

West Virginia Coal Mining Institute Fall Meeting, October 15-17, 2014

The 2014 Fall Meeting of the West Virginia Coal Mining Institute was held October 15-17, 2014, at the Greenbrier, White Sulphur Springs, West Virginia.

The general program began with the Evening Reception on the Wednesday. This was followed by Technical Session I which took place the following morning. Session Co-Chairmen were Logan Curry, Manager of Engineering, Patriot Coal Corporation, Scott Depot, West Virginia, and Michael R. Sustar, Mining Engineering Student, President, Student Chapter, SME, Department of Mining Engineering, Benjamin M. Statler College of Engineering and Mineral Resources, West Virginia University, Morgantown West Virginia. The session focused on the topic of Dust. The Keynote Speaker was Jay Colinet, Senior Scientist, NIOSH, Pittsburgh, PA, who spoke on the subject of **Respirable Dust Control Research at NIOSH**.

Presentations followed which included the following:

Dust Compliance Through Improved Face Production Processes, Phillip K. Saunders, PE, Vice President, Production Engineering, Alpha Natural Resources, Beckley, WV;

Air Flow Monitoring and Dust Control Measurers in Room and Pillar Mining, Jez Leeming, Global Product Director, Joy Global, Warrendale, PA;

PDM 3700 Real-Time Continuous Personal Dust Monitor, Ronald Smith, National Accounts Manager, Coal Products, and Allan Matta, Product Manager, Thermo-Fisher Scientific, Ebensburg, PA;

Fletcher Dust Innovations and Improvements, Tim Burgess, PE, Vice President of Engineering, J.H. Fletcher & Co., Huntington, WV.

The Reception took place in the evening with cocktails and hors d'oeuvres. Awards and door prizes took place.

On the Friday morning after the Officers and Executive Board meeting took place, Technical Session II followed. Session Co-Chairmen were Jack D. Trackemas, Principle Mining Engineer, MS, NIOSH, Office of Mine Safety and Health Research Center, Pittsburgh, PA, and David S. Kuegler, Mining Engineering Student, Statler College Ambassador, Department of Mineral Resources, Benjamin M. Statler College of Engineering and Mineral Resources, West Virginia University, Morgantown, WV.

The Keynote Speaker was Bill Reid, Publisher and Managing Editor, **Coal News**, Bluefield, West Virginia, who spoke on **American Coal, Stand Up and Fight!**

This Technical Session focused on Proximity Detection with the presentations including: **Proximity Detection in Use**, Todd Moore, Safety Manager, Pennsylvania Operations, CONSOL Energy, Inc., Canonsburg, PA.

Proximity Detection, Edwin P. "Pat" Brady, Corporate Director of Safety, Murray Energy Corporation, St. Clairsville, OH.

The Introduction of SMARTZONE Proximity Detection Equipment on Continuous Miners and Haulage Vehicles, Jez Leeming, Global Product Director, Joy Global, Warrendale, PA.

GE Mining Collision Avoidance System – Driving Safely Underground, James Davidson, Senior Product Manager, GE Fairchild Products, GE Mining, Glen Lyn, VA.

Proximity/Collision Avoidance System Using Thermal Cameras for Human Detection, John Steckley and Mathew Fisher, Senior Software Engineer and Caves Engineering Lead, Innovative Wireless Technologies, Inc., Lynchburg, VA.

There were 100 persons present for the meeting. Officers of WVCMI include President James M. Dean, Morgantown, WV; Secretary-Treasurer Royce J. Watts, Morgantown, WV; Vice Presidents Carrie Harwood, Blacksburg, VA; Douglas R. Fala, Tad, WV; Donald R. Vickers, Morgantown, WV; James (Jay) Johnson, Bluefield, VA; and Ryan A. Toler, South Charleston, WV. The Executive Board comprises Benjamin R. Hardman, Huntington, WV; Wayne L. Thomas, Abingdon, VA; Keith Hainer, Julian, WV; Jimmy A. Brock, Morgantown, WV; and J. Rodney Poland, Morgantown, WV. Arrangements and activities at the meeting were by Wayne Thomas and Royce J. Watts.

The meeting management was by Wendy Spaw and Nancy Ireland. Audio-visual arrangements were by Josh Murphy.

Proximity Detection

by: Pat Brady, Corporate Director of Safety, Murray Energy Corporation

According to Brady, the birth of proximity protection began when the operating decks for continuous miners disappeared. Today, there are 402 continuous miners equipped with proximity detection, 51 shuttle cars, 22 haulers, 46 scoops, 22 loaders, and 6 miscellaneous, for a total of 549 pieces of equipment so equipped. Two states now require proximity detection on place-changing miners: West Virginia by rule, and Virginia by Memorandum of August 18, 2014.

The Memorandum from Virginia states "...remote control continuous miners in Virginia to be equipped with Proximity Detection Systems or use a designated spotter during moves". "Underground operators who have continuous miners equipped with a deck may elect to tram them from the deck." Presumably, that means that a spotter or deck operation is equivalent in safety to proximity detection.

The WV State law does not require the spotter or deck, but does allow other devices in lieu of proximity on other types of section equipment. The Federal Regulation, which has been held up by OMB, requires proximity detection on place changing miners. It would be a breath of relief if all the regulatory agencies would come into agreement on regulatory requirements.

Brady asked his maintenance group their feelings about proximity detection and some of their comments follow:

- Yes, proximity will work, but at what cost to the operator.
- Proximity will cost an average of \$120,000 per machine. When first introduced, it was around \$25,000.
- Maintaining additional required wiring, conduits, and sensors will equate to additional downtime.

- The production lost to the mine having to maintain and repair the system cannot be calculated until a comparison can be done after it is installed.
- This will be different at each mine, and will relate directly on how the equipment operator takes care of the machine.
- Specialized training and additional manpower will be required to maintain and repair the system.
- Responsibility will be removed from the operator, and he will rely on an electrical device and be less aware of his surroundings.
- The time period to comply was not set-up correctly. The machine should not have to be modified until the tonnage level (not a date) is achieved, and the rebuild of the machine is necessary.
- The time period will cause premature rebuilding of the machines that will relate to additional costs to the operator.

Brady believes that the point of responsibility of the operator is of the utmost importance. At one mine, the section was outfitted with a trial proximity system. This was designed to set off a tone alarm when an individual was in “The Zone” and would knock the power on the equipment when fully operational. The intent was to work out bugs in the system and to begin training individuals on the system’s capabilities. In fact, there were four miners working around a scoop with four tone alarms going off which indicated they were all in a “Red Zone”. This illustrates a big concern that an individual will simply rely on the proximity and move further away from personal awareness of their surroundings. Thus, a simple failure in the system could be catastrophic.

The advancements in technology over the years have been tremendous and have definitely made a mine a safer place to work. However, a mine is just a microcosm of society, and technology has made our society lazy. There is a risk that everyone wants to rely on technology to take care of everything including personal safety. Engineering controls are the most effective means to eliminating hazards underground, but they cannot be relied upon in our ever-changing environment. In underground conditions, more so than any other industry, due to the confines of the work environment, personal awareness must be paramount.

Undoubtedly, there will be times when the proximity system will have to be bypassed – maintenance work, adding oil, etc. – the individuals who will have worked with this equipment with proximity installed will be “dulled” to the potential risks they are exposing themselves to. An example of this is the flashing lights now utilized underground to denote work areas along the haulage, etc. When these lights were first put into use, there were numerous positive comments on how much more aware it made an individual of something going on around him/her. Now, due to overuse, both mandated and voluntary, these lights have lost their effectiveness. Miners will find ways to defeat the systems.

With enough money and time, most things can be made to work. Reliability/availability, false triggers, moisture, and wear and tear in the mine environment will be the issues, plus it is another complicated electrical systems added on top of other electrical systems. There may also be complicated troubleshooting and interference with other electrical systems. The system should not be added in the field, but this needs to be done in a shop environment.

In conclusion, critics of the industry want it to be driven by government regulation. They talk of corporate responsibility, but their actions shift that oversight to their rulemaking process. It would be refreshing if the industry was recognized for achievement rather than failure, and our workforce would focus on behavior instead of outcome. There is really no turning back

regarding the use of technical advancements to attempt to overcome human error, which includes proximity detection.

Murray Energy has chosen to be a driver and not a passenger in this industry. The opposite of accepting responsibility is to find someone or something to blame for the issues being faced. Real leaders spend time fixing the problems and challenges instead of finding who is to blame. Many issues will come with proximity detection, just as in the deployment of tracking and communication, refuge alternatives, SCSRs, etc. The responsibility of the operators will remain the same to ensure the health and safety of the miners regardless of the obstacles that must be overcome.