Coal Age

THE 100TH ANNIVERSARY NATIONAL MINE RESCUE CONTEST RETURNS TO COLUMBUS

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By Lee Buchsbaum, Associate Editor and Photographer

Thousands of coal miners from more than 100 mine rescue teams gathered in Columbus, Ohio, from October 3-6 as the city hosted the 2011 National Mine Rescue, First Aid, Bench and Pre-shift Competition. Organized and administered by Mine Safety and Health Administration (MSHA), mine rescue teams gathered at the Greater Columbus Convention Center to hone techniques they hope they will never have to use. In total, 103 mine rescue teams hailing from Alabama, Colorado, Illinois, Indiana, Kentucky, Maryland, New Mexico, Ohio, Pennsylvania, Utah, Virginia, West Virginia and Wyoming competed in the biennial event. The last time the competition was held in Columbus was in 1951.

“The critical importance of mine rescue teams was underscored with last year’s tragedy at the Upper Big Branch mine,” said Joseph A.

need for well-trained and experienced mine rescue teams. I have the highest respect for these men and women, and am deeply grateful for their sacrifices."

The contest consisted of several events. In the field competition, teams solved a hypothetical mine emergency problem while judges rated them on how well they adhered to mine rescue procedures and how quickly they completed specific tasks. Other events included a bench contest in which individuals who maintain rescue equipment must thoroughly inspect breathing devices that have been tampered with and quickly correct defects. In the first-aid contest, participants were judged by how well they demonstrated the correct method of caring for an injured miner. In the pre-shift competition, miners examined the mine layout area before their work shift to identify and eliminate existing hazards.

"A lot of time and effort has been invested to challenge the mine rescue teams—to get them to think," said Kevin Stricklin, MSHA's coal administrator. The giant convention center's main floor was split into more than a dozen identical mine rescue competition fields. Each sectioned off concrete "field," which had three designated entries and cross cuts, was divided up by ropes to simulate underground entries. All teams worked through the same problem as quickly as possible with the least amount of docks as possible.

For the contest to be effective, the field and problems were designed to approximate what teams would encounter in a real emergency situation including gas, smoke, fire, injured people and dead bodies. It was each team's responsibility to map everything they saw and report it back to their respective fresh air bases. Upon completion of the course, the team's map was reviewed along with their actions in the simulated underground environment. The team with the lowest point total dock as well as the fastest time would win the competition.

Not Real World, But Still Real World Training

Though very different from real world conditions, each team worked tirelessly to take home the prize. "When they start the clock and a team starts competing, it's almost like a real emergency to them. As you see them get into the problem, you see how seriously they take it," said Stricklin. During competition, each team member donned

contest, team members ran through a maze-like course, looking for obstacles and performing simulated first aid and rescue of any and all located miners all the while making constant reports back to base.

Under contest rules, if a team member enters under smoke they need to be connected to a lifeline. “You have to make gas, roof and rib checks at certain locations. These guys have really been schooled in the techniques as have the judges. It becomes harder every year to judge each team because they just continue to get better and better. I’m very confident that there will be a number of teams that have zero docks,” said Stricklin. That means they have zero errors on the field and the judges are trained to spot those errors and find any issues a team might have. Teams also take a written exam and are judged by how well they populate a map.

But in the end, it all comes down to time. “The judges work really hard to try to find something they can dock. They are very critical. We put judges on the field from different areas than where the coal mine is situated. If the team on this field is from Indiana. If the team on this field is from Indiana, there are no judges on the field from Indiana. We try to make sure to keep it as squeaky clean as we can so there’s no favoritism to any of the teams. We work really hard at that and the judges do a good job but the teams do an even better job,” said Stricklin.

Though the situation wasn’t real, the sweat pouring off the mine rescuers was. “While each is miner, collectively they become members of rescue teams. When everyone else is running away from an emergency, these folks are gearing up to go and fight it. There’s never a good emergency and these noble men and women are determined to go into harm’s way to try to rescue people,” said Stricklin.

During the competition, team members would rush from one section of the field to another as they raced to solve problems. Audience members watched from the stands as teams would locate “injured” miners and bring them out to fresh air bases. Once tasks were completed, team captains would head over to the contest clock and, upon the judge’s signal, stop it and mark the time. Individual competitions were even more grueling since there was no one else to rely on. While waiting for results, hundreds of coal miners roamed the area, shared ideas and reviewed some of the latest mine safety innovations.

hand celebrating both its 100-year anniversary of mine rescue contests and the company's own century of involvement in this vital field (see sidebar). The company developed the first closed-circuit breathing apparatus in 1904, opening a new era in mine safety and rescue. "Times change, but values do not. The values we have shared for 100 years will continue through the next century of mine rescue and safety. And, we will be there to help provide the products and assistance we can to these brave men and women, these Draegermen," said Stefan Draeger, chairman of the management board for Draeger International and a direct descendent of the original inventor of the closed-circuit breathing apparatus. Draeger showcased several of its latest safety and rescue products including the state-of-the-art ChargeAir System, a system designed to enhance the emergency response plan and capabilities of underground teams. The company also previewed its newest self-contained rescue system (SCSR), the Oxy 6000, which will be launched in the U.S. next year.

Mine Rescue Has Come a Long Way

Since 2006, mine rescue training has become much more stringent as safety standards have increased. The Mine Improvement and New Emergency Response (MINER) Act of 2006 regulations required more mine rescue teams and more training by existing teams. "Some of the good things that came out of Darby, Sago and Aracoma were the number of teams and the awareness that you had to be better prepared for an emergency situation. Now we have ensured that rescue teams are ready to go in a minute's notice. We saw that at Upper Big Branch. Though the explosion happened somewhere around 3 p.m., by midnight mine rescue teams from all over the region had already found 25 of the 29 bodies," said Stricklin. "There were four unaccounted for. One was bypassed, and the other three were very close to where we pulled them out of the mine because of explosions. The speed of response and the teams' abilities to find those fallen heroes proves how meticulously those rescuers worked. It was a very bad situation that we were able to get on top of in a way we probably couldn't only a few years ago."

Kevin Vaughn, a mine rescue team leader from Alliance Resources' River View mine in western Kentucky, who has participated in many regional and national contests over the past 25 years said that while the contests have grown in size, the format has been generally the same. "In the past, mine rescue was not emphasized as much as it is today. Teams got smaller and it took longer to solve contest problems. At one time the average time to solve a problem was two

and newer rescuers. They're still learning, so they have a time limit," said Vaughn. And really, training is what this contest was and is all about.

Just hours before the contest results were posted, Stricklin proudly explained that everyone who competed was a winner. "Though we're going to pick one champion tonight, in my world all 103 teams are winners. If there was an emergency that happened right now, I would be very comfortable taking the team that finished 103rd if they said that's the only team they have available to you. I would feel just as confident in them as I would the first place team," said Stricklin.

Chris Williams, safety director at Advent Mining in western Kentucky and a member of the Kentucky Coal Academy's Mine Rescue team from Madisonville has competed in many regional and national contests, but the quality of the teams took this one to a higher level. "It's like the world series when you come up here. You get out in the field and you don't know what you're going into. When you hit that situation you have to think right then and decide, make decisions on what to do and how to react to it," he said.

"It takes a special breed of person to be going into a mine disaster when everyone else is coming out," said Williams, who would eventually earn a third-place position in the national pre-shift examination competition. "Our most solemn prayer is that we are never needed, but in the event that we are, our Kentucky Coal Academy mine rescue team is prepared and is more than capable of doing the job of saving lives. The Coal Academy has provided outstanding training equipment and instructors, and this program understands the value and importance of having a top-notch mine rescue team trained and ready to go."

Williams' was beaten out by his own Kentucky Coal Academy team member and fellow employee at Advent, Patrick Gomez, who took first place for benching and was awarded the BioPak 240R Trophy and Secretary of Labor Medallion. Gomez has taken the top award in several regional contests and won second place in the 2009 National Competition.

Other First Place Winners included:
First Aid: TECO Coal team, David Wilder Captain

First Place Bench BG4 Trophy Sec. of Labor Medallion: Daniel Bragg, Kingston Resources, Inc, Kingston White
First Place Pre-shift Trophy: David Shackleford, Arch Coal Lone Mountain Team
First Place Combination: Patriot Coal, Magnum Captains Travis Lett and Britt Crouse
Day One First Place Mine Rescue Trophy: Alliance/Webster County Coal—Dotiki, Jan Chambliss, Captain
Day Two First Place: Patriot Coal Magnum, Travis Lett, Captain
First Place Mine Rescue Trophy: Alpha Natural Resources, Black Mountain White Team, Philip Muncy, Captain

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Main Talks about Mine Rescue with Coal Age

Mine Safety and Health Administration (MSHA) Director Joe Main took a few minutes from his busy schedule to talk about mine rescue and other issues at the National Mine Rescue Contest, held during October 2011 in Columbus, Ohio.

This rescue contest comes during a moment when the industry is in transition and under tremendous governmental scrutiny. How safe is the industry today and how prepared are we to deal with future situations?

Main: As little as 10 years ago, mine rescue standards had become very weak. Teams had been reduced to such low strength that there was a concern about whether we had really lost the ability to perform mine rescue. So for the 100th anniversary, I think all of us are pleased about where we are now, though we still have a ways to go. We've got to hold what we have and build off of that. We can't let it slip back again. This country and the mining industry has to make the investments necessary in mine rescue if we intend to be able to take care of events if they occur.

The [Mine Improvement and Emergency Response] MINER Act of 2006 was a real catalyst for where we are today. Since then, I've had the opportunity to work on mine rescue training and to help develop training facilities and programs. Some of the programs implemented by Don King, a retired miner who is now our miner training consultant at the Mine Safety and Health Administration's (MSHA) National Mine Health and Safety Academy in Beaver, W.Va., and

When the Upper Big Branch (UBB) tragedy hit, had it not been for the MINER Act and the kind of training that King's programs and others had in helping prepare the rescue teams that responded, we would not have had the benefit of having the quality of mine rescue that we had. We had teams on the ground there whose training was far superior to what had been available around the time of the Sago disaster. All that training and preparation helped us get the mission accomplished. The day that we think we no longer need these teams is the day we make the biggest mistake of our lives. You never know how many teams you'll need, where you're going to need them, and what the conditions will be once they are deployed. So we have to have everyone prepared and trained up and ready to go at a moment's notice.

One of the other challenges MSHA has faced is that over the years the agency got short on people. At the time of the Sago mine disaster, MSHA lacked the strength it needed to get its job done. This was an agency that, like the overall coal industry, had an aged work force. There was a huge transition that took place after the UBB disaster once MSHA realized it needed more people. Congress reacted and added a large number of inspection positions. At the same time, you had a lot of folks retiring from the industry. The day I took this job, half the inspectors that worked for MSHA had two years or less experience. You have to keep an agency like this staffed up if you expect to have consistency. So after being criticized that MSHA wasn't enforcing the existing laws, we went through a period where we brought a lot of new inspectors into the field. The expectation for MSHA was to get tougher and the agency has done that.

As inspectors, we've spent a lot of time looking back at how well we perform our jobs. We are looking to maintain consistency in what we do. I meet with our district managers every time I get a chance. I came from the old school of thinking that when we had inspections, we all talked to each other. We were almost always given an explanation of what the violation was. That's something I believe in and talk about within the agency. I think we owe miners and the producers they work for an explanation for the actions we take. We also need to take a bit of time to educate and explain our actions. That helps communication and fosters a better understanding of why the regulations we enforce are so important.

In terms of how we interact with the mining industry, there are two places that this occurs. One is during the inspection, and the second

that. When there is a violation, there's opportunity for improvement for the company and the miners. At the close out, everybody sits down and walks through all the violations we identify. I've increased my focus to explain more about what we're doing and why. I've encouraged people to put their issues on the table. And if we can sort out differences with facts, that's the place to do it. This will lead to better communication as well as less controversy over the violations that were issued.

However, a problem that we're dealing with is the huge backlog of cases. The day that I took this job, we were sitting on about 80,000 contested violations. We have been working with Congress to get more money and resources because our analysts are totally tied up trying to work through this backlog. With the right papers, we can defend these contests. Inspectors must write a good paper at the outset and make sure they have their facts together so we can make better cases for these violations. At the same time, if there is a difference in facts, lets sort those out on the front end, not in the courthouse.

Many of the programs now are aimed at really trying to get a handle on the problem mines that we have within the industry. We've been very strategic and very focused on how we try to identify those mines and take action. We need to prevent advance notice to preclude quality inspection. At the same time we've done a tremendous amount of outreach and education within the industry to make sure they're fully aware of what the expectations are and to encourage them to have programs and processes in place.

Regarding the UBB disaster, with Massey no longer part of the industry, there has been a tremendous retraining program at Alpha. Are you satisfied with how those former Massey folks are being retrained? Is that a model program?

Main: If you went back to April 4, there's a lesson we learned: do not take things for granted. The proof is in the pudding and if mines are operating better, their record and the results tend to reflect that. Over time we hope to see progress. Right after [the] UBB [disaster], I looked at Kevin [Stricklin] and told him 'to ensure that we're never going to have another Upper Big Branch, we're going to look hard to figure out where the next one could be and start dealing with that now.' We put together a program that helps us identify certain characteristics that could constitute potentials for another disaster. There were 57 mines listed on the first report

Main: Is there one single company that has everything right? Probably not. But there are ones out there that have it right in terms of having programs in place to get there.

How a company reacts to receiving violations or receiving notice that there is a pattern of violations really tells you a lot about their character. 'We're fixing things and we're going to be a better mine;' or 'We're going to fight you to the last straw.' MSHA is trying to be very careful and strategic about how we identify which mine is which and how to work with all of them.

CONSOL Energy is one company that has really changed its procedures to deal with compliance issues. They have stepped up to the plate to work on technological changes in the mining industry. They have proximity detection systems on much of their sectional equipment. The work they are doing with them is very helpful both to them and the rest of the mining community.

Another company, Alliance [Resource Partners], at one point had about 30 of their continuous miners equipped with proximity detection equipment as well. They really took the lead on this—even before there were regulations. The experiences they had, and the experiences CONSOL Energy is having, are going to help us get the bugs worked out of the system.

If you talk to the average coal miner today, they feel like they are being hit by a blizzard of rules, not just from MSHA but through the various agencies in this administration. What's the future of mining in this country?

Main: I believe it is a vital part of this country's future. My mission is to do everything I can to make it safe. I took this job for a simple reason, to give miners a chance to go home free of injury and illness and enjoy life like most other folks do. I believe that's an achievable goal. Enforcing these regulations is critical. There are still some large problems out there, in particular where it comes to black lung. Younger miners are still getting the disease. When we looked at data from the autopsies of the men who were killed at Upper Big Branch, we found that more than 70% of them had some level of black lung already. We need to fix that.

The proximity rules will start another round of re-investment to take care of our miners and protect workers. If we don't do this we're

40 miners killed since 1984 due to proximity issues. Today there are new technologies that we've applied to fix that.

The pattern of violations program has been controversial in many ways because no single mine ever met the standards that were intended by Congress, or the standard was not applied in a way Congress had intended. We needed to sit back and look at what Congress said and implement a program of enforcement. Our proposed rules are going through the public process. Anyone who attended or paid attention to any of the eight Congressional hearings that I've been through would realize that this issue is something Congress expects to fix. They weren't satisfied with the status quo. Last year there were about 172,000 violations issued by MSHA. About 80,000 of those citations were issued at coal operations. But coal only represent 3.5% of the mining population. If you look where the injuries or deaths are most prevalent, it's in underground coal mines. If you look at where most of the violations are issued, and where we find the greatest lack of compliance, it's in underground coal mines.

When you talk to young people about the industry, is mining a career you suggest that they pursue?

Main: I started in the mining industry when I was 18 years old. And I can happily say that the mining industry today is much better than when I started. You can go to our website [www.MSHA.gov] and see which mines are the safest. We now have the ability to breakdown the accident, injury and compliance history of every mine that we inspect.

The pattern of violations program is one of the things helping to alert people. We need to let folks know what we expect them to do. When we did the potential pattern of violations criteria under the current rule, one thing we did was post all of the criteria on the website so every mine operator knows what the rules would be and are currently. Then we created the potential pattern of violations screen tool where any miner can go on our website, plug in the ID number of that mine, and find out every day how they stack up against the potential pattern of violations criteria. So now a miner looking for work can research various mines and decide for themselves how much risk they want to take. This screening tool gives them that much more control over their own destiny.

Yes, but given the pressure coming down from your administration,

Main: Though coal is extremely important, market forces will determine the future of the industry. But there's an awful lot of natural gas coming online.

Draeger Celebrates A Century of Mine Rescue

For over five generations and proudly spanning a century, Draeger has been directly involved in saving lives. The company has a U.S. operations headquarters in Pittsburgh and employs more than 200 people nationwide.

Similar to many companies, Draeger's success began almost accidentally. In 1889, Johann Heinrich Draeger, a German clock maker and tinkerer who serviced, repaired and sold clocks and sewing machines, created a design for the very first CO2 pressure reducer for beer taps—beer being a fundamental part of German heritage. His next technical challenge was to enable the pressure reducer to work for oxygen. In 1902, he was reading about a horrible coal mine disaster in Pennsylvania when the idea came to him that his experiments could be applied to the new field of mine rescue equipment. When the first mine rescue competition was held in Pittsburgh in 1911, Draeger was there working to support the community.

Draeger has since emerged as a leader in mine rescue technology and the company has also helped foster a legion of devoted "Draegermen" who are dedicated to saving the lives of their fellow coal miners. "We are very, very proud to be associated with these brave people," said Stefan Draeger, the great-great grandson of the company's founder. "In many ways, the existence of the Draeger man or mine safety profession was enabled through our devices. We are honored to have such long relationship with them."

One of the overall concepts for much of Draeger's products is the notion of creating technology for life. "Almost all of our products come in situations you normally don't want to be in, when life is at stake," said Draeger.

At the mine rescue contest, the company previewed the new Oxy K 6000 self-contained rescue system (SCSR) that will be launched in the U.S. in 2012. Through a chemical reaction, these units deliver more than 60 minutes of oxygen with a low breathing resistance. They automatically start to perform when opened and donned

The company also showcased a new 30 and 60-minute state-of-the-art ChargeAir self-contained breathing apparatuses (SCBA) units. Part of a custom underground SCBA refill system, the units are not exchanged during an escape when visibility is minimal and the atmosphere is toxic. The lightweight units are instead recharged while being worn so that rescuers can continue to breathe clean air and work in toxic atmospheres. Safety and reliability are improved because the units no longer have to be exchanged during an escape. "The units can be combined with a second technology that we and only we have, which is a compressed air apparatus, similar to what is used in fire brigades, that can be recharged at charge stations," said Draeger.

To recharge the new SCBA units, one hooks them up to an air supply with several large cylinders stored in a preconfigured charge air station. In case of an emergency if the tube reaches the station, then they are refilled from other large cylinders in that station. Then a responder can use a quick recharge to get enough air to move to the next station where they can once again refill. "So you can go quite a distance in quite a time, basically technically unlimited time and distance, with intermittent refills," said Draeger. The company claims the units can be recharged in less than a minute.

Additionally, the charging stations are mobile. "You can move them as the layout of the mine changes," said Draeger. The company is also building and designing new refuge chambers that are designed to keep miners safe until the mine rescue response come to help.

Draeger is also developing new portable gas detection equipment. Using the patented DragerSensors, a rull range of portable gas detectors measures and warns against toxic gasses. Respiratory filters provide reliable protection against particles and dust. The new X-am 5000, which was recently approved for use by MSHA, provides critical environmental monitoring in underground conditions.

The company showed off the Draeger UCF 7000 thermal imagining camera. Designed for miners, rescue teams, firefighters and other responders, the new camera has high optical resolution and is intrinsically safe in the toughest of conditions. It gives value in day to day operations.

Draeger also has a line of escape and refuge chambers. Activated by an alarm during emergencies, these chambers can serve as an

For the entirety of the contest, a “museum” was set up in a large conference room filled with dozens of types of historical mine rescue tools and gear showcasing the evolution of this vital field. Many of the products there were made by Draeger. “Looking around this room, it is very interesting to see the evolution of this industry, especially knowing how much this company has been involved in it. Our commitment to mine safety is unwavering. Myself and the rest of the company happily look forward to being an important part of the next 100 years of mine rescue as well,” said Draeger.

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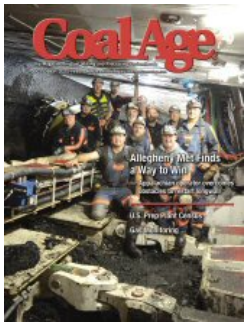

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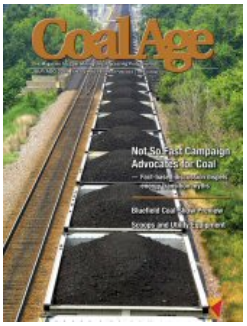

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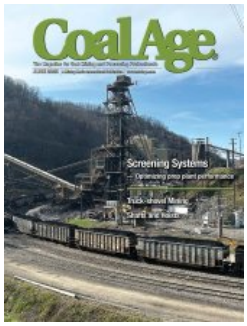

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