

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

PUBLIC HEARING ON PROXIMITY DETECTION SYSTEMS FOR
MOBILE MACHINES IN UNDERGROUND MINES

Birmingham, Alabama
Thursday, October 8, 2015

PARTICIPANTS:

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C O N T E N T S

HEARING EXHIBITS:

No. 1 - Photographs

No. 2 - Photographs

No. 3 - DVD Presentation

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P R O C E E D I N G S

(9:00 a.m.)

MS. McCONNELL: Good morning, everyone. If you will kindly have your seats we will start this hearing. Can everyone hear me? Can you hear me now? Good morning. My name is Sheila McConnell. I am the acting director for the Office of Standards Regulations and Variances for the Mine Safety and Health Administration. I will be the moderator for this public hearing on MSHA's proposed rule on proximity detection systems for mobile machines in underground mines. On behalf of the assistant secretary for MSHA, Joseph A. Main, I want to welcome all of you here today and thank you for your attendance and participation.

I would like to introduce the members of the MSHA panel. On my left is Rodney Adamson from the Coal Mine Safety and Health. Next to Rodney is Emily Toler from our Office of Solicitors, and on my right is Wesley Shumaker, Approval and Certification trainer and technical support.

I would also like to introduce Debra

Janes in the back of the room. She's in the audience. She works for MSHA's Office of Standards.

MSHA's holding four public hearings on its proposed rule for proximity detection systems. This is the second. We held a hearing in Denver on Tuesday and the remaining hearings will be on the 19th in Beaver, West Virginia, and in Indianapolis on October 29th.

The purpose of this is hearing is to receive information from the public that will help MSHA evaluate the proposed requirements and produce a final rule that will improve safety conditions at underground coal mines.

As most of you know, the formal -- as most of you know, the hearings are conducted in an informal matter. Formal rules of evidence do not apply. The hearing panel may ask questions of speakers and the speakers may ask questions of the panel. Speakers and other attendees may present information to the court reporter for inclusion into the rulemaking record. MSHA will accept

written comments and other appropriate information for the record from any interested party, including those presenting oral statements.

We have asked everyone to sign the attendance sheets in the back of the room. Before we discuss specific issues and hear from you, I want to reiterate why we are proposing this rule.

From 2010 to 2014, 41 pinning, crushing, or striking accidents involving coal hauling machines and scoops occurred in underground coal mines, injuries that may have been prevented by the use of proximity detection systems on coal hauling machines and scoops. Nine of these accidents were fatal. MSHA published a final rule of proximity detection systems for continuous mining machines in underground coal mines on January 15th, 2015. The final rule addressed equipping place changing continuous mining machines with proximity detection systems. MSHA estimated that this rule will prevent, over the next 10 years, 9 deaths and 49 nonfatal injuries from pinning, crushing, and striking accidents

involving place changing continuous mining machines. This rule took effect on March 16, 2015, and will be phased in over 8 to 36 months. MSHA developed this proposed rule for other underground mobile machines to be comparable to the final requirements for the proximity detection systems on place changing continuous mining machines. The proposed rule would require a proximity detection system to stop the machine before contacting a miner and provide audible and visual warnings on the miner-wearable component and a visual warning on the machine before it stops. MSHA estimates that this proposed rule would prevent, over the next 10 years, 15 deaths and 70 nonfatal injuries from pinning, crushing, and striking accidents involving coal hauling machines and scoops.

MSHA published this proposed rule in the Federal Register on September 2nd; the comment period closes on December 1st this year.

MSHA intends that this proposed rule will take advantage of existing proven technology

to minimize the burden on mine operators, and will also allow for advances in proximity detection technology. We are proposing a phase-in in the use of proximity detection systems on mobile machines in underground mines - underground coal mines over 8 to 36 months just as we did for continuous mining machines. We are soliciting comments on the proposed phase-in schedule and what, if any, modifications may be needed on mobile machines already equipped with proximity detection systems.

This rule would help protect miners from striking hazards that result from working too close to mobile machines in underground coal mines. The proposal would also establish performance and maintenance requirements for proximity detection systems and would require training for miners conducting installation and maintenance of these systems.

We are requesting comments from the mining community on all aspects of the proposed rule. We are particularly interested in comments

that address alternatives to key provisions in the proposal. Commentators are requested to be specific in your comments and submit detailed rationale for suggested alternatives to: safety benefits to miners, technological and economic feasibility, considerations and supporting documentation.

At this point I would like to reiterate specific requests for comments and information that were included in the preamble to the proposed rule. The first issue relates to determining where and on which machines the use of proximity detection would be the most effective in reducing striking and crushing accidents. This proposal would require underground coal mine operators to equip coal hauling machines and scoops on the working section with proximity detection. Coal hauling machines would include shuttle cars, ram cars, and continuous haulage systems. The working section would include the areas of the coal mine from the loading point up to and including the working faces.

MSHA is requesting comments on whether other types of mobile machines, such as loading machines, roof bolting machines, and feeder breakers should be required to be equipped with proximity detection. We are also requesting information and data that would support whether or not the proposed requirements should apply to coal hauling machines and scoops used off of the working section. We are particularly interested in receiving comments on what, if any, challenges would need to be addressed when adapting proximity detection to continuous haulage systems considering the machines length and unique interaction with continuous mining machines.

The proposal would exclude longwall working sections. MSHA is requesting information and data on whether scoops and coal haulage machines cause a hazard to miners on longwall working sections and if the use of proximity could reduce or eliminate these hazards. MSHA requests that commentators, again, include specific information on any rationale for not excluding

longwall working sections, the safety benefits to miners, the cost of implementation, technological and economic feasibility considerations, and supporting data.

Since 1984, there have been five fatalities that have occurred in underground metal and nonmetal mines where the use of proximity detection could have prevented accidents. For this reason we are also requesting comments on whether the agency should require proximity detection systems on mobile machines used in underground metal and nonmetal mines and, if so, which types of machines and what time frames.

The second issue concerns the application of proximity detection system technology for use on mobile machines in confined spaces of an underground mine. MSHA's approved proximity detection systems consist of a machine-mounted component and a miner-wearable component. This proposed rule would also accommodate possible future technologies that may not require a miner-wearable component. We are

aware that the interaction of multiple machine types equipped with proximity detection may necessitate changes to work practices.

We are also aware that when a coal hauling machine equipped with proximity detection gets near a continuous mining machine with proximity, the overlap of the two protection zones may limit where miners can position themselves to remain safe and to avoid activation of warning signals and to avoid unintentionally stopping the machine.

MSHA is especially interested in comments on how the use of proximity detection and the overlap of the protection zones on multiple types of machines operating on the same working section might affect and miners' working position and equipment operation. We have proposed that the proximity detection systems provide audible and visual warnings signals on the miner- wearable component and a visual warning signal on the machine.

Mine operators often need to redirect

their attentions from the front to the rear of the machine and, in some cases, must switch seats when changing direction. As a result, a visual warning signal on the machine may not always be in the operator's direct line of sight. We are asking for comments on whether requiring audible warning signals on the machine in addition to the visual warning signals, would help ensure miners, including the machine operator, know that a miner is in the warning zone and the machine is about to stop.

MSHA also specifically requests comments on whether requiring the use of a specific warning on the machine, for example, strobe lights or LED lights or other types of visual signals, would help to ensure that the visual warning is effective in alerting miners near the machine, including the machine operator. MSHA also especially requests comments on what, if any, experience or issues have been identified that relate to the use of proximity detection systems from different manufacturers on the same working

section or to the use of a single miner-wearable component with proximity detection systems from different manufacturers or different models from the same manufacturer.

As you address the proposed provisions either in your testimony today or in your written comments, please be specific. We cannot sufficiently evaluate general comments. Include comments on the estimated benefits and costs that are summarized in our preamble as well as in our preliminary regulatory economic analysis. Specific information, again, allows us to produce a final rule that is responsive to the needs and the concerns of the mining public.

MSHA will make available a verbatim transcript of this public hearing in about two weeks after the completion of the hearing. You may view the transcript of all public hearings and comments on MSHA's website, MSHA.gov, and on regulations.gov. If you have any submissions, please give those to the court reporter so they can be amended to the hearing transcript for

today. Following the hearing you may submit additional comments using one of the methods identified in the address section portion of the proposed rule. Comments, again, must be received by December 1, 2015.

If you have not signed in at the attendance sheet, please do so now. Before we go on with the hearing I do want to announce one more thing. I'd like to encourage you also to attend a public meeting on refuge alternatives for underground coal mining. This meeting will follow a public hearing on proximity detection in Beaver, West Virginia, on October 19th. The public meeting on refuge alternatives will begin at 1:00 p.m.

At this public meeting we are hoping to gather information on two critical issues relevant to miners: Escape and refuge. These issues are, one, impediments to the use of built in place refuges and, two, enhanced two-way voice communication when using escape breathing devices. So that's just an announcement for another public

hearing we're having on refuge alternatives on the 19th.

So now I would like to say we will begin hearing testimony and if you have a copy of your presentation, provide it to the court reporter. When you come to the table please clearly state your name and organization and spell your name for the court reporter to make certain we obtain an accurate transcript.

Our first speaker is Thomas Wilson.

MR. WILSON: Good morning, ma'am.

MS. McCONNELL: Good morning, sir.

MR. WILSON: My name is Thomas F. Wilson, T-H-O-M-A-S, middle initial F as in Frederick, Wilson, W- I-L-S-O-N.

I know that the -- I'm an international representative for the United Mine Workers of America. I know that the UMWA International has already spoken in favor of this proposed rule. I also echo those previous comments made by Linda Raisovich Parsons in Denver, Colorado. Just for the record I know Linda was scheduled to speak

here today and, unfortunately, she was admitted to one of our local hospitals last night. I spoke with her this morning and they're still running tests.

MS. McCONNELL: Well, please tell Linda our thoughts and prayers are with her.

MR. WILSON: Appreciate that. I sincerely regret the accident history that brought us to today's hearing on this proposed rule. I'm sure many will object as always to any new rules or advancement in safety. I want to encourage this panel to remember that the miner has no control of a few things that leads us to these accidents. The size of equipment that's being used in coal mines, the miner has no control over that. The amount of material hauled on the equipment, again the miner has no control over that.

Directives given to the miner as to when and where to locate themselves around the equipment, often the miner has no control over that.

I have observed in my career equipment operators virtually driving blind because of the material, cameras put on the equipment that then the mud covers the camera, and we just find ourselves in tough situations, dangerous situations because of, again, the size and the amount of material. And as those comments come in I would encourage all to instead of just being against something, we owe it to the families, we owe it to the miners to eliminate these type of injuries, these type of fatalities.

I have a memory of a -- in recent years, of an accident in West Virginia where the miner was actually caught by the piece of equipment. The operator didn't even know that he had struck a miner and it was much later in the shift when they actually found the remains. And those are just tragic preventable accidents, and proximity seems to be the best thing out there to prevent these type of fatalities.

I do want to address the exemption clause. I believe that the scoops and

versa-tracks on our longwalls and in outby areas of the mines need to be included in the regulations.

I'm approaching 40 years in the industry and those 40 years have demonstrated that the likelihood of injury on a long wall or in an outby area is equal to or if not greater than on a working section.

MS. McCONNELL: Will you be able to provide any type of supporting data or information on your request to include long wall sections and those sections on off the working section?

MR. WILSON: No, just the fact that, I mean, the scenarios and how we use that equipment is -- there's no difference. I also want to rise in support of the rule being expanded to cover metal and nonmetal mines. Those miners' lives, those accidents are equally as tragic as coal, and, you know, if the system works then we need to apply it.

MS. McCONNELL: Are you recommending any particular type of machine or all machines or for

metal, nonmetal underground mines?

MR. WILSON: Again, haulage, the scoops, the versa-tracks, the front-end loaders. I do believe that the training is going to have to be, in my mind, really intensified on the front end as -- I mean, you've got to -- with the proximity systems on the continuous miners just coming in, we've got a large learning curve to go through to make all this work. And I believe MSHA has a large learning curve to go through as well as the operators and the miners.

So I would be in favor of an increased training initially and maybe once things get in place and we all know what we're doing, then we could back off on that training some. We definitely need increased training because there's a lot of uncertainty, a lot of reservations about where we're at and what this rule would do. I have no other comments.

MS. McCONNELL: Well, thank you very much, Mr. Wilson. I don't have any other questions. Questions from the panel?

MR. WILSON: Thank you.

MS. McCONNELL: Thank you very much.

Our next speaker is Dwight Cable, UMWA. I'm sorry, Mr. Cagle, I mispronounced your last name.

MR. CAGLE: Cagle.

MS. McCONNELL: Cagle. Thank you. And if you could say your name and spell it for the court reporter.

MR. CAGLE: Dwight, D-W-I-G-H-T, Cagle, C-A-G-L-E, Local 2397 UMWA, District 20, and I work at the (inaudible) resources on the 7 mines.

MS. McCONNELL: Whenever you're ready.

MR. CAGLE: Okay. Your printout showed that the proximity detection system was from the ram cars, machines, scoops, ram, low track. I know since '84 to 2013 by your printout that 75 preventable fatalities resulted from pinning, crushing, and striking accidents. Thirty-four of those were associated with continuous miners and that leaves 41 remainders. Some of these accidents, like I said, I've been working in the mines for over 41 years, so I've been on Safety

Committee 37 years. Some of them I investigated a lot of accidents myself and some of them I was aware of, such as unloading supplies with a scoop.

During some of this investigation we found that the trams -- the scoop in some of the older models. And all this was replaced (inaudible) hole drives, so we took care of most of that. And one of these that I was aware of was a fatality. Two of them their legs was cut off. One of them died later on this fatality and one of them that I was aware of a man was run over with a scoop and that happened at one of the four mines that I worked at. Working in the past, to be involved in these investigations I found out. And how would that proximity protect this is one of the questions I wanted to ask?

Malfunction of the equipment itself and on the scoop itself, what we got what you call a service crew. They got 8 to 10 foot holes that they -- once they service (inaudible) blows rock dust in the face. And I think on the printout there it was 10 foot you got to be from the

machines. Then we have another service crew member pouring the dust into the hopper. They had a lot of changes we're going to have to do in order to put this rule in. And I think that we need more investigation on this equipment. We need you to come down and to observe what really goes on during operation of this because we got, again, the scoop itself, changing batteries, it still takes two people. I don't know how we going to work that. You know everyday mining, they need to come down and see what really goes on in order to put these proximity switches on.

Coal haulers - I don't have any questions on that. The overlap of the protection zone, how are we going to prevent that? Say we got a scoop guy that's going to service the roof bolter pinning machine, got a lot of questions that need to be answered before. Which I'm in favor of some kind of protection, you know, but a lot of questions need to be answered before we do this and a little more investigation.

Still like the miner I know we got to

make it, one and two installed, and so far we had a lot of problems with making (inaudible) 1 and 2. And I think the first one straddled the miner(inaudible), but in order to, you know, put this in, a lot of stuff we got to get straightened out before we put it in. Training, such as training. Is this training going to be involved in given as an annual refresher? Right now everything you need fits into the eight-hours and it's full. That eight hours is full. It's going to be separate training, got a lot of questions and some answers at this time. If we're going to put this rule in we'll need a little more evaluation on the equipment, what type of equipment, how many people's involved in the operation of this equipment.

Like I said, there's been all these fatalities that I was personally involved in. Well, I know the feeder, okay. In District 20 we lost a man that went through the feeder. What happened? There was laws already in place to protect that. Proximity, I don't know how we

would mount a proximity switch and protect a man from going through the feeder.

Same way we had a man go through a crusher on the long wall. And the law was involved on it. How is that going to prevent him from going through this? This happened. These are the cases that I know about. A lot of unanswered questions and, like I said, we need to have examine this more thorough.

MS. McCONNELL: Well, the feeder right now is not covered by this proposed rule.

MR. CAGLE: Ma'am?

MS. McCONNELL: The feeder would not be covered by this proposed rule at this time.

MR. CAGLE: It would not be?

MS. McCONNELL: No.

MR. CAGLE: Just like I said, there's a lot of stuff that we need to do a little more investigations on. Training, like I said, with MSHA and mine operators and the miners themselves because, like I said, that scoop, that's one of the pieces that they use round the clock, eight

hours a day, the whole shift, and it's a lot of jobs that the scoop does and usually it's three people in involved.

MS. McCONNELL: So in your experiences, though, have you seen any instances where a detection system could have prevented an accident?

MR. CAGLE: Man getting run over, yes, it could have prevented that, yes, that system up. On the tram sticking, like I said, three cases that I know about, malfunction of the equipment. I don't know if the proximity switch would have stopped it or not, but check back through the accident history you'll find a little bit more than what I know about. But there's a lot of stuff got to be worked out before, like on the scoop, a lot of stuff's got to be worked out. Go down and observe the working and the environment, which, like I said, I am for the system, but it needs some more investigation on how we're going to do this.

MS. McCONNELL: Okay.

MR. CAGLE: Thank you.

MS. McCONNELL: Thank you.

MR. CAGLE: Any questions?

MS. McCONNELL: I think we're good.

Thank you for your testimony. Your concerns are noted. Mr. Cagle was our last signed speaker. Is there anyone who hadn't signed up that would like to speak and talk about the proposed rule, their experiences with proximity detection? This would be a good time to come up and talk.

Okay. Come on up.

MR. SMITH: Name is Glenn Smith, G-L-E-N- N, S-M-I-T-H, Walker Energy No. 709. The only comment I would like to make in regards to the proximity is we've got it on our continuous miners now, so we've got, as Mr. Cagle stated, we've got both the generation one matrix JOY and generation two, issues with it. There are still issues with it. We -- the first system that we had was a Strata system. We never could make it work. I understand they've got their problems corrected now. But prior to enacting anything that's put on the machines, these systems need to

be perfected. There are still too ways for the miners to defeat these systems.

MS. McCONNELL: Could you please give us a couple of examples of those issues you see day-to-day?

MR. SMITH: Well, the Generation 1, they could -- they would find places where they could actually hang it and still operate the machine. Same thing with Generation 2. So if you're going to put them on them, make sure they work.

And you can call it a discipline problem, you can call it management problem, you can call it whatever you want, but there's not a person sitting in this room who doesn't have children that you discipline. Did they ever do anything that you told them not to? You're driving down the interstate and the speed limit is 65, do you run 70? Do you? I do. You do, too. Everybody in this room does. So that's going to happen.

MS. McCONNELL: I will agree to not.

MR. SMITH: I'm just asking to make sure

they work. That's all I've got to say. Thank you.

MS. McCONNELL: Okay. Thank you, Mr. Smith. We're only going to learn about this if you guys come on down and tell us what your experiences are. Oh, great. Thank you.

MR. PLYLAR: Good morning.

MS. McCONNELL: Good morning, sir.

MR. PLYLAR: Thanks for the opportunity to address you with this issue. My name Keith Plylar, K- E-I-T-H, P-L-Y-L-A-R. I come to you this morning and I've been an advocate for safety of the miners for 25+ years.

MS. McCONNELL: You are with?

MR. PLYLAR: I am with Jim Walter Resources, number 7 mine. I'm the safety manager at the present time, been involved with the labor force over the years and safety along with the operator. I come to you today to tell you there's no doubt we need to continue to try to enhance the safety of the miners. That should be our sole goal to anyone working in the safety field. But

in doing that we need to make sure that we do it carefully and that we plan out and have a system that will work. I think the worst thing that we can do is the safety people out here in the community, mining community, is to start throwing stuff on equipment expecting it to do something that it will not do, all right.

At our mine site we jumped ahead of the regulations on the miner as far as putting the proximity device on them. Then we went and we spent several thousand dollars -- several thousands -- putting the Generation 1 on it. Come to find out there was flaws in it and then when the regulations came out, there's no way that the Generation 1 would comply with the regulations as written because it wouldn't accept all the badges, the multiple badges. So now, in the process we went and put some Generations 2s on our miners, trying to get them equipped. So a new miner that came in prior to the reg actually coming into effect to try to protect our miners.

And as I hear today there's a Generation

coming out of this Matrix system, so what I'm finding out from our maintenance people there's not going to be a lot of different changes in it, hopefully, but we don't know. So I guess I come to you today to say it's kind of like Brother Cagle spoke on, too, is that we need to make sure that we have experience with this equipment, not just take what we've seen in Australia or some other country. We actually need some of these systems in the mining industry and people down there observing to see how they work and put them on our actual machines.

The fear I have is, especially in the economy now -- and when it comes to safety I don't look at dollars, but in the economy today I've got to the look at wasting money in our operations. We come out and we start throw an Strata system, a matrix system or another system, and then it not work, that's thousands of dollars that we spent. And besides the money, you give the miners a false hope that they've got something on their piece of equipment that's going to keep them from being

injured and then the training you've got to do with them over the years to tell them to stay out of these red zones of any equipment, not only miners, they can come to the conclusion, well, I'm protected. If I get into this area my badge is going to go off and that machine is going to shut down, and then the technology not work as designed.

So I would like to see some more demonstrations in the mining industry here in the United States and the different types of mining. Because I know there's low coal, there's high coal, what we call low coal/high coal, and different conditions. And I think there needs to more, I guess, tests and trials, you know, in this mining industry to see if the system works. In three years or four years, you mandate something to be there, if the technology is not there and we've just spent thousands of dollars, we still haven't met our goal. We should be trying to protect the miners as much as we can.

MS. McCONNELL: So my understanding is

that at your mine you do not have any proximity on any of your mobile equipment other than the continuous miner.

MR. PLYLAR: That is correct. We have a Generation 1 and Generation 2 matrix system on our miners.

MS. McCONNELL: So your concerns are based on your experience with proximity on your continuous miners?

MR. PLYLAR: Yes, ma'am.

MS. McCONNELL: And how that's going to translate to multiple machines on the working section with these systems on it?

MR. PLYLAR: Yes, ma'am. And the other question I guess I have and don't know, if we come out and we have to put a totally different system, say we have go away from the matrix and put another system on your scoops or your shifters, are they going to coincide? Are they going to work, too?

MS. McCONNELL: Two different manufacturing systems, right.

MR. PLYLAR: Right. So then you could be into having to take what you've already got installed on your machines, all them, and put another system on, too. So there's a lot of unknowns out there. I definitely by no means think the ball should be dropped. I think we definitely need -- we're headed in the right direction because it is something to protect the miners and I definitely think all the resources that's available needs to be put in that area. But to put a mandate on something that we don't know that will work yet is kind of like a miner -- we didn't even know -- as far as I know the MSHA or whoever does the regulations wasn't even aware of the Generation 1 matrix system on the miners not accepting multiple badges until we had a hearing. Okay. And I understand that's what hearings are for, but, also, you need to be out in field. And I think that Brother Cagle talked about looking at people's positions and looking at what they're doing before we just throw off a mandate, you know, tech support and (inaudible)

and a lot of people out there that could really get a lot of information at this point in the mines and actually looking at the working practices.

And that's all I have.

MS. McCONNELL: I don't have any additional questions. Questions?

Mr. Adamson would like you to explain in detail your experiences with how PDS in general doesn't work. He wants you to talk about some of the issues that you've had with your Gen 2 Matrix system, like specifics.

MR. PLYLAR: And I can't get into the specifics. I'm not in the maintenance background of it, but I know that they've had to change out not only your badges several times, but also on the on-board system that they have. And like I said, the Gen 1 definitely won't accept but two to three badges at the max, so we started trying to put badges on all the systems, it's not available and will not work.

MS. McCONNELL: I'm actually more

curious about what are the problems with your badges on your Gen 2s?

MR. PLYLAR: And I couldn't get into details with you because I'm not in that maintenance field of it. I could get you some of the managers information, I can give you a contact or get a number from you and have someone contact you out of our maintenance that does work on them because I'm not in the day-to-day operations of the maintenance. Thank you.

MS. McCONNELL: Thank you, sir. Our next speaker is Mr. James Blankenship.

Good morning, sir.

MR. BLANKENSHIP: Good morning. How you all doing?

MS. McCONNELL: I'm doing fine. How are you?

MR. BLANKENSHIP: Doing good.

MS. McCONNELL: Could you state your name for the record and spell it for the court reporter?

MR. BLANKENSHIP: James Blankenship,

J-A- M-E-S, B-L-A-N-K-E-N-S-H-I-P. Just a minute.
It's kind of hard working one-handed.

MS. McCONNELL: I know, I noticed.
Don't rush.

MR. BLANKENSHIP: First, let me thank you for coming to Birmingham, Alabama, to hold these hearings. We appreciate you coming down here. I'd like to comment on whether the proposed requirements to require any mobile machines other than coal hauling machines and scoops in use on or off working sections and also whether the proposal requirements to supply the coal hauling machine and scoops in use on and off sections.

As you're well aware, there are more mobile machines than just coal haulers and scoops, the low tracks, the maintenance (phonetic) tracks, backhoes, front-end loaders, and several different types of mobile powered machines all through the coal mines. They're making small equipment to get them where they can take them on the belt lines to help clean the belts, help them haul the belt rollers and stuff into confined areas.

These machines work in areas other than working sections. They work all over the mines, from the drip (phonetic) mouth to the bottom of the cage, all the way into the mouth of the sections. They work in areas where there's not a lot of room due to the fact that they might be on the belt line, areas where the stationary equipment such as power extension pumps sit, where they're confined. The types of areas where there's a lot of -- where's not a lot of room to maneuver. There are a lot of pinch points, which increases the likelihood of a pinning or crushing or striking fatality or injury.

In MSHA's report from 1984 through 2014, there 2 fatalities and 29 accidents involving coal haulers and scoops in areas off working sections. What report does not say is how many accidents were caused by equipment I mentioned above, which was low tracks, megatracks, that type of equipment. It says scoops and coal haulers. We don't know what this equipment is doing to miners. Any time you put a machine in a confined area with

a human being, you've increased the odds dramatically for a fatality or an accident.

Members of panel, the way to decrease the odds dramatically is to require proximity detection systems on all mobile machinery, for that machine used on working sections, long walls, or outby areas. By doing this we'll guarantee that when that machine and the human being comes close enough that harm could be done to that human being, that that machine will shut down. A machine that will not run, that cannot run, cannot injure or kill a worker. If you save one life by putting proximity detection systems on all mobile machinery, then it's worth every penny you've spent on it.

I heard the speaker before me talk about cost and problems. When we went to remote miners we had problems, but had to work the kinks out of them. We had two different sets of remotes. We had to work through that. We have to do the same thing with this. We can do that, but to keep putting it off until we get it perfect is not the

answer. To say we're going to the wait until we get it perfect to bring it underground is not the answer. We've got men and women who work in these coal mines' outby that working sections that are in harm's way. In the confined areas you've got a belt line in the entry and you've got timbers down that entry way and you've got a piece of equipment in there being operated and people around that equipment. We need to protect those people. We can do that by putting those proximity detectors on that equipment.

I'd also like to comment on a couple more items if it's okay. While we're on that part of it, I'd like to comment on the proximity detection systems on the machinery and metal and nonmetal mines, also.

If you looked at the fatality certificates on MSHA's website, there were 15 fatalities in metal and nonmetal mines. Four of those fatalities, in my opinion, by looking at them and researching and reading the reports, could have been prevented by proximity detection

systems.

There's four families that wouldn't be suffering today because it was machinery where people, workers were pinch, smashed, or crushed by machines. Four. Four lives would have been saved, four families, four fathers, four husbands, four grandfathers could be here today with their families if we put those on those machines.

As for what kind of equipment, machinery, all mobile equipment in metal and nonmetal. They deserve the same as underground coal mines. They deserve the same protection. Their lives are just as important as any other life. We need to look it at hard. I'm not a metal/nonmetal miner. I've never been in any of those mines, but they need to be protected just as well as everybody else does. And by reading all MSHA's reports on those fatalities, I read them -- actually read them as late as last night, four of them crushed, pinching, mashing by machinery could have been prevented if that machine had stopped when that gentleman, that worker got within range

of that machine. It wouldn't have crushed him, wouldn't have pinched him, wouldn't have mashed him, wouldn't have killed him.

I can stand here today and give you all kinds of reasons why the proximity detection should be mounted on the equipment in metal/nonmetal mines, but that'd be a waste of my time and yours because it's a no-brainer. You can save lives. Look at the 15 fatalities this year, 4 of them could have been prevented. That in itself is all that needs to be said, four lives could have been saved. I ask you to go look at the fatality reports on the metal/nonmetal for this year and look at the four that was crushing by machinery. And I hope you can come to the same conclusion I did that those machines would have stopped before they crushed those workers to death if there had been a proximity switch on them that shut them down and stopped them.

I did spell my name correctly I think. I'm the United Mine Workers district representative. I'm sorry. I guess I should have

told you earlier, District 20 rep. And I've been in the coal mines since 1975. I started in low coal in West Virginia, and I've worked at the Jim Waller Resources from 1980 until about two years ago when I got this job. I guess I should explain my background. I've been a mechanic electrician probably all except two years of that time, so I know a little bit about the mechanics and how --

MS. McCONNELL: Do you have any experience actually working on a continuous miner with the PDS?

MR. BLANKENSHIP: No, ma'am. That was implemented after I got out. I was outside as a mechanic, so I didn't work on any of those miners.

MS. McCONNELL: In your current position, though, have you seen it operated?

MR. BLANKENSHIP: No, ma'am, I have not. All I've done is read about it. I would love to have go underground and watch it. I've read about it and talked to some of the workers underground at Jim Waller before about it, whether they like it, if they feel safe. But I will say this, they

still respect the red zone just like unsupported top, you know. They still respect the roof bolts. And they don't go out and from under the roof bolts. They put -- if they got a TRS on a roof bolt, that don't mean they're going to walk out from under it, because it's sitting there. I mean that's just extra protection for them.

One other thing I'd like to talk about, if you don't mind, is reflective material on clothing. I want to tell you a little story to start with. When I first went into coal mines in low coal 36 inches. That was a long time ago. I wasn't as big around.

My job was to clean off the tail piece. We didn't have feeders. I'd been at the mines three or four months. And I thought I had it figured out. I can get over there and clean right quick and get back before the shuttle car come back. I had to count it. Well, I didn't count good enough one day and I started to turn around and there was a shuttle car right here this close to me. And the only reason he stopped before he

run me over with that tail piece, he saw my light flickering against the top. He didn't see me because I had no reflective clothing on back in '75. It was in low coal. He got off and the older gentleman literally chewed me up one side and down the other. After about 10 minutes, I took a you know what chewing. If he hadn't saw my light flickering on the top I wouldn't be here sitting here today. Reflective clothing works. I didn't realize just how much it did work until Jim Waller before.

I was president of the local for years. I went to the owl (phonetic) shift one night to talk to them. You come down a little hill and level out. And my headlights hit the owl shift group and that group of men and women stood out so much, it was amazing how well you could see those men and women. So outside it was that good, so you can imagine what it is underground. I've got some pictures if I can pass them out to you.

MS. McCONNELL: Sure.

MR. BLANKENSHIP: Those are pictures of

miners underground with reflective clothing on. You can see how well and how visible they are. These are pictures of areas where there's no reflective clothing. You can imagine trying to see a miner with no reflective clothing in these areas. But if you look through here, you can see that's probably 200 feet away. You can see how well you can notice those miners. If he didn't have -- if he was up in here, you couldn't see him. This is where he was at, up in here. Without reflective clothing you couldn't see him. That's how well it is. That's how bad the visibility is underground.

You know, first, I was kind of thinking that, you know, management would find a way to use it against a worker, but I realized it was the best thing for a worker to have.

MS. McCONNELL: You're speaking still on clothing.

MR. BLANKENSHIP: Reflective clothing, yes, ma'am, because of what happened to me. The equipment nowadays is bigger, it takes up more

room underground, and the miner needs to be visible. They need reflection on their arms, their legs, chest, and back, still on the hard hat as we got nowadays, you know, six inches sides and back, that needs to stay there. But they need to add it and make sure the arms -- we can see the arms, chest, back, and legs, front and back, so that if you're going away or facing somebody or standing sideways you can be seen by those shuttle cars, ram cars, scoops, everything underground.

MS. McCONNELL: And from these photos, I see that these are strips of reflective material that can be put on an individual's clothing.

MR. BLANKENSHIP: There's two ways: You can buy the clothing that comes on already and you can rent clothing with reflective material on them or you can actually buy them. I bought my own coveralls. They're pennies more than regular coveralls or you can rent them through services that most operations have and they're just a few pennies more that way, too. Or you can buy the

you've got at home. You can buy big rolls of it. It comes in about three, four, five inches by the strip, whatever you want to get. It definitely makes you visible, as you saw in the photos. Without it, you know, all you've got is a little light and you don't see the light all the time. That's something that we definitely need. And even -- I've been outside the job the last few years at number 4 on the evening shift. And even outside, it got dark. I was outside. I worked on underground equipment, but I was working right outside the diesel shop. And then your forklift operators, the dozer operators, truck operators, they all had different equipment, they all had reflective clothing, you could see them. They could see each other. When they was out looking at their equipment you see that they were out there, so you didn't get run over them.

The forklift operator could see his helper after dark. He didn't have to wonder where he was at, the lights reflected off him real well. So it's not just an underground thing. It's a

surface thing, also. Definitely let you know where your buddy is, so you can look out for him and he can look out for you. You're not wondering where he's at in the dark.

That's about all I had to say. If there's any questions I'll be glad to try to answer them for you or get the answer if I don't know the answer.

MS. McCONNELL: I don't have any further questions, but I'd like to thank you for your presentation as well as the exhibits you provided us on reflective clothing. At this time, to my right, any questions? And to my left, any questions? Thank you again and I appreciate you coming forward, too.

MR. BLANKENSHIP: I appreciate you all coming to Alabama, because it means a lot for you all to come down here and let us have a chance to voice our opinions on what we think about safety.

MS. McCONNELL: It's good for us, too. It's good both ways.

MR. BLANKENSHIP: Thank you.

MS. McCONNELL: So that was our last signed speaker. Anyone else want to come on down share experiences, comments on proximity, or any other of the proposed requirements that we have?

Come on down.

MR. SISCO: My name is Ruble Sisco, R-U-B-L-E, S-I-S-C-O. I work at Oak Grove mine, been there eight years -- seven years as a maintenance worker.

MS. McCONNELL: Is that your current position?

MR. SISCO: Yes, ma'am. We had two miners with the PDS system on and one of them is JOY, the other one is CAT. We have one JOY miner with the Generation 2 system on it. You're going to have problems out of any type of electrical component you put on the machine that takes that type of beating. My question is, is when we go to put them on the equipment that moves a little faster, and we've had it happen, I mean, every coal mine has hills and valleys in it, if the brakes on that machine lock down it may present

more of a danger than it does a safety feature.

MS. McCONNELL: So right now we have proposed that the system should make the machine stop. Are you suggesting that we should also consider making the machine slow down before coming to a full stop?

MR. SISCO: Yes, ma'am. Right now if you shut the pump off on a shuttle car, the brakes will lock down.

MS. McCONNELL: Okay.

MR. SISCO: And if they lock down it has the potential to slide and that might present more of a hazard than the safety feature.

MS. McCONNELL: Do you have any diesel equipment that you work on?

MR. SISCO: Not with any of that on it, no, ma'am.

MS. McCONNELL: Could you talk a little about your experiences with continuous -- on the continuous mine Gen 2. Do you have any issues or problems associated with it?

MR. SISCO: The Gen 2, I mean, you're

going to have problems with anything. That miner take a beating. You're going to beat the controls, you're going to beat the wires on it, you're going to have problems with anything. We have a lot of sensors go out, maybe it's because of the conditions you run in. The Gen 2, we have a lot of problems with the way the connections are made on it. It is an IS system. Sometimes you -- and I know it's a safety thing, but sometimes you can get parts from the manufacturer that you cannot plug in. I don't know what those cables cost, it really don't matter. But that's money that, you know, you're not going to get back. Most of this stuff is man-caused when that equipment fails from that equipment taking a beating. That's the best thing you can say about it.

MS. McCONNELL: So have you seen -- have you witnessed how the proximity detection works when the miner is actually -- the continuous mining machine is actually cutting coal and being transited?

MR. SISCO: Yes, ma'am.

MS. McCONNELL: And how does it work when it's in operation?

MR. SISCO: That machine has got a safe zone around it. I forget what the settings are, but whenever you start the cutter head your safe zone shrinks in, not dramatically, but a little bit, so you can actually watch the ripper end to see what you're doing. It operates pretty well. I mean, the man that needs to see the head can see it.

MS. McCONNELL: You means in term of protecting the miner?

MR. SISCO: Yes, ma'am. Yes, ma'am. Now, the problem that I do have with the proximity on that a miner is if, like I say, anything can malfunction. If a man gets caught, even with proximity on that miner, say something happens and a miner gets on it and the proximity goes out at that time, I know it's a hypothetical, on a JOY miner you hit three buttons on that remote and get it off of him. And I don't know if it's because

of the system we have or what. On a CAT miner you cannot do that. It will take you 15 minutes to get it off of him.

MS. McCONNELL: I see. So you're talking about a way of kind of defeating the proximity detection, or overriding the system --

MR. SISCO: On the JOY miner it overrides, but the only thing you can do is tram it and load it, you know, just to get it off of somebody if something like that happened. Now, the CAT miner you have to go get a transmission, take the panels off where you get to it, hook it up, it's going to take you 10 or 15 minutes to get it off that miner. As far as just the operation, though, what you're wanting to know, it operates fairly well. I mean, it's not something that causes a big complaint out of the men or anybody else because we've had it for probably a year and a half now on the Generation 1, not the Generation 2. It's probably been underground six months.

MS. McCONNELL: Have you seen any mobile equipment that so far is equipped with PDS?

MR. SISCO: No, ma'am. No, ma'am. We have a -- we actually do have a roof bolter. And I forget which one that's got on it, but we don't use it right now.

MS. McCONNELL: That has PDS on it, but it's not being used.

MR. SISCO: Yes, ma'am, it's not being used right now.

MS. McCONNELL: Okay. This has been interesting. Do you have any questions? Okay. Rodney is asking whether or not you could tell us why the roof bolter with proximity is not being used.

MR. SISCO: It's on a section in Oak Grove we have a (inaudible) right now (inaudible). And we have to have a bolter that will roll out and support the sides while we -- the ribs while we position it, so that's why -- that bolter don't that capability.

MS. McCONNELL: In your capacity as -- in maintenance, you brought up a very good point about fast-moving machines and the issue with the

brakes when you stop a machine going that fast, quickly, and that maybe considering having machines slow down first. Are there any other functionality issues we should think about once the proximity machine system is placed on these type of machines?

MR. SISCO: When I first come in I heard that at one time scoops -- and Mr. Blankenship may be able to answer this, I don't know, but at one time, when you hit a panic bar on a scoop or something like that, it didn't actually shut the pump off. It just made it where -- that's how the hydraulic function's off, but you could still manipulate it.

MR. BLANKENSHIP: I think so.

MR. SISCO: That may be something that we want to think about when we go to put them on scoops, also.

MS. McCONNELL: Okay. Oh, I don't have any further questions, but thank you for coming. Do you have any other issues you'd like to bring to our attention?

MR. SISCO: No, ma'am.

MS. McCONNELL: Well, I appreciate you coming down. This has been interesting.

Good morning.

MR. HAYFORD: My name is Nick Hayford. That's N-I-C-K, the last name is H-A-Y-F as in Frank, O- R-D. I work for Matrix Design Group, which is one of the companies that manufactures the proximity system, and I just wanted to address a couple of questions I've heard you ask other people. You've asked about diesel equipment and has anybody seen it on diesel equipment. We do have our system currently --

MS. McCONNELL: And maybe if you could talk about the Matrix proximity detection system and if there are anticipated challenges equipping a diesel machine with PDS.

MR. HAYFORD: So, so far, we have roughly I believe about 10 machines with diesel -- diesel machines with proximity detection on it. Most of those machines are going to be up in Canada in potash mines. And we have not had --

outside of integration issues as far as controls are concerned and how we stop things and how we warn and slow down the machine itself, the system functions very well on diesel equipment, quite a bit faster than what you see at most underground coal mines.

MS. McCONNELL: Is there any experience with brake failure or fatigue based on stopping?

MR. HAYFORD: We haven't seen that yet. We've had one machine in the field for just over a year running and the other machines have been about six months running, and I have not been told of any brake failure issues.

MS. McCONNELL: How long would it take for that to actually occur, a brake failure?

MR. HAYFORD: That's not something I would have the knowledge to answer that question.

MS. McCONNELL: I mean, I guess is six months sufficient time or a year sufficient time? Could the machine brakes fail -- because that's what I'm getting at--

MR. HAYFORD: Yeah, and I'm not sure of

that. That would be something that each manufacturer of the equipment itself would have to answer, what the brake wear would be. The way that we work with diesel equipment is we slow the equipment down before we engage a red stop zone. We limit -- I know on one piece of equipment --

MS. McCONNELL: And so how -- what does that slow? When you're talking about slow the equipment down, what does that mean? Could you describe what slowing down means?

MR. HAYFORD: Okay. So let's say we have a zone that roughly 30 feet out in front of the piece of equipment as it's traveling forward. If someone gets into that 30-foot out zone, I know on one piece of equipment we go from about 8 miles an hour down to about 2 miles an hour, which is much slower. That gives a guy time to get out of the way of a piece of equipment or gives the time -- time for the machine to slow itself down before you apply brakes and that way you're not flinging the operator and the piece of equipment all over the place.

MS. McCONNELL: Are there warning signals going on as the machine is being slowed down?

MR. HAYFORD: Yes, both on the operator of the machine, the person who is in the way, and on the machine itself.

MS. McCONNELL: Okay. Say that -- on the machine, the operator, and the miner?

MR. HAYFORD: And the person in the way, yes.

MS. McCONNELL: So what do you mean by the operator is being warned then if it acts differently than what the machine is emanating?

MR. HAYFORD: So the machine -- we can equip machines with a display that tells the operator what direction a locator or a personal wearable device is triggering a zone, kind of a circular pie chart. It gives the direction of where that locator is breaching a certain zone. So that's one way that the operator is warned and that's inside the cab and the operator can see that pretty easily.

Also, the machine-mounted components would be flashing lights letting the operator and anyone around the area know. The locator that the operator is wearing or the personal wearable device that the operator is wearing is going to beeping, telling him that someone is in the zone and also flashing a light.

MS. McCONNELL: So does that operator have a different locator than what the miner would be wearing? Because it doesn't obviously stop the machine if he's on the equipment.

MR. HAYFORD: He triggers himself as the operator of that machine with a very simple button press and let's that piece of equipment know that he is the operator and he has a zone that he can be in to operate that piece of equipment.

MS. McCONNELL: Are all locators given that functionality or is it just unique to that one the machine operator --

MR. HAYFORD: It is unique to that locator when the button press has been made, but any locator could make that button press if

there's not already an operator of the machine.

MS. McCONNELL: Okay. I'm sorry, I was asking -- I didn't mean to interrupt.

MR. HAYFORD: No, you're fine. So we have about 10 diesel machines and we don't see a lot of issues with them. The conditions are a little bit different than current coal mining here in the U.S., but we don't foresee any issues with --

MS. McCONNELL: What would be the difference in terms of conditions?

MR. HAYFORD: You're not in coal.

MS. McCONNELL: Oh, these are not underground coal mines that are in Canada.

MR. HAYFORD: Yeah, they're underground potash mines, so the conditions are a little bit different. As far as in coal mines, we do have haulage equipment running at a couple of different mines. We have articulating pieces of equipment, like a ram car. We also have machines that don't articulate, like shuttle cars, that are running without too many major issues. Obviously, it's a

new technology on a different piece of equipment, so we have worked through some issues we've seen in the past.

MS. McCONNELL: So in this environment where you have your ram cars or shuttle cars equipped, you also are working in a working section where the continuous miner is also equipped?

MR. HAYFORD: Yes.

MS. McCONNELL: Have you seen any issues associated with multiple machines with PDS in a close working -- in a working section or a closed environment?

MR. HAYFORD: We have not so far. What we do with our system is each of the systems communicate with one another, and so they know --

MS. McCONNELL: So the machine mounted components talk to one another?

MR. HAYFORD: Not the machine-mounted components, but the entire system itself.

MS. McCONNELL: Okay. Describe what that means.

MR. HAYFORD: So we have a controller and then we have -- which is the main component that controls everything, then we have the main components that most people will see mounted on the machine that have lights inside of them that flash and also some other components inside of them, so that's your main system. So the controllers from one machine will talk to another machine. And they'll let each other know who's my operator and where is he currently located around system number 1. So system number 2 will say, okay, so your guy is located in this zone that you've deemed is safe. I can drive up and get close and he can be inside of a safe zone that's designed for machine number 2 as well.

MS. McCONNELL: So in this communication between those controllers it's changing the zone automatically?

MR. HAYFORD: Yes, automatically.

MS. McCONNELL: So then the miner itself, as he needed, unaware to him that the zones are changing as he's working and moving

around these machines?

MR. HAYFORD: He is trained to know what those zones -- when those zones would be changing.

MS. McCONNELL: Okay. Could you tell me how he would know that if the machines are talking to one another in terms of --

MR. HAYFORD: He would know that -- okay, so if a shuttle car comes up while I'm loading, I'm going to be in my normal safe zone, but the second machine, the shuttle car, is also going to have a safe zone that I can stand in. And if I get outside of that have safe zone that's preprogrammed, then I will shut down the shuttle car as well.

MS. McCONNELL: Okay. I'm sorry.

MR. HAYFORD: No, you're fine. I do have a video that kind of shows that if you would like to see that. I can plug it into your computer.

MS. McCONNELL: It's not mine.

MR. HAYFORD: Or whoever's computer that is.

MS. McCONNELL: It is theirs so I only say that hesitantly because I'm not quite sure how it would work, but you're welcome to try.

MR. HAYFORD: I'll try it out real quick.

MS. McCONNELL: Okay. Good luck.

MR. HAYFORD: Any other questions? Oh, something I was going to address. I heard a couple people talk about a Generation 3 system from Matrix.

MS. McCONNELL: That's what we heard.

MR. HAYFORD: And that's news to me as well.

MS. McCONNELL: It's news to us. I --

MR. HAYFORD: As far as I know, we're obviously always working to improve our systems and there's always going to be something new coming out eventually, but we currently do not have any release plans for a Generation 3 system any time in the near future, so.

MS. TOLER: Could you estimate how long it takes for a machine operator to learn -- I

mean, how many training hours are required?

MR. HAYFORD: We do -- whenever we do a training for a continuous miner operator, we spend roughly one shift working with them on the section where that machine is installed at. So we come in, we'll work for three shifts with someone, with different operators, while they're doing their normal duties and work with them for about approximately one shift and space that out over how many different operators they have on that piece of equipment.

MS. McCONNELL: Do you want to take questions or do you want to stay in front because we have a series of questions on my left and my right?

MR. HAYFORD: Mainly, I want to show you guys what this zone interaction looks like. This is a promo video, so bear with me for a second here. It shows it on a continuous miner, shows it on a shuttle car there with the locator there that the guy what would wear. I think this video shows what I'm hoping it does.

So as you can see, here's the shutdown zone on the miner roughly. As the shuttle car comes in here, we get an operator zone where that operator can stand and the shuttle car can still pull in without any issues. We can do the same thing with the ram car as well. Let's see if I can go back a little further and catch that actually animation of that guy coming in. So as that operator comes in, he's got a safe area that he can be in, and as he steps out of it, the zones change back to what they were before.

MS. McCONNELL: And so those green blinking lights, what do they represent?

MR. HAYFORD: That he was in a safe area.

MS. McCONNELL: That were emanating from the machine?

MR. HAYFORD: Yes, that he is standing -- that there's no one inside a warning or a red zone.

MS. McCONNELL: Is that the part of the controllers talking to one another?

MR. HAYFORD: Yes. And that's also part of the communication to the operator as well. So if look at this, as he backs up, it goes into a warning with the yellow flashing light and then a red flashing light once he gets into the red zone. He backs out, has to re-enable his tram, but doesn't shut down any pump or anything, and he can go right back to operating like normal.

This will show how we can also do speed-based zones, so as you go faster, the zone extends out in front. And our system obviously works through curtains and everything. That will show that -- this is the little display I was talking about, so this display in the bottom corner would be mounted inside the cab, and it will show -- you can see there's a red slice that will show what direction the locator that breached -- the shuttle car zone is in and let at the operator of the shuttle car know where the person was standing who breaches the red zone.

MS. McCONNELL: Based on speed, do the zones change?

MR. HAYFORD: They get longer --

MS. McCONNELL: Fluctuate longer?

MR. HAYFORD: -- or shorter as speed increases.

MS. McCONNELL: All right. Who wants to go first? Do you want to go first, Rodney? And, go ahead.

MR. SHUMAKER: You had mentioned about the diesel equipment and the experience you have with PDS on the equipment.

MR. HAYFORD: Yes.

MR. SHUMAKER: Can you tell us how the equipment is being slowed down by the PDS currently?

MR. HAYFORD: We slow it down two ways. The first way is that we apply some brake pressure and the second way is we control the throttle on the engine and using the transmission as basically a transmission brake by limiting the throttle.

MR. SHUMAKER: How many types of pieces of diesel equipment that you're actually implementing the PDS on currently?

MR. HAYFORD: We have two types. We have a shuttle car style of equipment and also this piece of 40-year-old equipment that's basically a giant ram car. It's about almost 40 feet long, about 11 feet wide, and about 10 feet tall up in Canada. It's called a Wagner Teletram. They don't even make it anymore.

MS. McCONNELL: Have you tried anything on the continuous hauler systems?

MR. HAYFORD: We have not at this time, as far as I know, tried anything on continuous haulage, actual implementation. And it's something we've always looked into, but have not actually done any installations.

MS. McCONNELL: Okay.

MR. SHUMAKER: Can you speak on any difficulties that you've had with implementing your PDS on the diesel equipment with slowdown functions?

MR. HAYFORD: Most of the slowdown function issues that we've had have been in development of getting the system installed,

talking between the two, our system and the control system for the diesel motor. We solve those all before it goes out of the rebuild facility that it's at.

MS. McCONNELL: Is there a fail-safe measure in terms of if the slowdown -- I mean, in the sense that the slowdown wasn't -- I mean, the fail safe would be allowed that if the miner's still in a slowdown zone, that the machine somehow is automatically brakes or braking before it stops.

MR. HAYFORD: So you're saying like we're driving towards a person, he gets in the slowdown zone --

MS. McCONNELL: And the machine is still slowing down, but is there a fail safe that have stops it before it hits the miner?

MR. HAYFORD: Yes. So no matter what, you're going to have a two sets of zones. You have a slow down zone that's a certain distance out, but you're also going to have a shut down zone. So even if you're in that slowdown zone,

depending on the speed, once you get to the shutdown zone the machine would automatically brake itself and stop.

MS. McCONNELL: So the shutdown zone kicks in because of the locator on the miner?

MR. HAYFORD: Yes, the locator on the miner, yes.

MS. McCONNELL: Okay. I'm sorry for interrupting.

MR. SHUMAKER: And moving forward toward the future as far as receiving other equipment, other manufacture's diesel equipment, can you see that there would be a need to look at other ways to slow down diesel equipment?

MR. HAYFORD: From my experience so far, limiting throttle and braking have been -- we've done air brakes and hydraulic brakes and haven't seen any issues with those, with slow down or shut down on those machines.

MR. SHUMAKER: Thank you.

MR. HAYFORD: No problem.

MR. ADAMSON: I've got a few questions

regarding the diesel equipment.

MR. HAYFORD: Okay.

MR. ADAMSON: What kind of slopes is the Canadian equipment operating on?

MR. HAYFORD: That's a hard -- I would consider it to be a slight slope. I would say less than 15 degrees, maybe 10 to 15 degrees has been the most I've seen as far as slope-wise. That was another thing I wanted to address as well. Whoever spoke right before me --

MS. McCONNELL: Mr. Blankenship.

MR. HAYFORD: Not Blankenship, but the guy right after him. I think Sisco was his last name. Sisco, is that right?

I think I've actually talked to Sisco over at Oak Grove before and we talked about the issue where you're going -- let's say you're going downhill and you get to a shutdown zone and it starts sliding. It's just really hard to control that type of situation. With our system, let's say you did get stopped enough, once you put it into reverse to go away from that person, that

zone in the back shrinks down and allows you to still pull away from that person. So we monitor zones forward and reverse, so if somebody's behind you and you're going forward, we're not worried about them because you're going away from them. And if somebody's front of you and you're going in reverse, we're not as worried about them. We still have a red zone to protect them, but we can pull away without them moving themselves in most circumstances.

MR. ADAMSON: I was wondering what the load conditions you account for.

MR. HAYFORD: As far as fully loaded, unloaded, from the testing that we've done, the longest distance it takes for most shuttle cars to completely stop is fully unloaded on most circumstances. It would -- you'd expect it to be the opposite of that, but a fully unloaded machine tends to skip on the surface which makes it slow down not as quickly as a fully loaded machine. The extra weight of a fully loaded machine kind of gives it more friction to slow down quicker.

Whenever we set up our zones the Matrix system is fully customizable through programming that enables us to adjust the zones on the fly. So I can get on my computer with the right passwords and the right software and adjust those zones as we're doing setup. And, okay, it didn't stop quite soon enough, let's make that zone a little bit bigger; or it stopped way too far away, let's make that zone a little bit smaller.

MR. ADAMSON: Continuing on with that, I guess, I was wondering what kind of trials or as you were setting up that equipment in Canada, what did you go through? Is that something you did onsite?

MR. HAYFORD: Yes, we do almost all of -- once the machine's been installed and gets underground, we ask, especially on a first machine of a type or a first machine from manufacturer, we ask to have roughly a day, one or two days, where we can come in, make sure all the zones are set up before it goes into production. Once -- and we'll spend a whole day just making sure that the zones

function properly, making sure that the braking functions properly, making sure that the slowdown functions properly, all before we release that piece of equipment to go into the production.

MS. McCONNELL: But in any mine, I imagine that over time those zones will need to be changed because the working section has -- dimensions have changed and maybe equipment. How easy is it for an operator or the miners to readjust those zones? Is that something that would require the manufacturer to come in and do?

MR. HAYFORD: We have two options that we work with customers depending on how they would like to proceed. One, they can call Matrix. We can come in and make some zone adjustments for them. Two, we can sell them a kit and training where we will train specified people on how to make zone changes using a computer that we provide to them.

MS. McCONNELL: Have you experience in the use of that training material or that kit used by operators and miners in terms of ease or

difficulty applying changing zones?

MR. HAYFORD: So we work mainly with the maintenance department to do that. That way an operator --

MS. McCONNELL: Is there a steep learning curve?

MR. HAYFORD: We haven't really seen a steep learning curve with it. Most of the people that we've trained so far are people we've worked with before, doing other training with them. They've worked with Generation 1, they've worked with the Generation 2 hands-on before we give them the kit. And a lot of times look over our shoulders as we've been making changes for it. But the troubleshooting kit is what we call it, or a service kit as we call it, was designed so that it doesn't have a steep learning curve. It comes with a manual that tells you how to do everything you can do and it only allows certain functions to be changed, so that someone couldn't mess up the whole system, get it all messed up so that it doesn't work anymore.

MR. ADAMSON: Back to your Canadian machines, I was just wondering what the road conditions -- kind of what --

MR. HAYFORD: Their roads are generally a lot more compacted in what we see in underground coal mining. It's there where they mine, they have very hard rock underneath without much water or what they would call muck and mud on them so they're a lot drier, a lot harder of a surface, almost like a concrete. Sometimes it's very easily confused where they've poured concrete and where they haven't poured concrete. We found in our testing that that makes machines take longer to stop on a hard surface than at this time does on a wet, mucky surface.

MS. McCONNELL: Actually, when I was thinking about -- I was wondering does that affect slowdown of the machine in any way in terms of hindering it or, you know, making it slide, I mean?

MR. HAYFORD: Obviously, on a steep angle that's going to make it want to slide more.

MS. McCONNELL: So how does the system adjust that in those kinds of conditions?

MR. HAYFORD: That would be a situation where the operator of the mine, the maintenance -- someone in maintenance would need to come in and say our conditions have changed, we need to make sure that our zones function properly, and make changes to those zones.

MS. McCONNELL: You couldn't do it with the kit?

MR. HAYFORD: Yes, you could do it with the kit, yes. But someone would have to say, hey, our conditions have changed enough that the zones that we've previously been using need to be adjusted.

MR. ADAMSON: One last one, if you've got a minute. For installing your system, and I guess I'm really thinking about diesel equipment, what kind of additional controls have you had to add anything to the equipment? What kind of --

MR. HAYFORD: Some older pieces of equipment have had to have controls added to them,

and also, there's been some -- obviously some valves would need to be installed if you're talking about shutting down hydraulics. Certain hydraulics you have to add valves that can be triggered by our system. That's not something that is difficult, it's just something that would need to be added to that.

MR. ADAMSON: And all this equipment is not permissible that you've been adding, for the diesel side.

MR. HAYFORD: The diesel equipment in Canadian mines is not permissible for MSHA. Our system and the way we install it is the same as what we would do -- we sell the same equipment as we do to the coal mines here (inaudible).

MR. ADAMSON: Okay.

MS. McCONNELL: Okay. I was wondering, take Canada, does it have a similar type of approval process that MSHA has?

MR. HAYFORD: Canadian approvals are a little bit different. They don't have -- their mines aren't gassy like our mines are here.

They're about 3,500 feet underground, so they don't run into gas like we do.

MR. SHUMAKER: Just two additional comments and/or questions. Can you speak on your recommendation that we spoke on earlier about whether or not PDS should integrate with, you know, the equipment and how it's throttled or braked and slowed down prior to stopping?

MR. HAYFORD: I personally, just from what I've seen in the time I've worked with Matrix for about the last six years or so working on the system, think that there's more -- and from talking to other coal miners who have been in the industry for longer times, I think there's more risk at -- with mobile equipment as oppose to continuous miners for people to get injured. So I definitely support moving forward with some type of regulation on mobile equipment.

MR. SHUMAKER: More specifically on slowing down the equipment versus just stopping the equipment?

MR. HAYFORD: I think slowing down is

very important for two reasons. One -- I guess for a couple of reasons. One, it's not as hard on the piece of equipment you're trying to slow down, so you limit some of your maintenance issues that you might see: The brakes going bad, just generally tearing up a piece of equipment, so you're not constantly just slamming on the brakes, trying to stop. I think it's safer for the operator of the piece of equipment. Because let's say you're going full board and somebody comes out in front of you and you stop, that's going to fling that operator and possibly hurt him instead of hurting the guy he would run over. Three, I think it's better for production slowing down a piece of equipment as opposed to stopping and shutting down a pump on it takes less time for the piece of equipment to get back up and running and continue on its way.

MR. SHUMAKER: So currently, ultimately, when you stop a piece of equipment, how are you doing that, with electrical or diesel equipment?

MR. HAYFORD: With both of those we

mainly just shut down or we apply full brake and get the machines stopped all the way. Once the red zone is cleared, then we release those brakes and the piece of equipment is able to move on from there. On a continuous miner, for example, which doesn't have a brake technically, we kill tram and prevent the tram from being activated again.

MR. SHUMAKER: Lastly, can you share any experience that you've actually had with multiple equipment in mines in general and, more specifically, in coal mines such as PDS-installed equipment on continuous mine machines and coal haulage equipment.

MR. HAYFORD: So I have seen -- I've spent a lot of time working with coal miner -- or with continuous minors and haulage equipment, specifically shuttle cars. At some of the mines up in Eastern Kentucky -- or, sorry, Western Kentucky and Indiana and Illinois. That's where most of my experience had been before I moved down to Birmingham. And I've seen the systems work together, not have many issues, especially here

within the last six months or so. There's always going to be a learned curve installing a new system on a new piece of equipment. It's going to take a little bit of time.

MS. McCONNELL: So you have experience with continuous mining machines with PDS and shuttle car with PDS working together. And, I guess, what experience have you seen, if any, in terms of false stops, you know. The machine is activated --the PDS activated incorrectly and the equipment had stopped even without interaction with a miner?

MR. HAYFORD: What we've seen a lot of is not so many false shutdowns, is more, well, that's not the way I've always been able to do, I can't just run up full speed and stop right as I get up to continuous miner. I have to take some time slowing in to that continuous miner while I'm in my shuttle car, and a lot of guys don't like that. They want to be able to run full bore in and full bore out. A little bit of changes in the way that people do things.

MS. McCONNELL: So you mentioned -- well, let's just imagine that there is a Generation 3. And if you were going to project what technological changes would be made to the system in terms of miner-wearable component as well as machine-mounted component, can you imagine a PDS system operating in an underground environment where no guidance is required?

MR. HAYFORD: Definitely not using current technologies. I think we can make those PDS's smaller. I think that's the future goal system making them smaller and trying to incorporate them with other pieces of equipment that the miners are already wearing: Cap lamps, radios, things like that.

MS. McCONNELL: Any chance there could ever be a universal locator in terms of being able to operate with any type of equipment, with any type of PDS?

MR. HAYFORD: I would doubt it just because of intellectual property and people not wanting to share. That's just my opinion, but I

think it would take a lot.

MS. McCONNELL: That's all.

MR. HAYFORD: That's all? Well, thank you guys very much. Did you have a question? I'm sorry.

MS. TOLER: Just for the record, I'm going to need a copy of that video.

MR. HAYFORD: Okay. All right. Thank you, guys.

MS. McCONNELL: Okay, thank you.

MR. SHUMAKER: Thank you.

MS. McCONNELL: Is there anyone else who would like to talk, share experiences? No one? If I took a break would somebody change their mind if we came back 20 minutes, 30 minutes later, somebody could think about it.

MR. BLANKENSHIP: I will now before you take a break.

MS. McCONNELL: Okay, come on. Come on back. Let at the court reporter --

MR. BLANKENSHIP: James Blankenship, B-L- A-N-K-E-N-S-H-I-P. I want you think about

one thing. I agree with the slowing down part, especially on the sections, but when you're in an outby area in a confined location you need to really look closely about slowing down, it probably won't help that individual. We need to look at some way to make it -- if we're going to slow it down, it's got to slow down quickly. It might not come to a complete sudden stop, but we can't let it slow down because that might -- you don't have that room in a belt line. You don't have that room in a belt line where it's a confined area.

MS. McCONNELL: I hear you. And I guess the other way of thinking about is what way can we stop the machine without causing brake fatigue? I just said that out loud. You don't have to answer the question.

MR. BLANKENSHIP: Here's what I was thinking about as I was sitting back there while they was talking. I mean, how many times a day is that machine going to be -- that brake's going to be locked down? One time a day or one time a

week? The brake fatigue's not going to be that great. I mean, you have to check -- Ms. Wilkins (phonetic) says you have to check that panic bar on that machine once a week, which means run it down the entry, hit the panic bar and make sure it stops within five seconds. It doesn't tear the brakes up. That's what you have to do putting -- it doesn't tear the brakes up. I don't think that that's going to tear the brakes up either because it's not going to be like it's every 15 minutes somebody's walking across in front of it and the brakes are locking up. Slowing down, I've got no problems with that. Just consider the confined areas on the belt line and areas like that, you don't have the room for it to slow down. The worker's still going to get mashed. It might not be as severe, but he's still going to get smashed. I'm just asking you to think about that part of it. All right.

MS. McCONNELL: Thank you.

MR. BLANKENSHIP: Thank you.

MS. McCONNELL: Anybody else? I'm going

to give you guys 30 more minutes to think about it. We're going to take a 30-minute break, come back, and if there's no one else who wishes to speak, then I'll close the hearing down. Somebody may change their mind, so let's take a 30-minute.

(Whereupon, a brief recess was taken in the proceedings.)

MS. McCONNELL: Gentlemen, please take your seats and I'll ask if there are any other individuals who would like to come forward and share their experiences or information regarding this proposed rule. Anyone else who has concluding thoughts that they want to share?

Well, if there is no one who wishes to make a presentation I will conclude this hearing. I want to thank everyone, and I sincerely say this, I thought this was a very excellent hearing. We learned a lot and heard a lot, we all did, the panel. So I thank you all for anyone who came and spoke to us.

For those who did not, please feel free or I encourage you to submit your comments and

consult the addresses section in the proposed rule on how you can submit written comments. I thank all those who did not present, but came and listened. That was greatly appreciated.

I again want to emphasize that all comments must be received by or postmarked by December 1st, 2015. MSHA will take your comments and your concerns into consideration in developing the agency's final rule, and I encourage all of you to continue to participate throughout the rulemaking process. And I again want to remind everyone that we are having our next public hearing on this proposed rule at 8:00 on October 19th in West Virginia, Beckley or Beaver, West Virginia, depending on -- I'm used to saying Beckley I've gotten used to saying Beaver lately. But at the academy on the 19th, MSHA's academy on the 19th, in the morning we will have a public hearing on the proposed rule. And in the afternoon we will have a stakeholders meeting to talk about some critical issues related to refuge alternatives.

With that, I thank you again. This public hearing is concluded.

(Whereupon, at 11:25 a.m., the HEARING was adjourned.)

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CERTIFICATE OF NOTARY PUBLIC

COMMONWEALTH OF VIRGINIA

I, Carleton J. Anderson, III, notary public in and for the Commonwealth of Virginia, do hereby certify that the forgoing PROCEEDING was duly recorded and thereafter reduced to print under my direction; that the witnesses were sworn to tell the truth under penalty of perjury; that said transcript is a true record of the testimony given by witnesses; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this proceeding was called; and, furthermore, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

(Signature and Seal on File)

Notary Public, in and for the Commonwealth of
Virginia

My Commission Expires: November 30, 2016

Notary Public Number 351998