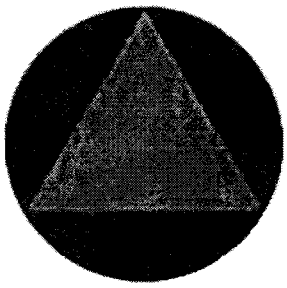
From: Hales, David <dhales@westmoreland.com>
Sent: Monday, December 24, 2018 7:31 PM
To: zzMSHA-Standards - Comments to Fed Reg Group
Subject: Comments - RIN: 1219-AB91- Docket No. MSHA - 2018-0016
Attachments: Haulage Initiative San Juan Comments.pdf

AB91-COMM-17



Westmoreland
Coal Company
San Juan Mine 1
P.O. Box 561
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December 24, 2018

Ms. Sheila McConnell
Director, Office of Standards,
Regulations and Variances
Mine Safety & Health Administration
201 12th Street South, Suite 4E401
Arlington, VA 22202-5452

Re: RIN:1219-AB91 - Docket No. MSHA-2018-0016

Dear Ms. McConnell:

San Juan Coal Company is pleased to have the opportunity to provide our comments concerning the referenced Proposed Rule to address Powered Haulage hazards.

The mine has experience with using some of the equipment described in the RFI and has provided comments based upon that experience.

San Juan Coal Company appreciates the opportunity to provide these comments and look forward to having this information entered into the rulemaking record.

If there are comments, questions or a need for additional information, please feel free to contact me at (505) 598- 2153.

Sincerely,

David Hales
Safety Manager
San Juan Coal Company

cc: Chris Roop - Miner's Representative, IUOE Local 953

RIN: 1219-AB91

Docket No. MSHA-2018-0016

Comments from San Juan Mine 1 - I. D. No. 29-02170

Section A. Seatbelts

A.1 - What are the advantages, disadvantages, and costs associated with a seatbelt interlock system?

San Juan Response: The answer to this question would depend upon what level of interlock is being required. If it is a simple system such as those required in the US auto industry, where an annoying alarm is used if the vehicle is operated without buckling the seatbelt the costs would be significantly smaller than a system that shuts down the engine or won't start until the belt is fastened. Disadvantages of both would be the ease of defeating or fooling the system because until our industry takes on the human behavior side of this equation, that will be the approach of far too many miners. Just this year the industry has seen multiple incidents where the cause of the fatality was failure to wear that seatbelt. The proven, most effective protection for human life when operating a mobile vehicle, whether at work or elsewhere is to buckle that seatbelt. Buckling that seatbelt does not cost a dime yet not using them is far too common of a factor in mobile equipment fatalities. I find it very interesting that in other countries, Australia as an example, if a miner's individual actions or lack of action was the cause of a serious injury or fatality, there are individual potentially criminal consequences for that miner. Those consequences also exist for the mine management as well. In the US, the buck stops with the Mine Operator. The fatalities this year and in other years have all too often been the choice of that individual miner. Behavioral scientists know that the likelihood of consequences affects behavior. I believe that the knowledge of personal responsibility and the real possibility of serious personal consequences is a factor in the smaller fatality rates in the Australian coal mining industry.

A.2 - Are seatbelt interlock systems available that could be retrofitted, and if so, onto which types of machines and how? What are the costs associated with retrofitting machines with these systems?

San Juan Response: A previous operator of San Juan Coal Company was involved in a trial of some In-Vehicle Monitoring Systems on a variety of equipment at the mine. Almost all of it installed through a retrofit. That approach proved more costly and much harder to maintain than would have been the case if installed during initial manufacture. That IVMS system,, installed at a cost of nearly $3 million, did not include any large haulage equipment. The system included driving behavior monitoring such as adherence to speed limits, hard braking, rapid acceleration, etc. That system proved so unreliable that it was scrapped within less than 3 years because the data collected was not accurate and the resources required to keep the system operating and managing/investigating the data being collected was a much greater component than planned. Our approach for these systems was that they were safety systems and if there was a defect in them, the equipment was downed until it was repaired. Other users of this type of system would simply bypass or ignore the system failures and operate the equipment anyway. The system deployed at San Juan was available with various communication platforms such as satellite, wi-fi or cellular. The system had onboard alerts that for example, if a seatbelt was not fastened, there would be a buzzer sounding. If the vehicle continued to move there would eventually be a verbal coaching/reminder to fasten the seatbelt. The system did not have the capability of shutting down or disabling the unit, just provided alerts to the operator first and if not corrected, it would log a violation. There was a delay in obtaining any specifics about a violation. In some cases, it would not make it to a management person for as much as 3 days. In far too many cases, the investigation would reveal that the monitoring component was not accurately detecting the seatbelt fastener. Some users of the system reported operators actually figuring out how to disable

the system by removing a small magnet from the connector. This kind of action is the result of not having sufficient consequences for their behavior.

A.3 - Are some types of mobile equipment unsuited for use with seatbelt interlock systems, and if so, which machines and why?

San Juan Mine Response: Similar to the answer to A.1, the answer to this question depends on how far the interlock capability is taken with regard to engine shutdown or blocking an engine from starting until the belt is buckled. With another regulation requiring the operator of all surface mobile equipment to maintain control of their equipment at all times, an interlock that shuts the machine down, during operation, would put that operator in violation of the standard because the machine took control away from the operator. We continue to advocate that this safety issue cannot be completely addressed by such devices. We are not opposed to adding additional safeties as added insurance, we just advocate including some element to drive a change in risk tolerance and unsafe behavior.

Many companies, including this one, have established Cardinal Rules or Life Safety Rules and are investigating breaches vigorously. Such companies have established swift, sure, consistent consequences for breaches. The use of seatbelts during operation of all types of equipment on site is one of those life safety rules at this mine. The program includes training about the rules and the importance of those rules to ensuring safety. It also includes training on what an employee can expect if they are involved in a breach of the rules. This company and the representatives of the labor organization have prepared a joint Position regarding adherence to these life safety rules. That step has been a huge help in improving human behavior and eliminating the breaches of those and other safety rules.

A.4 - Reliability is the ability of a system to perform repeatedly with the same result. Please provide information on how to determine the reliability of seatbelt interlock systems.

San Juan Mine Response: As stated in A.2, our experience with the reliability and resources required to keep the systems functional was that the system required technically skilled personnel to be available at all times to keep the fleet operating. Defects were variable and included hardware issues on the vehicles as well as software or communication issues. We found that our response to operator problems was very reactive and often being triggered by inaccurate data from the system. Access to the information was limited and caused delays in dealing with improper operator behavior in a timely manner.

A.5 - What are the advantages, disadvantages, and costs associated with these warning devices?

San Juan Mine Response: We believe that the more appropriate question is what does the industry want to achieve with the systems? As with any other challenge, we must begin with the end in mind. What does success look like? It is likely that a very simple system could be devised that could monitor seatbelt usage and provide audible and visual alarms onboard the machine, similar to those installed in passenger vehicles on the US highways. The same human behavioral issues exist on the highways and at the mines. Fatalities are occurring each year, in each of these areas, because the victims were not wearing their seatbelt. That risk acceptance is the real issue to resolve, not the lack of an interlock system.

Section B. Collision Warning Systems and Collision Avoidance Systems.

B.6 - What are the advantages, disadvantages, and costs associated with collision warning systems and collision avoidance systems?

San Juan Response: When there is success in developing a mine-survivable, 100% reliable system, there will be definite advantages. Such a system would contribute to a reduction in property damage and vehicle maintenance costs as well as the human safety aspect. The problem we face is-well defined in this excerpt taken from an article on the topic. The article

was published by a large international mining company and shares these thoughts; "Our assessments identified potential improvements through implementing further controls at the higher end of the hierarchy of controls, ensuring a greater focus on road design and the separation of mobile equipment and light vehicles. Work is ongoing across our open-cut operations to implement these improvements." unquote.

There is currently minimal use of proximity detection and collision avoidance systems, although this technology is still advancing.

Our thoughts on this topic are influenced by the same risk assessment and risk management approach. We too have taken an approach to separate large mobile equipment from small light vehicles, rather than having them share the same road.

Because a mine can be such a terrible research laboratory due to the dynamic nature of the environment, we believe there is a tremendous opportunity for a Stakeholder Partnership to participate in furthering this technology so that when it reaches the mine. It will perform as expected.

If imposed before the technology is ready, and we have not dealt with the human behavior aspect around risk tolerance, miners will devise ways to work around the system, defeating its effectiveness in managing the risk.

The success of the current safety and health research partnerships should drive further use of this approach to such leaps in technology. When manufacturers, MSHA, NIOSH and mine operators pool resources, there can be significant progress made.

We encourage the Secretary to avoid the "technology-forcing regulation" approach. Avoid imposing a standard requiring something that does not exist, hoping it will prompt someone to invent it.

B.7 - Please provide information on how collision warning systems and collision avoidance systems can protect miners, e.g., warning, stopping the equipment, or other protection. Include your rationale. Include successes or failures, if applicable.

San Juan Mine Response: Collision warning systems have the potential to detect if a light vehicle or other obstacle is located within the detection zone for the system. That ability could alert an operator of a parked unit if something had pulled into their zone. That capability is also there if the operator walks around the unit prior to boarding.

Collision avoidance systems could actually produce hazards during inclement weather. A sudden steering correction or braking during wet conditions could cause the operator to lose control of that equipment, in violation of the law.

B.8 - What types of mobile equipment can, and should, be equipped with collision warning and collision avoidance systems? For example, systems that work well on haul trucks may not work well on other mobile equipment; certain types of equipment may be more likely to be used near smaller vehicles; or some types of equipment may have larger blind areas.

San Juan Mine Response: Clearly the USDOT and auto manufacturers have concluded that use of collision sensors, automatic braking, lane detection and blind spot sensors along with other new technologies are providing sufficient benefit to expand the use. The fear with this is that it will drive even more of the behavioral issues we face today.

A driver can take the approach that they don't need to look before reversing or look before changing lanes, because they are relying on the technology. Multiple fatal accidents have occurred in the past couple of years involving self-driving cars for just that reason. The driver bet their life on the technology and lost. That can happen at the mine as well if human behavior is not part of the equation.

B.9 - Collision warning systems and collision avoidance systems may require multiple technologies that combine positioning/location, obstacle detection, path prediction, peer-to-peer communication, or alarm functions. What combination of technologies would be most effective in surface mining conditions? Please provide your rationale.

San Juan Mine Response: This question highlights one of the biggest challenges we in the industry must face. The prescriptive nature of our regulatory processes is constantly trying to achieve a 1-size fits all solution for all hazards. The reality is that the combinations of technology needed at one mine will be vastly different at another.

This question also identifies additional technologies that in today's world could cause the equipment operator to be in violation of the law by their not "maintaining control of their equipment at all times."

As previously stated, the USDOT and auto manufacturers obviously have concluded that use of collision sensors, automatic braking, lane detection and blind spot sensors along with other new technologies are providing sufficient benefit to expand the use. The fear with this is that it will drive even more of the behavioral issues we face today. A driver can take the approach that they don't need to look because they are relying on the technology. Multiple fatal accidents have occurred in the past couple of years involving self-driving cars for just that reason. The driver bet their life on the technology and lost. That can happen at the mine as well.

B.10 - Please describe situations, if any, in which it would be appropriate to use a collision warning system rather than a collision avoidance system.

San Juan Mine Response: This is would be ideal to test and refine through that Stakeholder Partnership method. Systems could be beta-tested at a variety of mine locations and assist with refining the knowledge of how the system is going to perform and can identify issues that were not previously known.

San Juan Mine is an example when one looks in to mobile equipment proximity detection systems. Beginning in 2015 a partnership between NIOSH/MSHA and an equipment manufacturer began. This partnership was for installation of proximity detection systems on some battery-powered coal haulers in our underground mine. During the installation and testing process we began to identify some significant issues. The system at that time was very nearly incompatible with the conditions in the mine. Materials required for roof and rib support were causing interference with the system performance. This interference was severe enough that we were able to demonstrate that a coal hauler could run over a locator. A miner wears that locator during normal operations. This simulated test result surprised the manufacturers of both the coal hauler and proximity detection system. San Juan was determined to make the system work and spent nearly a year refining the configuration so that it could remain in service. Not every operation would have the resources necessary to carry out such a project.

Imagine what could have happened if that mobile proximity detection system had been imposed upon the mining industry before this challenge had been fully explored and understood. Most likely the industry would have learned about it by experiencing a fatality due to the interference issue.

B.11 - Please describe any differences between a surface coal environment and a surface metal and nonmetal environment that would influence your response to the questions above.

San Juan Mine Response: The challenges posed by differences in mines will exist in both segments of the mining industry. The Stakeholder Partnership method could be enhanced by involving both of those segments.

Section C Highwall and Dump Points

C.12. Which technologies or systems can prevent highwall and dump point overtravel? Please describe the advantages, disadvantages, and costs associated with these technologies or systems.

San Juan Mine Response: Over 10 years ago our assessments identified potential improvements through implementing controls at the dumps, using the higher end of the hierarchy of controls, ensuring a greater focus on practices as well as dump or stockpile designs. Haul trucks dump short and the material is pushed over by dozers rather than dumping over the highwall. It is another area where there is separation of mobile equipment and light vehicles.

C.13. Many surface mines use GPS on equipment for tracking, dispatching, and positioning. How can these systems be used to provide equipment operators better information on their location with respect to highwall or dump points?

San Juan Mine Response: The variability in data-refresh on some of these systems could provide outdated information and result in the operator thinking they are farther back from the edge of the dump, potentially causing them to go over the dump. That could be especially true if they are relying on just the technology and not making their own observations. That data transfer rate can vary in different areas of the country and in different mines.

Some operators might elect to utilize remote controlled dozers in these applications rather than the other systems. That method actually separates the miner from the hazard.

C.14. What are the advantages, disadvantages, and costs associated with ground and aerial markers?

Section D. Autonomous Mobile Equipment

D.15. Please identify the types of autonomous mobile equipment in use at surface mines.

San Juan Mine Response: At the mine sites I am only aware of some large autonomous haul trucks in use today. One large international company is testing an autonomous train though.

D.16. Please describe the advantages and disadvantages associated with autonomous mobile equipment.

San Juan Mine Response: An advantage could be to remove the miner from the truck and the health and safety risks that unit presents to an operator.

The disadvantage is the increased risk imposed upon the rest of the miners in the work area and no means of conducting an E-stop if the automation malfunctions.

D.17. Please provide information related to any experience with testing or implementing autonomous mobile equipment, including costs and benefits.

San Juan Mine Response: Several years ago a sister operation participated with an equipment manufacturer and MSHA in testing and refining an autonomous truck fleet. That test was conducted at a large surface mine and took place in a work area dedicated to just this test. During the trial, each truck had a human operator onboard in case an emergency stop was required. During this testing there was one incident where a truck that had been parked, started up and traveled across one area to another before it could be shut down. MSHA investigated that incident. There may be an investigation report that could provide further details about what the investigation turned up.

Mining industry publications report that the numbers of autonomous trucks is increasing, primarily in Australia.

Section E. Belt Conveyors

E.18. What technologies are available that could provide additional protections from accidents related to working near or around belt conveyors?

San Juan Response: A short presentation was provided by NIOSH/OMSHR at a recent Stakeholder/Partnership meeting at the Pittsburgh Research Center. The presenter provided brief information about several new technologies that are under development. These included monitoring of power circuits, monitoring of lock-out points and others. The systems looked promising. This is another area where the use of a Partnership would provide an invaluable process for developing and even testing of such systems.

Can these technologies be used in surface and underground mines?

San Juan Mine Response: Various factors could influence the answer to this question. Where is the technology being deployed, in relation to returns, last open x-cuts, distance from the worked out areas? Location could drive a need to install it in explosion proof containment.

We are not opposed to adding additional safeties as added insurance, we just advocate including some element to drive a change in risk tolerance and unsafe behavior. In several of the fatalities, this year a choice by the miner was one of the root causes. In one, the miner fell on the belt while trying to cross, then hit their head on the crossover located 10 feet outby. Changing the level of risk tolerance among miners has to be a component of this overall initiative in order for it to be successful.

E.19. Please provide information related to any experience with testing or implementing systems that sense a miner's presence in hazardous locations; ensure that machine guards are properly secured in place; and/or ensure machines are properly locked out and tagged out during maintenance. Please also include information and data on the costs and benefits associated with these systems.

San Juan Mine Response: There are components and equipment in the mines now that utilize interlocks. Lid switches on power centers. Interlock switches on permissible enclosures, etc. That use could be expanded.

Systems to detect the presence of miners have been deployed on continuous miners and some mobile equipment. We have previously discussed the issues seen with the performance of those systems. Interference will impact those as well.

Section F. Training and Technical Assistance

F.20. Please provide suggestions on how training can increase seatbelt use and improve equipment operators' awareness of hazards at the mine site.

San Juan Mine Response:The example of Cardinal Rule and Life Safety Rules that we provided earlier is something an operator could implement. The rollouts for those programs included detailed training about why the rules were necessary and what miners could expect if there were breaches. There were some breaches in the early stages of implementation. Such breaches were investigated thoroughly and the corrective actions were swift and consistent. Those breaches are no longer an issue. Individual responsibility and accountability is a key factor.

F.21. Please provide suggestions on how training can ensure that miners lock and tag conveyor belts before performing maintenance work.

San Juan Mine Response:The example of Cardinal Rule and Life Safety Rules that we provided earlier is applicable to this request.

San Juan Mine appreciates the opportunity to provide these comments and look forward to having this information entered into the rulemaking record.