pennsylvania, North Carolina, Tennessee, Illinois and Indiana. The students were entering juniors and seniors and recent high school graduates about to enter college. Presentations to the students involved how explosives work, explosives and initiation systems, handling, safety, Explosives Ordinance Disposal (EOD), a manufacturers and shot service provider’s perspective of the industry and explosives use in the mining industry. Practical activities included special effects, rock concert fireworks, explosives demonstrations, priming and shooting dynamite exercises, surface blasting, underground blasting, demolition, and fireworks. Everyone had the opportunity to push the button or plunger at least once and to handle explosives. The camp finale was the set up and shooting of a very impressive fireworks display on campus in between McNutt Hall and the Computer Science Building. All the kids had a great time and many of them have already signed up for the mining program. For the past two years we had about 50% of the campers apply to UMR – not a bad result!

The outstanding quality of the camp would not be possible without the support of the industry and our alums. Thanks go to Dyno Nobel for access to their shot service crew and tech reps Mark Murray and Keith Henderson for presenting on the course, Capital Quarries for hosting us for bench blasts at their Rolla Quarry, Doe Run Mining Corporation for hosting a splendid underground tour of their drilling and blasting operations at the Viburnum super mine and Premier Pyrotechnics of Richland. Special thanks also goes to Dan Montrose of USAF EOD at Barksdale who came all the way from Texas/Louisiana to participate as staff on the camp.
Dyno Nobel Donates Trailer Magazine

Early this year Dyno graciously donated us a type II trailer magazine. The back 20ft of the trailer is a type II magazine and the front 20 ft is used for storage of blasting equipment such as loading poles, ANFO blowers, hole cones etc. With the expansion of the explosives offering and space taken up by display fireworks for use on campus, we were getting short on physical storage space. The magazine has been put into service as a cap magazine freeing up other magazines for other uses. We now have 6 separate magazines, 3 for initiators and the other 3 for explosives. One for 1.1 explosives, one for 1.5 blasting agents and one for 1.3G display fireworks. Jimmy Taylor and the mine students built the steps in the picture and security sensors and video surveillance protect the facility. The extra space allows us to get to individual items easily without having to empty half the magazine. The magazines serve explosives classes, student research projects, faculty and graduate research projects, the ISEE student chapter fireworks displays on campus, explosives camps and the countless explosives demonstrations we do for visiting.

New Quarry at Experimental Mine

The back quarry located in the SE corner of the mine is now in full operation and actually looks like a quarry. It has a ramp and two operational benches. It is being used mainly for mining 307 and 350 classes but also for demonstrations. We drill up to 3-inch holes in class with an air track drill donated by CONCO Quarries. The students get hands-on training in drilling and blasting which gives a practical understanding for the blasting classes. This last semester due to increasing enrollment we have had to offer a third lab section for Mining 307. Hopefully the quarry will serve us for at least 20 years. We are able to expand the offering of these hands-on classes through the support of the mining and explosives industry without whose continued assistance it would be very difficult. We also have a blast resistance testing facility located right next to the quarry in which we have been testing new blast resistant windows for WINCO of St.

Second Portal Officially Named

The 2nd Portal at our Experimental Mine is now officially called “Kennedy Portal”. You may recall that the new mine doors were donated by Kennedy Metal Inc. and it was very fitting to name the portal this way. Bill Kennedy, President of Kennedy Metal, was at the mine for a visit when the sign was revealed.
Comments from one of the Explosives Camp Participants

I am Margaret Hettinger and I am a freshman in Mining Engineering. The main reason I decided to major in Mining Engineering was my experience at Explosives Camp. I attended Explosives Camp in the summer 2005 and 2006. I really enjoyed the camp and that is why I returned a second time. At Explosives Camp we got to do numerous hands-on activities involving explosives and learned about many different applications of explosives. Our activities included visiting a quarry, Doe Run Lead Mine, and Premier Pyrotechnics. We did demolition projects, shot dynamite, cracked boulders, set up and shot a fireworks show, and more.

Margaret “Maggie” took this photo underground during Explosives Camp.

Camp participants learn how to cut through a concrete beam with explosives.

Thanks to Maggie Hettinger for the photos from the Explosives Camp.

Dr. Worsey with participants of the 2nd Explosives Camp underground at The Doe Run Company.
The University of Missouri-Rolla (UMR) is establishing a research center to advance research initiatives in heavy mining machinery. Heavy machinery health problems have become very critical in production plans and operations of industry. Current operations use large-capacity and highly capital-intensive equipment for bulk production. Higher fuel and electricity costs, tougher operating environments and high production demands also create additional problems that must be addressed to achieve higher machine reliability, maintainability, availability and utilization. The research center will pursue research initiatives on heavy mining machinery health and intelligent control systems associated with shovels, dump trucks and draglines. The research will cover formation excavation science and engineering, machinery dynamics, fracture and fatigue failure of machine components, engineering process control systems, machine vision and kinematics control, machine vibrations control and operator safety.

**Strategic Importance of Heavy Machinery Research:** The United States is a major mineral-producing country in the world. US produces 78 major commodities and it is ranked among the top five countries in the global production of aluminum (10.5%), coal (20%), copper (8.4%), gold (11.7%), iron ore (4.8%), and silver (7.1%) [36][41]. The US mining industry also produces significant aggregates and stones for all construction and manufacturing industries. These minerals, aggregates and stones form the foundation of the US economy in all major sectors and they also provide the basis for technological advances. About 70% of all minerals and 90% of aggregates and stones are extracted using the surface mining technology. Shovel and dragline excavation and truck haulage are major primary operations in the surface mine production chain, accounting for over 50% of the production cost. These unit operations are characterized by severe dipper/bucket wear and fatigue failure in constrained geological formations, truck-terrain, truck vision and vibration and operator safety problems. There is therefore a need for innovative research program, with appropriate infrastructure, to support this industry.

For more information, contact Dr. Frimpong, Department of Mining & Nuclear Engineering, at (573) 341-7617; Email: Frimpong@umr.edu

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Do you want to continue your education? If you want to do that, but can not afford to come back to campus, our on-line Master of Engineering in Mining Engineering is the answer. You can take the classes from the comfort of your home or office. If you want more information, contact mining@umr.edu
Field Trips to Several Peabody Energy Operations!

Many of you probably remember field trips you participated in; however, those trips were not on a corporate jet. The past year provided some great opportunities for the students. Thanks to Peabody Energy, Dr. Frimpong and several students boarded a plane in St. Louis and visited the North Antelope Rochelle Mine in Wyoming. The difference in temperature is evident when you see the photo — when you are used to Spring weather in the Ozarks, the colder temperatures in the Powder River Basin will come as a shock.

Peabody hosted two other field trips to operations closer to home. Dr. Frimpong and the surface mining class visited Peabody’s Farmersburg Mine in Indiana in March. In April Dr. Tien and the underground mining class visited Peabody’s Gateway Mine in Illinois. As you can see, one of the main attractions on these visits is always the biggest piece of equipment used at the mine.

Dr. Frimpong and Dr. Tien with the UMR group in Wyoming

Dragline at Farmersburg Mine in Indiana

Visit to Gateway Mine in Illinois
Finally, we want to thank you for all your support during this past year. As you have seen in this newsletter, our students, faculty and staff are very active and new projects or events seem to come out of nowhere. However, all these activities help us to “produce” the best young mining engineer possible - and we see that we are on track by increased numbers of companies looking to us for their mining engineers. The formula we use to mix curriculum, student and professional activities is working and we will keep on track. You can be proud of your “Old School” and the new generation of mining engineers. At the Fall 2006 Career Fair thirty-three companies were looking for mining engineers! We always have mining companies coming directly to the Department to interview - but this semester our office seems more like a Career Center for Mining Engineers. UMR mining engineers have an excellent reputation in the industry and we are on track to keep the tradition going.

The Faculty and Staff of the Mining Engineering Program