From: Burggraf, Chuck <CBurggraf@peabodyenergy.com>
Sent: Monday, December 14, 2015 5:41 PM
To: zzMSHA-Standards - Comments to Fed Reg Group
Cc: Barras, Chad; Wittenauer, Chris; Dennison, Patrick (pwdennison@jacksonkelly.com)
Subject: RIN 1219-AB78, Docket No. MSHA-2014-0019
Attachments: Peabody Proximity Comments (4846-9811-1275).docx

The attached are comments are submitted on behalf of Peabody Energy in response to the Proposed Rule on Proximity Detection Systems for Mobile Machines in Underground Mines, RIN 1219-AB78.

Peabody ENERGY

CHARLES A. BURGGRAF
Vice President Health & Safety
Americas Business Unit

PEABODY ENERGY
Peabody Plaza
701 Market Street
St. Louis, MO 63101-1826
314.342.7641
Cell: 314.422.3322
Cburggraf@peabodyenergy.com

December 14, 2015

Mine Safety and Health Administration
Office of Standards, Regulations and Variances
1100 Wilson Boulevard
Arlington, VA 22209

Re: Proximity Detection Systems for Mobile Machines in Underground Mines
RIN 1219-AB78

To Whom It May Concern:

Peabody Energy, Inc. ("Peabody") is pleased to submit comments on the proposed rule entitled "Proximity Detection Systems for Mobile Machines in Underground Mines," 80 Fed. Reg. 53070 (September 2, 2015). Peabody is the world's largest private-sector coal company and owns and operates surface and underground coal mines throughout the United States and Australia. A global leader in sustainable mining, energy access and clean coal solutions, Peabody serves metallurgical and thermal coal customers in more than 25 countries on six continents. A leader in mine safety innovations, Peabody has installed and tested various forms of proximity detection on both continuous mining machines and other types of equipment in its underground mines.

While Peabody supports implementation of proven proximity devices, in our experience, proximity detection systems for equipment other than continuous mining machines are not reliable for production use today.

I. Section-by-Section Analysis.

A. Proposed 30 C.F.R. § 75.1733(a), which would require proximity detection on equipment other than continuous mining machines is not production ready.

In November 2010, Peabody personnel visited Sasol Mine located in South Africa to observe the use of proximity detection on a continuous mining machine. After that visit, Peabody commenced a project to determine whether proximity detection systems could be implemented at our operations. We installed and tested Frederick Mining Controls (now known as Strata Hazard Avert) proximity detection systems on a coal hauler and continuous mining machine located on the surface at

Peabody's Willow Lake Mine. The testing, which was conducted in a controlled environment, demonstrated that it was impossible to provide full coverage on the rear section of the coal hauler without creating a shutdown zone in the locations where the continuous miner operator was required to stand. A modification to the system allowed the miner operator to shrink the shutdown zone as the coal hauler backed into the loading position, after the car had slowed to a pre-determined speed. Due to the shape of the zone, however, the modification removed protective coverage of the rear corners of the coal hauler.

After testing at Willow Lake Mine, in 2011 Peabody installed the systems on a continuous mining machine and four coal haulers at Gateway mine. While the previous modification allowed for the proximity detection system to shrink the rear field by action of the operator, the modification of the equipment at Gateway mine allowed for the zone to automatically shrink when the car traveled below a pre-determined speed, without action by the operator. There was still, however, exposure to the edges of the rear of the coal hauler, which current technology and the proposed rule do not address. The equipment operated in this manner until the Gateway Mine was recently idled.

Additionally, for approximately two years, Peabody tested Joy Smartzone proximity systems on a total of three coal haulers used at Wildcat Hills and Francisco underground mines. Testing included the operation of the coal haulers behind a Joy 14CM15 continuous mining machine also equipped with a Joy Smartzone proximity system. The testing showed that battery-powered coal hauler proximity zones are much larger than continuous mining machine zones due to the size of the coal hauler and the speed that it travels. The larger the zone, however, the more the proximity detection system is affected by the environment and electromagnetic interference.

During testing, we experienced negative interference with the proximity detection system created by the pyritic content of the coal seam at Wildcat Hills mine. Additionally, Peabody experienced interference caused by energized power cables and the use of wire mesh as roof support. The interference resulted in a failure of the system to locate the miner-wearable component with any satisfactory level of accuracy or consistency. Specifically, the proximity detection system identified that the continuous mining machine operator was located in a different area than he was actually standing. Additionally, we observed instances where the continuous mining machine cable shut down the coal hauler when the hauler traveled underneath it. What's more, any time there was high voltage cable and wire mesh, it was nearly impossible to keep the coal hauler operating. And while the Joy Smartzone system can be shaped around the equipment to allow "operator zones," in our experience and testing, this technology is more susceptible to negative interference resulting in a failure of the system to accurately locate the miner-wearable component.

In May 2015, Peabody also conducted a one-day trial of Strata's Vector proximity detection system a JoyBH18AC coal hauler at Wildcat Hills mine. The single generator used with this technology, however, did not have enough sustainable power to provide a large enough field to protect the entire car, which resulted in

reliability issues. Peabody has not conducted testing on scoops but anticipates it will experience similar reliability problems, particularly given the versatility of use of scoops.

While Peabody supports the implementation of proven proximity devices we oppose the proposed rule's timeline. As described above, the proximity detection technologies for equipment other than continuous miners is currently unreliable. Our testing exposed considerable issues with consistency and reliability, which are foundational requirements for effective proximity detection systems.[1] Peabody opposes any implementation of a rule without adequate testing and research. It is impractical for MSHA to require proximity detection on coal haulage and scoops before determining that the technology is adequate, dependable and consistent.

MSHA has not observed the use of proximity detection systems on diesel equipment that would be covered under the rule. See 80 Fed. Reg. 53074-53075. In fact, MSHA has done no testing and is unaware of any permissible diesel-powered machines equipped with proximity detection systems in the United States. See 80 Fed. Reg. at 53075. What MSHA is aware of, however, are the "challenges" anticipated with "installing proximity detection systems on diesel-powered machines..." 80 Fed. Reg. at 53075. As Mike Walling, Proximity Product Manager of Strata Worldwide testified, installing "a field modification on every single piece of equipment you install proximity on." (Public Hearing on Proximity Detection Systems for Mobile Mining Machines in Underground Mines" October 6, 2015, at pp. 20-21). We urge MSHA to conduct testing before requiring proximity detection on diesel-powered equipment.

Further, reliance on the successful use of proximity detection on continuous mining machines as a basis for implementing proximity detection on other equipment is improper. Coal haulage and scoops are considerably different from continuous mining machines in both design and use. These fundamental differences require significant consideration in the form of testing and research before determining whether proximity detection will work adequately on mobile equipment that articulates, moves faster and comes in close proximity to wire mesh along roof and ribs.

With respect to a request for comments concerning what modifications to machines already equipped with proximity detection need to be completed, Peabody submits that this assumes that the proximity technology proposed by the rule is adequate, which as described above, is not the case. Peabody agrees with exploring alternatives to proximity detection, but implementing the rule now prior to adequate testing, research and development provides no incentive for innovation.

---

[1] As we discussed during the October 29, 2015, public hearing in Indianapolis, Indiana, the September 1, 2015 MSHA Fact Sheet stated that the rule would require the system to prevent adverse interference with or from other electrical systems. The proposed rule, however, does not contain the words "or from."

1. Any rule should exempt longwall working sections.

Peabody agrees that any rule requiring proximity detecting devices mobile machines should exclude longwall working sections. The hazards that proximity detection seeks to address do not exist on longwall sections.

2. Estimated costs for the proposed rule are inadequate.

MSHA's estimate that the average working section consists of seven miners is also misguided. Peabody's mines typically have sections consisting of approximately ten to thirteen persons per section, with some sections utilizing fishtail ventilation with as many as fifteen employees. Peabody also anticipates that despite the rule's applicability to sections with a continuous mining machine, it would have to purchase units for each miner, including contractors, in the mine to ensure compliance given that miners often work in various areas of the mine. The estimated number of persons that will likely be required to wear a proximity sensor must be reassessed.

3. Proposed phase-in schedule is impractical and should not differentiate between equipment.

The proposed rule provides that the final rule will be phased-in over a period of 8-36 months depending upon the date of manufacture and installation of proximity technology in advance of the final rule and whether the equipment can be worked on underground. In our experience, the phase-in schedule is not practical. Typical rebuilds of mobile machines at Peabody mines occur on cycles that span as long as seven years. A 36-month timeframe would disrupt this rebuild cycle and require otherwise properly functioning machinery to be taken out of the mine. Further, to the extent the final rule applies only to coal haulage equipment and scoops, Peabody proposes to delete the 8-month requirement for equipment already equipped with proximity detection. The phase-in schedule should not differentiate between equipment already installed with proximity detection, since by doing so, there is a disincentive to equip and test proximity detection systems before the promulgation of a final rule. Operators should be encouraged, not discouraged, to continue testing proximity detection until a final rule is promulgated. The proposed rule also fails to establish who determines whether a piece of equipment can be equipped with proximity detection underground. Peabody believes that it is best suited to determine what equipment can and cannot be modified underground.

4. Task training for the machine mounted component should be integrated into task training for the machine.

Peabody agrees that each miner responsible for operating equipment with proximity detection should have task training, but anticipates that the training will be integrated with the task training to operate the machinery. No separate rule requiring task training is needed. Peabody expects that miners fitted with sensors will require training, but believes that it is unnecessary to create separate task training.

B. The proposed rule, 30 C.F.R. § 75.1733(b), fails to consider interference and other significant issues.

The proposed rule states that proximity detection systems will provide both a warning and will stop all movement of the machine. The machine would remain stopped while a miner is within a programmed "stop zone." Our testing of proximity detection systems resulted in performance-based operations and modifications, to ensure the safest and most efficient use of proximity detection. As described above, stop zones were required to be modified because of the mining environment and interference. The proposed rule fails to consider such interference and makes no allowance for the act of loading coal, or other similar actions where both equipment operators may be aware of each other's position. In Peabody's experience the rule must be modified to allow the continuous miner operator to work in close proximity to the coal hauler.

Sudden stopping of equipment also presents additional hazards for onboard equipment operators, and we believe that based on our testing, the manner of stopping and the stopping distance should be performance-based, with a focus on specific mining conditions and types of equipment. Additionally, Peabody sees no reason to require proximity detection systems to totally deenergize of all functions of the equipment since the purpose of proximity detection is to prevent crushing and pinning injuries. If equipment functions do not contribute to such hazards, there is no justifiable reason to include it in the rule.

C. The manner for adequately determining the functionality of proximity detection systems under the proposed 30 C.F.R. § 75.1733(c) requires additional research and testing.

The proposed rule would require that operators designate a person to perform a check on the machine mounted component to verify that the system is functioning at the beginning of the shift, or prior to use, whichever occurs first, and one hour prior to a shift change if the shifts overlap. There are several issues with adequately determining the functionality of proximity detection systems that must be addressed prior to the implementation of a rule.

Testing the functionality of proximity detection systems requires operating the equipment and exposing it to a sensor within the stopping zone. In many instances, as we discussed during the public hearing on October 29, 2015, in Indianapolis, Indiana, during testing, the equipment failed to appropriately shut down and in several instances shut down after passing the miner-wearable sensor. And because of the dynamic mining environment proximity detection reacts differently depending upon mining conditions.

Further, under the proposed rule, presumably each miner will have to test his/her wearable component to ensure it is adequately functioning. Thus, each miner will have to place the sensor within a machine's proximity zone. And given the multiple pieces of equipment on a section required to have proximity detection under the proposed rule, each miner would have to test his/her sensor on each piece of equipment. MSHA cannot expect each miner to test each wearable sensor to each machine mounted component. Peabody proposes that the testing of miner-wearable

devices would be similar to that of tracking device tags where the individual miner checks the functionality of his sensor before entering the mine.

That said, under the proposed rule, Peabody believes that adequate and efficient testing cannot be performed adequately. Reliance on a proximity detection system without the capability of sufficiently testing its functionality presents complications, and Peabody proposes for MSHA to conduct additional testing and research to determine a reliable and efficient way to check and test proximity detection systems to ensure functionality prior to implementing a rule.

D. Creating and retaining records of proximity detection checks at the start of the shift or each time equipment is used under proposed 30 C.F.R. § 75.1733(d) is unnecessary.

The proposed rule would require for a certified person to check the equipment, provide a date, time and initial of such check, and record any defects and corrective measures. The rule would also require a record of defects and corrective actions for the miner-wearable component. Records would be required to be kept for a period of one year.

Peabody disagrees with providing a date, time and initials for each check, and recording the substance of the checks at intervals provided by Section 75.1733(c). Equipment is already required to be checked weekly under 30 C.F.R. Section 75.512 and records of such examinations are also required to be made and retained for a period of one year. Peabody also requires equipment operators to conduct preoperational examinations of equipment, which would suffice to address any potential concerns under the proposed rule.

II. Conclusion

Prior to the proposed rule, Peabody invested considerable time and resources into testing the use of proximity detection systems on equipment other than continuous mining machines. And while Peabody supports continuing efforts to do so, we believe that conducting additional research and testing is imperative to ensure a effective system. The current proximity detection systems are not ready for everyday use and Peabody opposes the adoption of the proposed rule until the systems are adequate and reliable.

Thank you for the opportunity to comment and we look forward to a continued role in improving miners' safety.

Very truly yours,

Charles A. Burggraf

Charles A. Burggraf