

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

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

Indianapolis, Indiana
Thursday, October 29, 2015

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C O N T E N T S

HEARING EXHIBITS:

No. 1 - C Burggraf

No. 2 - Melvin

No. 3 - Baker

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P R O C E E D I N G S

(9:00 a.m.)

MS. McCONNELL: Good morning.

SPEAKERS: Good morning.

MS. McCONNELL: Can everyone hear me?

Good morning. My name is Sheila McConnell, I am the Acting Director of the Office of Standards, Regulations and Variances for the Mine, Safety and Health Administration. I will be this Moderator for this Public Hearing, on MSHA's Proposed Rule for Proximity Detection Systems for Mobile Machines in Underground Mines.

On behalf of our Assistant Secretary of Labor for Mine Safety and Health, Joseph A. Main, I welcome you, all of you here today, and thank you for your attendance and participation.

I would like introduce the members of our Panel, Rodney Adamson, Coal Mine Safety and Health; Wesley Shumaker, Approval Certification Center, Technical Support; Osmond Lindo, Office of Standards; and Matthew Ward, Office of Solicitor. I would also like to introduce Pamela King, in the

back of the room, she also works for MSHA Office of Standards.

This is the last of our four public hearings on MSHA's Proposed Rule for Proximity Detection Systems for Mobile Machines in Underground Mines. Our first was in Denver on the 6th, the second hearing was in Birmingham on the 8th, and the third was in Beaver, West Virginia, on the 19th.

The purpose of this 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 hearings are conducted in an informal manner, formal rules of evidence do not apply. The Hearing Panel may ask questions of the speakers, and speakers may ask questions of the Panel.

Speakers and other attendees may present information to the Court Reporter for inclusion in the rulemaking record. MSHA will accept written

comments and other appropriate information for the record from any interested party, including those not presenting oral statements. We ask everyone to sign on the attendance sheet.

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 or 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. None of these accidents were fatalities.

MSHA published a Final Rule on proximity detection systems for continuous mining machines in underground coal mines on January 15, 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 non-fatal injuries from pinning, crushing and striking accidents, involving these

place-changing, continuous mining machines.

This Rule took effect on March 16th, and will be phased in over 8 to 36 months. MSHA developed this proposed rule for underground mobile machines to be comparable to the final requirements for proximity detection systems on place-changing of continuous mining machines. The proposed rule will require a proximity detection system to stop the machine before contacting the miner, and providing audible and visible warnings on the miner wearable component, and a visual warning on the machine before it stops.

MSHA estimates that this proposed rule will prevent, over the next 10 years, 15 deaths and 70 non-fatal injuries. MSHA published this proposed rule on September 2nd, and the comment period closes on December 1st. MSHA intends that this proposed rule will take advantage of existing proven technology to minimize the burden on mine operators, and allow for advances in proximity detection technology. We are also proposing a phase-in the use of proximity detection systems on

mobile machines in underground mines, over 8 to 36 months, as we did for continuous mining machines.

The longer phased-in schedule provides mine operators time to complete the installation of a proximity detection system during planned rebuilds of equipment. MSHA is 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. We also ask and solicit specific comments on whether this phase-in schedule for mobile machines should differ from that, of the continuous machines. And so explain why and what that phase-in period should be.

This rule would help protect miners from pinning, crushing and striking accidents that might result from working too close to mobile machines in underground coal mines. The proposed rule will also establish the performance and maintenance requirements for proximity detection systems, and will 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. Commenters are requested to be specific in their comments, and submit detailed rationale for suggested alternatives, safe benefits to miners, technological and economic feasibility consideration and supporting documentation.

At this point I would like reiterate some specific requests for comment and information that were 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 most effective in reducing accidents. The proposal would require underground coal mine operators to equip coal hauling machine and scoops and working sections with a proximity detection systems.

Coal hauling machines would include

shuttle cars, ramp cars and continuous haul systems. This working section would include all areas of the coal mine from the loading point of the section up to and including working phase. We are requesting comment on whether other types of mobile machines such as loading machines, roof-bolting loading machines, feeder breakers, should be required to be equipped with proximity detection.

We are also requesting information on data that will support whether or not the proposed requirements should apply to coal hauling machines and scoops used off the working section. We are particularly interested in receiving comments on what, if any, challenges would need to be addressed when adapting this proximity detection to continuous hauler systems, considering the machine's length and unique interaction with continuous mining machines.

The proposed rule would exclude longwall working sections. We are requesting information and data on whether scoops or haulage machines

cause a hazard to miners on longwall working sections, that the use of proximity detection could reduce or eliminate. MSHA is requesting that commenters include specific information and any rationale for not excluding longwall working sections. The safety benefits to miners, the cost of implementation, technological and economic feasibility considerations and supportive data.

Since 1984, five fatalities have occurred in underground metal and non-metal mines, where the proximity detection system could have prevented the accident. For this reason, MSHA is also requesting comments on whether the Agency would require proximity detection systems on mobile machines used in underground metal and non-metal mines. And if so, which types of machines and in what timeframes?

The second issue concerns the application of proximity detection system technology for use in load machines in combined spaces on underground mines. We have approved proximity detection systems that consist of

machine-mounted components and a miner wearable component. This proposed rule accommodates possible future technology that may not require a miner wearable component.

MSHA is aware that the interaction of multiple machine types equipped with proximity detection may necessitate changes and work practices. MSHA is also aware that coal hauling machine equipped with proximity detection gets near a continuous mining machine with at proximity detection system, the overlap of the two protection zones may limit where miners may position themselves to remain safe to avoid activation of warning signals, and to avoid unintentionally stopping the machines.

MSHA's especially requests comments on how we use the proximity detection, and the overlap of the protection zones, on multiple types of machines operating on the same working section might affect miners work positions and equipment operation. MSHA has proposed that the proximity detection systems provide audible and visible

warning signals on the miner wearable components, and a visible warning signal on the mobile machine.

Mine operators often need to -- Machine operators -- excuse me -- often need to redirect their attention from the front to the rear of the machine, and in some cases must switch seats when changing directions. As a result a visible warning signal on the machine may not always be in the operator's direct line of sight. Therefore, we are requesting comments on whether requiring all of the warning signals on the machine, in addition to visual warning signals, would also help assure that the 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 a specific visual warnings on the machines, for example, strobe lights, LED lights, or other types of visual signals, would help assure that the visual warning is effective in alerting miners near the

machine including the machine operator. We especially request comments on what, if any, experiences or issues have been identified that relate to the use of proximity detection systems from different manufacturers on the same working sections. Or for the use of a single miner-wearable component with proximity detection systems from different manufacturers or with different models from the same manufacturer.

As you address the proposed provisions, either in your testimony today, or in your written comments, please be as specific as possible; we cannot sufficiently evaluate general comments. Include comments on the estimated benefits and costs that are summarized in the preamble and given in detail in our preliminary regulatory economic analysis. Specific information allows MSHA 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 approximately two weeks after the completion of the hearing.

You may view the transcripts of all the public hearings, and comments on MSHA's website www.msha.gov, or on www.regulations.gov. Please give any hearing submissions to the Court Reporter so that they can be appended to the hearing transcript for today.

Following this public hearing you may submit additional comments using one of the methods identified in the address section in the hearing notice. Comments must be received or postmarked by December 1st, 2015.

With that we will begin hearing testimony. If you have a copy of your presentation, please provide it to the Court Reporter. Before you begin, clearly state your name and organization, and spell your name for the court reporter, and make certain we obtain an accurate transcript. Our first speaker today is Chuck Burggraf of Peabody Coal. And you may bring your colleagues. Good morning.

MR. BURGGRAF: Good morning. I'm Chuck Burggraf, with Peabody Energy. And my name is

spelt B-U-R-G-G-R-A-F; and along with me are Chad Barras, Director of Safety and Compliance with Peabody Americas; and his name is Chad, CHAD, Barras B-A-R-R-A-S; and on my right is Calvin Melvin, of course, he's a Maintenance Manager -- Maintenance Supervisor at our Wildcat Hills Underground Mine here and his name is spelled C-A-L-V-I-N M-E-L-V-I-N. And on his right is Jeremy Baker, he is Maintenance Manager at the Wildcat Hills Underground Mine, here at Equality, Illinois, and his name is spelled J-E-R-E-M-Y B-A-K-E-R. Okay. Thank you.

MS. McCONNELL: Thank you.

MR. BURGGRAF: First off, I'd like to thank MSHA for allowing us to make comments on the proposed rule and allowing us to get up here and do that. You know, at Peabody we start all our meetings with the safety contacts, so I'm going to ask Chad, do you have the safety contact there? Okay.

MR. BARRAS: I would like to talk just a little bit about the safety at home. I'm

certainly not promoting any product, but there have been major advances on battery life for home smoke detection systems for CO2 as well as fire, up to the point where battery lives are up to 10 years, which wouldn't require replacement until the devices emit a warning. So I invite those to at least review that information, and another area that I have been remiss to add is actually having fire and smoke detection and attached to our office. So I ask you to keep that in mind.

MR. BURGGRAF: Okay. I'm going to give a brief outline of where we've been. As far as proximity detection we've done a lot of testing on a lot of different equipment with two different systems, so it will give you a history of what Peabody has done, and then Calvin and Jeremy will give more detail, because they've had hands-on experience at the Wildcat Hills Underground Mine.

Anyway, this is an ongoing project for us, we don't have the issue solved with proximity detection by any means, but we devoted a lot of resources and time to proximity detection because

as MSHA sees, as the industry sees, as the vendor sees, we see a lot of positive that can come from a perfected system. Okay.

In 2010 we visited a mine in South Africa, a team from Peabody visited a mine in South Africa, the SASA Mine. And it was on November 16th of that year that we visited that mine to observe proximity detection because it was a new technology we heard some things about and we saw merit to it, so we wanted to see what was involved. We did go to that mine, and we thought this was technology they had promised to protect miners, so we commenced a project to determine if we could apply this to our operations.

In December of 2010 until the spring of 2011 we tested the Strata/Fredric Mining Controls system at our Willow Lake Mine in Southeastern Illinois, in a building on the surface to see -- we had no experience with it, we needed to see what it was all about. The system was installed in one continuous miner and a battery coal hauler, continued improvements and adjustments were made

during this time, and then we felt like we could do an underground trial.

In the second quarter of 2011, the decision was made to set up a test at our Gateway Underground Mine in Southwestern Illinois, and since that time we've done all kinds of tests. Moving field generators around, perfecting software, working with the vendors who put a lot into this effort, but we continue to make adjustments on the issue into 2013 trying to perfect the system. At that time it was the Strata system. We started to install the Matrix Gen II system, JOY/Matrix Gen II system on a continuous miners in 2013.

In early 2014 we made the decision to test some Matrix/JOY SmartZone system at the Wildcat Hills Mine, we wanted to test it on battery coal haulers in a mine where the roof support methods were different. The difference being that mine installed mesh on the roofs, so wire meshing on the roof to help with skin control on the roof. We did not have that element at the

Gateway Mine, so we wanted to see how that affected the electromagnetic fields. Also the full height was different, probably to feed less full height at the Wildcat Hills Mine, so a little more confined area to work in.

And geologic conditions are different, there is more pyrite in the closing. We were concerned that these issues may make it more difficult because what we've experienced with the varying electromagnetic fields, depending on power cables, metal in the area and things such as that, and how big the opening was. I have to say we've not been successful creating an effective system at that mine, so there's still a lot of work to be done.

Due to the issues experienced at Wildcat Hills we decided to conduct a trial on a battery pull hauler at our Francisco Mine in southeastern Indiana, and have experienced some of the same issues. So, to get in more detail what went on, Calvin will now speak.

MR. MELVIN: As you mentioned in your

opening, there's a lot of similarities between the Miner Rule and the Mobile Equipment Rule, but there's a significant difference in the equipment that has been raised. And today, as Chuck mentioned, we've seen no current technology that will operate effectively on mobile equipment in the different mining environments.

A little more detail on the trials. In late 2010 a coal hauler and continuous miner located on the surface at Peabody Energy Willow Lake Mine, were fitted with the Strata system. Tests were conducted on the surface in a controlled environment. The testing soon exposed that it's not possible to provide full coverage on the rear section of the hauler without creating a shutdown zone with the continuous miner operating unit. A work-around was added to a lot of miner operators to shrink the shutdown zone as the car backed into the loading position, after the car had slowed to a predetermined speed. During the shape of the zone, this action was removed to protect the coverage on the rear corners of the

coal hauler.

The tests were considered reasonably successful at that time and the decision was made to install the system on miner report coal haulers at the Gateway Mine. At some point the system -- the program shrank the rear automatically when the car was below a predetermined speed, eliminating the need of the operator to press a button to take this action. The cars continue to operate in this manner until the mine was recently higher.

The following comments are based on our experience from two years of our recent testing using the JOY SmartZone Proximity system; on two JOY BH18 AC coal haulers at Wildcat Hills Underground Mine, and went into testing with one BH18 SC coal hauler at Francisco Underground Mine. When production tests were conducted the coal haulers were operating behind the JOY 14C and 15 miner also fitted with JOY SmartZone proximity.

Because the miner travels slower, the zones can be smaller and they are less affected by the environment. Battery-powered coal haulers,

zones have to be much larger due to the size of the machine and the speed that it travels. The larger you make the zone, the more the system is affected by the environment and the electromagnetic interference. The system is influenced by the pyritic content of the coal seam. The wire mesh used to support the roofs, and the energized power cables that are used to provide power at the continuous miner roof-bolting machines.

On September 1, 2015, MSHA Fact Sheet said the Rule would require the system to prevent adverse interference with or from other electrical systems. The proposed rule does not contain the words "or from." These influences do not allow the system to locate the miner variable component with any accuracy or consistency, making it nearly impossible for the hauler to work in close proximity to the continuous miner or operator.

The JOY SmartZone system can be shaped around the equipment to allow operator zones, but this technology is more susceptible to

interference and does not allow the system to actively locate the miner wearable component. For either type of systems the Rule would have to be modified to allow for reduced coverage when backing into the continuous miner to load.

In May of this year, a one-day trial of the Strata Vector technology system was tested on JOY VH18 AC Coal Hauler at Wildcat Hills Underground Mine. The system performers advertised how were the single generator that was used with this technology did not have the needed power to provide a large inner field to protect the entire car? Based on our experience the Rule, as currently proposed, cannot be met.

Modifications to the Rule to allow for the continuous miner operator to work in close proximity to the coal hauler is a must.

Additional time is needed to allow technologies to be developed that are not adversely impacted by the underground environment. The current systems cannot provide adequate detection of people in hazard areas. This require

step-down zones to be much larger than they should be to provide an acceptable safety factor creating an unacceptable amount to nuisance trips. We've invested a lot of time and resources, and we want proximity detection to work but current technology has not been proven on normal equipment operating in varying underground environments.

Our efforts will continue with or without this Rule. Gateway North Mine has recently fitted four JOY VH 20 AC coal haulers with the JOY SmartZone proximity detection and will begin testing toward the end of the year. Coal hauler testing will resume at Wildcat Hills as soon as the new software release is available which is currently being tested by the OA. Arrangements have been made to ship the JOY VH 18 AC coal hauler to a Strata facility for additional testing for a satisfactory system.

Peabody is not conducting trial on scoops. We believe our experience will be similar, as with the coal hauler, with the results being somewhat exaggerated due to the areas that

the scoop has to travel. The scoop will travel in entries where high-voltage cables are in addition to being exposed to the same issues as the coal hauler when the scoop is working on the working section. Thank you.

MR. BAKER: I would like to give you some visual references from what Calvin just said. I noticed everybody looking at the lubrication chart as you walk there. So what we have a picture here -- I can turn that.

SPEAKER: Could you just change this?

MR. BAKER: I sure can. So what we have a picture here is at a coal hauler, a battery coal hauler, and is here is the end of miner, the miner tail, with a picture that's loading in the bed of the coal hauler here. And you can see this football shaped zone here, on this coal hauler. This is with the Strata system that is operating at our Gateway -- was operating at our Gateway Mine until recently.

Our miner operator, as some of you know, is you are going to have a red line in here, so

our miner operate has to stand right here, which is different from Africa, and in some of the other countries where they actually ride on the continuous miners. For us to make room for this miner operator to where the coal hauler will not shut down, we had to shrink this zone and you'd expose the edges of the rear of the coal hauler when you do that. And for us to be effective and reduce the amount of nuisance strips this was what, at Peabody we felt, was an acceptable zone for this coal hauler. And with the proposed rule this is something to take into consideration.

Next, if I could get my clips on here, I want to go to the current. At the last trial we had on our BH18 ACs at Wildcat Hills -- So, the last trial that we have at Wildcat Hills, I was underground and was able to see the testing and everything that was being done, and so what I have picture for you here, is the miner was -- these are what we would call our straight entries, and he was cutting a cross cut.

So the coal haulers would circle around

here and then back in to the miner to be loaded. When we put the coal hauler into operation, that morning we had done several static testing in that mine location, and they all looked good. But the coal hauler was not moving, it was -- we had two JOY representatives there, and it was just basically testing the zones on the coal hauler. So everything looked good, and we went and decided to put into operation because we was loading coal on that side of the unit.

So as our proximity coal hauler would come around and he would back into the miner. As he would come around this corner, there was one time where the coal hauler stopped and after reviewing the location of the miner operator from the system, the miner operator was here, but the system projected him here, as it would come around due to interference of cables, the mesh, the pyrite in the coal. So after we -- (Pause) So after we got done with that cut, they moved the miner, which the miner was up in this location, they moved it around, and they moved the miner

into this location once again.

The straight entries were here, and we was cutting out the cross cut over here. I have, here, projected for you, this was our miner cable, here is the location of the stock pile, and then here is your continuous miner and the miner operator was standing in this location, and then here is our roof bolter cable, location coming up, and was -- the roof bolter was over here.

And what we've seen was, now the coal haulers are coming up this entry, coming in here and then backing into the miner to be loaded; and twice we've seen where the coal hauler would come up, come underneath the miner cable which was 6 to 8 inches above the canopy. This is how low we are talking about here, and it would turn off the coal hauler, it would shut it down, shut the pump motor down. The operator was immediately able to start the pump motor back up, resumed pulling into this entry to straighten his coal hauler out, and then back into the miner.

And then the last piece of paper here,

that I want to show you here this morning. The last load that this coal hauler -- that we allowed this coal hauler to make, he comes up, and he pulled out of the cable that time without any -- without any faults. He pulls out, straightens up, and as he backs in underneath these cables, the coal hauler shuts down. And as that operator goes to turn it back on, and as he had these other two times, and he comes around this corner, the coal hauler would not start backing up.

So, the operator tried three times to start it up, and it would start up and shut back down. The pump motor zone was taking him out, we are shutting down the coal hauler. We pulled the coal hauler operator out of the cab, and one of the JOY representatives that was there with me at the time, got in the coal hauler to do some further testing. What we'd seen was, he looked, he had seen the miner operator standing next to this cable, he told the miner operator to move back, the miner operator then moved back in the entry, and then he was able to start the coal

hauler and backed it into the mine.

What we see is a lot of interference from our cables, high-voltage cables, minor cables, it just -- it causes the system to detect this miner operator and what we've seen was this miner operator was -- it made him look like he was almost standing near the bed of that coal hauler at the time. Is there any question?

MS. McCONNELL: Yes. I have a lot of questions, but I wanted you to finish first.

MR. BAKER: I'm finished.

MS. McCONNELL: Okay. First, some things I wanted some clarity in terms of the number generators that are in your -- This was a JOY Matrix system of both miner and mobile coal hauler, right?

MR. BAKER: Yes. Yes.

MS. McCONNELL: How many generators did you have on the mobile system?

MR. BURGGRAF: On the coal hauler there's four generators on the coal hauler, there is also four generators on the miner.

MS. McCONNELL: Four generators. In your testimony did you mention or reference a system that had only one generator?

MR. BARRAS: Yes. That was Strata Vector.

MS. McCONNELL: Strata Vector. Okay. Now, let me just make sure I understand interference issues, and I'm going to take this in my own simplistic mind. First, just I saw -- I saw the interference was happening with the mobile machine, the equipment opacity and detection system and not just the interaction between the two. So, you are saying that, first, in the -- let me go back on this -- You had tested -- is this from the Wildcat Mines you tested and you had a different seam in height, which had different meshing that, as well as your power cables, all three items were able to trip the system and shut it down?

MR. BARRAS: Yes.

MS. McCONNELL: Okay.

MR. BARRAS: And we do have different

seam height that's a couple feet lower, so the average seam height is probably what, 24 inches?

SPEAKER: It's around 57 inches.

MR. BAKER: It's around 54 to 56 inches, (crosstalk), yes.

MR. BARRAS: And then we put screen wire mesh on the roof, and we held up with the roof bolts.

MS. McCONNELL: In your higher-seam height mines, was the mesh eliminated -- the meshing on the roofs of the interference issue eliminated?

MR. MELVIN: Well, we did not use the mesh at the Gateway mine.

MS. McCONNELL: I see.

MR. MELVIN: Okay. So that's why we wanted -- part of the reason we wanted it tested at Wildcat Hills.

MS. McCONNELL: I see.

MR. BAKER: Yes. The test at Francisco did have wire mesh, but in the higher seam line, it didn't seem to have as much effect, but the

cables had -- the way that the mine plan is there, they actually travel along where the high-voltage cable is, and it had more -- the cable had more effect, and what we've seen at Wildcat hills, is anytime where we have to move the coal hauler in an entry where we have wire mesh that has high-voltage cable, it's nearly impossible to keep the machine running.

MS. McCONNELL: Okay. Now going into the interaction between the two machines, so now you have mentioned that you've tried Strata and Matrix JOY, you've tried both -- and obviously you are not trying them in the same working section?

MR. BURGGRAF: No.

MS. McCONNELL: Okay. So, in this case the interference now comes in with a proximity detection system on a mobile machine is unable to, or accurately detect whether or not the mine operator for the continuous mine machine is in a safe -- is in a safe zone or not.

MR. BURGGRAF: Right.

MS. McCONNELL: And in that situation

that you were just mentioning -- you just pointed out in your presentation there, you actually had to remove then -- so far from the machine was he unable to continue operating the miner to cut (inaudible).

MR. BARRAS: No. He was able to operate the mine. Once we cleared the faults, he was able to get the coal hauler back up to the miner and then an operator would come back and then he was able to finish loading his car.

MS. McCONNELL: Okay. Was the machine -- the machine operator for the miner was -- he's still being protected by the proximity system on the continuous mining machine?

MR. BAKER: Yes.

MS. McCONNELL: Go ahead. No decision taken, go ahead.

MR. SHUMAKER: I guess the first question I had was, with these different circumstances, how many trips were there? Many, many trips and this happened every time, or was this, you know, you only tried it four, five times

and that was it? Like, what was the frequency of this happening?

MR. BAKER: Of the trips and the --

MR. SHUMAKER: Yes. You can describe, like, four or five different circumstances. So I just went through, what was the frequency of that, you know.

MR. BAKER: Okay. In the first example that I give where the miner was up here, as the coal hauler backed around this corner, he backed around, I would say three to four times, and out of those three to four times, twice he would shut the coal hauler down. In this instance where he would come around here, where he would have straightened up and backed into the miner. He had done that four times. Two times he had shut the coal hauler off and when he was -- just as he was turning around this corner, and the last time it shut the coal hauler off where we had -- could not get the operator to get it stated again, it was three out of the four times that we were handling that.

So that's when we chose -- we were making impact, this is almost like a highlight here, with these coal haulers going around, you know, and we chose to bring it out and go back to JOY and say, okay, you know, there's no need to do more test -- you know --

MR. SHUMAKER: Yes. So it's pretty high frequency that it just -- every time you tried something it would shut down. In the last situation here, where it said, the miner operator walked up, and that in a way you were able to back up, and when the miner operator came back, was the coal hauler able to leave then without any problem?

MR. BAKER: Yes. As the coal hauler would leave you would see the yellow lights flashing on the coal hauler thought because it was picking up that miner operator and the hazard -- in the initial hazard area where the way that this is designed you have several zones but just the -- I guess being more specific to the zones you would have like an alert area where -- that the yellow

lights would flash, and then your shut-down zone would be your red area. So as the coal hauler leaves, you have that alert, you know, going off that's someone is in there.

MS. McCONNELL: So, if you are having -- I'm sorry, Wes, I don't mean to interrupt, but I'm going to interrupt. But we have these -- we have multiple interference -- we cited multiple times of interferences, some such as cables and miner-wearable components that are interfering with the operation of the machine can be adjusted and moved. How did you adjust, or how did you restart -- the interference associated with wire mesh in terms of your roof systems, and the type of metal in your -- and in terms of the metal in the rock or the coal itself, you were saying, in terms of like, how do you handle those situations in terms of dealing with getting the machine started again?

They seem to be a little bit more difficult. You can't move the wire mesh, you can't -- the composite or the -- the mining

conditions in terms of how much metal is in there, embedded in the coal and the rock, you can't changed that.

MR. BAKER: Right.

MS. McCONNELL: What do you do?

MR. BAKER: The system itself is based on algorithms, and so as it's calculating, that's what we've kind of went back to JOY and ask, because we affectionately call it the Flash Gordon effect as far as our miner operator with, when you look at this on a computer, the miner operator as it's calculating, you'll see this guy, he's doing almost like a dance, and sometimes he comes over here, sometimes he comes back and --

MS. McCONNELL: And he's not dancing?

MR. BAKER: He's not dancing he's just standing there.

MS. McCONNELL: He's just standing, right. Okay.

MR. BAKER: And so it -- you know, that's kind of, I guess what we affectionately call it there underground, it's our Flash Gordon

effect, because that's what it looks on the computer screen. So, it's one of those, that if you sit still, just like where the coal hauler shuts it down as you come around the corner, and if you sit still for a second, then it recalculates and pulls whatever interferences out, out of the shutdown area.

MR. BARRAS: And a lot of times we've moved the locator. Do you know what I'm saying?

MS. McCONNELL: Mm-hmm.

MR. BARRAS: We change -- You're right. We can't change the environment. We don't move the cable. So, as in the case here, we move the operator. And it's -- what it is it's having an effect on where the calculated relocation is of the locator.

MS. McCONNELL: I see. I got that now.

MR. BARRAS: So that we can move the locator, still does it accurately, depict where it's at if you look at it on the screen, but it's got it out of that shut-down zone. And then also,

It uses a different zone. When you put the machine in reverse, that is the small zone on the machine -- when he puts the machine in forward it's a small zone on the rear, so it wouldn't pick up the operator as easily as it's pulling away. Still nothing -- actually no warning zone option.

MR. SHUMAKER: A question on the cable, the shielding -- the shielded, unshielded on the various cables.

MR. BAKER: We shield the cables on both of our roof bolters?

MR. SHUMAKER: And also on the miner cable.

MR. ADAMSON: What voltage did both of those operate at, for the roof bolter and the continuous mining machine?

MR. BAKER: The roof bolter is 480, and the miner is 995.

MS. McCONNELL: Is there a period -- I mean, as these interferences, I understand that, is there ever a period of time where you are operating in terms of producing coal, moving your

roller machines in and out of the working section, up to your continuous mining machines, that there are periods of time where you are not getting these triggers from these interferences? Can you say that you actually work several hours without anything happening, or is it constant as production is going on, as long as these systems are working together, these triggers are intermittently happening throughout the shift?

MR. BAKER: Yes. Yes. During testing we would take the coal hauler and we will get away from high-voltage cables. We run 12470 at the mine, and so we move it away from high-voltage areas to do our testing, because we know of that interference.

MR. SHUMAKER: On the continuous miner, you are using the proximity on the continuous miner even apart from testing on the mobile equipment?

MR. BAKER: Yeah.

MR. SHUMAKER: Do you have interference issues with other people that have the miner

wearables both, you know, on the section? Do you see that, like interference with the continuous miners because now you have several miners wearing the miner wearable. Is that something that is -- Yeah?

MR. BAKER: Yes. What Calvin stated earlier the miner zones are much smaller zones, so it's not as affected, to the noise and the different environments that we see underground what we still have the nuisance trips, it's just more manageable than the coal hauler. Go ahead, ask your --

MR. BARRAS: You know, Jeremy talks a lot about near where the miner was loading but, yes, we've seen these same types of nuisance trips, and I think, you know, I'll go back to what we've been told, as long as the locator is within frequency range of either the hauler or the miner, if it picks up a magnetic field that's in the frequency range that the locator -- excuse me -- the generators put out our the drivers put out, it sees that as being in a hazard zone.

So, yeah, even though I said we were joining this, it was done at the miner, and we see it -- it can happen anywhere. I mean, with the first few days we tested, we would stand back and just listen to the car drivers going across this section, and you could hear -- sometimes you can hear the locators that we had backed from away from the test starting to go off, and you would hear the car driver complaining that his car slowed down for no reason. And it was actually sometimes our locators would be 300 feet away, but we may only be 50 feet away from a power center, you know. So, there are still a lot of issues as far as this system being able to accurately say, that's a locator, and that locator is a hazard area.

MS. McCONNELL: But you don't have that problem with -- right now with your continuous mining machine, simply because of where it's located in the working phase?

MR. BARRAS: We do have the same problem. I mean you still get the same effect

from the wire mesh, you still get that where it expands the zone around a miner, and the operator, when he's under mesh may have to stand 10 feet back, when he's not under mesh he can stand 6 feet back. So, yes, we still get that same effect, the difference is, the miner operator is not traveling back and forth by his own cable, or underneath other machine cables, and the zone is much smaller.

The larger the zone the more we open it up for all of these effects, these influences from the mesh, from electromagnetic interference, so that's where -- on the hauler that's the issue. We've made such a big net, we not only catch the fish we want to catch -- we are catching a lot of other things as well.

MS. McCONNELL: Go ahead, Rodney.

MR. ADAMSON: You provided three examples, if I'm correct, as far as the fault conditions or it's the nuisance that you explained. Are all those particular issues with any particular PDS?

MR. BAKER: The personal -- the wearable devices we have, I mean, we have several there at the mine. That day we had three different personal wearable devices that we --

MR. ADAMSON: As a part of the question, is this -- these nuisance that you are experiencing at this particular mine, with the Matrix the JOY Generation II system?

MR. BAKER: Yes.

MR. ADAMSON: And in what timeframe were these tests conducted that you were having these nuisance trips with the Generation II system?

MR. BAKER: We had been testing since --

MR. ADAMSON: These specific nuisance trips.

MR. BAKER: Sorry. This was roughly a month ago? I would have to look at my notes.

MR. BARRAS: Yes, maybe 2 months, around that.

MR. BAKER: Yes.

MR. ADAMSON: But roughly two months ago?

MR. BAKER: Yes. Roughly.

MR. ADAMSON: Did anyone that's actually with the manufacturer say anything about the loops of the cables in and around the area of the magnetic fields being generated? A possibly band issue?

MR. BAKER: Yes.

MR. ADAMSON: Okay. Is that something as a miner operator, that you guys feel like you can remedy, or attune to prevent loops of cables in and around the equipment as it's operating? Instead of just looping it to allow it to just run out?

MR. BARRAS: As far as how we manage with the miner, you know, the continuous miner itself, but if you look at all the different locations that the car has to travel. I mean it's hard to get away from the cable, you would have to have a slack pile, I mean, if you are going to have all your slack tied somewhere, and in those areas, in big areas, where, at some point in the mining cycle where you are going to have to travel

by it, so I guess as far as the continuous miner, yes, we do some things like you are talking about.

You know, we make the guy move away from where he's is going to stand, or don't stand near the cable, because if you can't put it back and cross cut, so that's how we manager with the miner, but we don't see that as being a way to manage with the hauler, because it's going to have to travel by that cable, at some point in the mines.

MR. ADAMSON: At this point in time, with these given scenarios, at this mine, how many miner wearable devices were in use on the section?

MR. BAKER: During the testing, at this time the miner operator was wearing one on this side, and what we call our Curtain Man, was wearing one. And then me and the JOY representative had one, and the car driver. Of course the car driver would have to have one to operate the machine, otherwise it will not start.

MS. McCONNELL: And so during this testing phase. I mean, you are mimicking a

production shift, right?

MR. BAKER: Yes.

MS. McCONNELL: And you would have the same number of miners on the working section as you would have in any other case? I'm talking about individual man now.

MR. BAKER: Yes.

MS. McCONNELL: Okay.

MR. BAKER: Yes. The reason I did not show the bolter it's because the bolter is about two inches over from here, and some of those guys as far as being in the example that I'm showing here, that it was, you know, 200 feet away.

MS. McCONNELL: Do you see any other kind of interferences occurring with -- from any other ventilation controls, of your water sprays? Or any other types of controls that you would you use as you are moving, have seen any of things affecting the operation of the PDS?

MR. BAKER: I'm not -- are you taking about curtains or water sprays?

MS. McCONNELL: Water sprays, yes.

MR. BAKER: No. No. They were aware.

MR. BARRAS: We don't have face -- ventilation fans, we like to have our fans on one section, we just use the blowing mine curtain.

MS. McCONNELL: Okay. Okay.

MR. ADAMSON: So, each machine operator they are still --

MR. BAKER: Yes. And then the JOY representative.

MR. ADAMSON: So we are talking five entry sections?

MR. BAKER: In this area.

MR. ADAMSON: In the area?

MR. BAKER: Yes.

MR. ADAMSON: So, did every miner on the section have a miner wearable device, just from in the area?

MR. BAKER: No.

MR. ADAMSON: No. As far as their locations, was there anyone else moved outside of the miner operator? You had mentioned a laptop that was used to -- that was basically showing

this guy dancing from location to the next. Is that how you basically narrowed it down to the miner operator as an issue that actually was showing him in a warning or stop zone?

MR. BAKER: Yes.

MR. ADAMSON: So no one else in the party, in and around the area was an issue?

MR. BAKER: No.

MR. ADAMSON: Okay. As far as the other frequencies that are in the area, when we are talking about, talking about tone generators, is there any closeness in the frequency that you would -- the other systems that are using the mine versus this system?

MR. BARRAS: No. We don't use -- in terms of monitoring or anything now. I guess through some of the studies that have been done, you know, with respect from analyzing things you have, they are seeing all kinds of frequencies near that range of -- I'll let those guys give you more information on that, but I guess what times I've been with them during that testing there's

been a lot of oh-oh, I didn't expect to see that. I mean there were just straying frequencies near that range that they operate in.

MR. ADAMSON: So, it's a belief that the magnetic field is fluctuating, such that it's picking up that frequency or is it the frequency is being generated, in the -- to where the magnetic field picked up? Do you see my questions?

MR. MELVIN: No.

MR. ADAMSON: Is it more the magnetic field being expanded to pick up the miner wearable device? Or is it the miner wearable device coupling with the frequency that's being picked up by the magnetic field? I guess this is my question. Is it more than the magnetic field, or is more of the frequency?

MR. BARRAS: That's a good question.

MR. ADAMSON: I thought it would be (crosstalk) --

MR. BARRAS: I think to answer that we might get a little closer to making this thing

work, I know, may be people in the room that can answer that. I mean, in the case of, like I explained earlier, on some of the early trials where we had locaters that were just going off all the time, at that point, we believe like saying, it was magnetics from the power centers and from the cables, and because the locator was within our F range, of a controller, it was causing -- you know, it was looking to the machine rank that there was a clasp or an opening, or a -- so at least a warning needed to be -- you know.

MS. McCONNELL: But in the Strata and the Gen II systems, the signal emanating from the batch, right, that was put the other way round, it's emanating from machine going into the batch, okay. Could you put the football-shaped --

MR. BAKER: I sure can.

MS. McCONNELL: And also, we would really appreciate if you could read these presentations with us for the record?

MR. BAKER: Not at this time.

MS. McCONNELL: Okay. Can you -- we'll

need to have in some fashion.

MR. BURGGRAF: Well, we'll see if can get permission to send the drawings.

MS. McCONNELL: Okay. Could you just walk us right again through the zooms again in terms of how that -- in terms of just -- could you just walk through what you were presenting us before?

MR. BAKER: Okay.

MS. McCONNELL: Okay. In terms of the two football-shaped zones.

MR. BAKER: Okay. With the Strata system, it's kind of the same principle on zones, you have a likely a red zone which is this lighter blue, and then this is the shutdown zone. So what we were showing here, it was the fact that when -- it was what Calvin talked about earlier, is when this coal hauler backs in, that the miner, when we first testing, that he would hit his button on his wearable device to shrink this zone.

This zone comes out well pass the coal hauler here, which you can see to get the coal

hauler to be at the backend of the miner, we had to shrink this zone down which exposes the edges of this coal hauler here. Now, once he leaves these zones will expand out to cover a much larger area, much large section.

MR. WARD: And when the zone is contracting, when it's smaller is the continuous mining machine tramming or moving at that time? Was it stationary?

MR. BAKER: No. It's cutting.

MR. WARD: It's cutting?

MR. BAKER: Yeah. Each stationary time there, he's not tramming from place to place.

MR. BURGGRAF: So his field on the back of the continuous mining machine has also shrunk the load, and for him to stand and operate in.

MR. ADAMSON: Is this particular drawing depicting the four generator systems on the coal hauler and the continuous mining machine?

MR. BAKER: Yes.

MR. ADAMSON: Is there a way to alter the warning zone and the stop zone such that the

stop zone could be expanded and the warning zone be contracted?

MR. BAKER: I'm not sure. I mean --

MR. BARRAS: It seems as if the -- warning really doesn't have -- I mean, if it was just a warning zone we would be okay. I mean, but before the zone is reduced, you know, like the large football, as you can see with the miner operator would stand, he is going to be inside that shutdown zone. So, as far as sizing that again, you know I haven't dealt with the Strata in a while, but not this method -- It says Strata so this is (crosstalk) --

SPEAKER: You said Strata.

MR. BARRAS: This is Strata, we are talking about Strata.

MR. ADAMSON: Okay. And when -- I guess, when was this drawing depicted, what timeframe?

MR. BARRAS: Well, this was taken from -- this was happening under the surface testing 2010, and that's where we first saw this

happening, and saw it was going to be problem, for our mining methods.

MR. ADAMSON: Is there any more recent data or (crosstalk)?

MR. BARRAS: At Gateway they continue to operate in this way up until they had the Gateway Mine, and now they are starting Gateway North, so they are getting ready to start testing with JOY systems at the Gateway North. But they continued to operate it this way. The difference is, as Jeremy described, when we initially set this up as the car would come in, after he reached a predetermined speed, the operator could reduce that zone from a large zone to the small zone. And as time went on at Gateway they set it up so that as the car reached that predetermined speed, that zone would shrink on its own, automatically. They didn't have to -- the operator didn't have to press a button.

MR. ADAMSON: And again, the timeframe for when it was last tested at Gateway?

MR. BARRAS: Well, it wasn't tested, we

actually -- we had an operation drive for three years like that with the smaller field. And there were a miner and four cars, that way for about three years.

MR. BURGGRAF: About three years, up until probably two months ago.

MR. BARRAS: A long limit to --

MR. BURGGRAF: That might be it, I don't --

MR. ADAMSON: And those coal hauler teams also were equipped with -- they also were equipped with proximity detection systems?

MR. MELVIN: Yes. And those then there's nothing brought up, at least on that system, the operators would talk about the fact that system, the operators would talk about the fact that would kick out on, and how do I get out of here. Or, with our discussions that evolved around the fact it doesn't stop the machine in time. There are situations where a miner operator might want to get back from his equipment for various reasons, and as that car or coal hauler

goes down right behind him, his travel way for personal egress is blocked.

We've made some improvements on that, and that's where that small triangular detail at each corner of the bed comes into play, he's able to be there and kick the car out. There are other things which probably I ought to be thinking about when you get into these, and that really egress from a piece of equipment at the face has to be there.

MS. McCONNELL: So, I just want to make sure I understand that. What we have been talking about in terms of the interferences having affecting production, but have the interferences, as discussed, ever affected the miners' protection, in terms of safety, in terms of not having -- Did the interferences ever incorrectly identify whether or not a miner was in a safe zone that put him in hazard?

MR. BARRAS: In several hours of testing, the way we would test, we would hang the locator and drive the car toward the locator.

There were many times that the stop was beyond the locator, so had that been a miner wearing that locator, yes, he would have been injured, or worse.

MS. McCONNELL: And if we were going to summarize the interferences that you were experiencing, they are this parasitic coupling that is dealing with either the -- I'm assuming the cable as well as the roof meshing would be in that umbrella, right?

MR. BARRAS: First, say, parasitic coupling I think would just be the roof mesh.

MS. McCONNELL: Just the roof mesh, and then --

MR. BARRAS: Yes.

MS. McCONNELL: So we have parasitic coupling with the roof mesh, we have cable with interferences, we have incorrectly, reading the badges of the miners either within the zones where they should be protected, or incorrectly reading a side of the zone for other machines? For example, the continuous mining machine operator --

MR. BARRAS: Right.

MS. McCONNELL: -- was incorrectly being read as in the warning zone of a hauler?

MR. BARRAS: Right. It would still be the hauler zone. It's a miner operator that was in --

MS. McCONNELL: The hauler zone where the --

MR. BARRAS: Yeah. That appeared to the machine that was in a stop zone.

MS. McCONNELL: Okay. Any of these interferences are mitigated -- this is the question -- by seam height, yes or no?

MR. BARRAS: The roof mesh seems to be less of an issue at higher seam height, but as far as the cables I don't think we can say that, because at Francisco Mine we saw similar effects from the cables, even though they were tied up to the roof mesh in a higher seam.

MS. McCONNELL: Was the Flash Gordon event that you were also describing, also mitigated by seam height? I kind of like the

Flash Gordon effect, and that was very visual, I understood that.

MR. BARRAS: If you can see it. If you can see it, you would understand.

MS. McCONNELL: Yeah. The seam height didn't affect that either?

MR. BARRAS: I can't say. The bulk of the testing where we've seen that the computer while the testing is ongoing has been with locators. We've seen the typical symptoms at Francisco Mine, but I hadn't been looking at a computer screen during that test.

MS. McCONNELL: All these issues we've just discussed in terms of interference, and in correctly identifying where the miner wearing the badge is located, is that applicable to -- Have you seen that both with your Strata systems and your Matrix systems?

MR. BARRAS: With strata we don't have the ability to see into the program like that.

MS. McCONNELL: Oh. I see.

MR. BARRAS: So I can't tell you if it's

having an effect on the Strata system like it does the JOY Matrix system.

MS. McCONNELL: But the trigger and interferences are they in both systems?

MR. BARRAS: I haven't been around it in the mining environment enough to answer that.

MS. McCONNELL: And so which -- then which system are now talking bout in terms of these interferences?

MR. BARRAS: The interferences that -- have been all the most recent testing at Wildcat Hills is on the JOY Matrix.

MS. McCONNELL: The JOY Matrix.

MR. BARRAS: And I guess what we saw has a benefit to the JOY Matrix system was the ability to eliminate this problem, because you can actually go in and draw that shutdown zone the shape of the bed. The problem is that because it's more susceptible to these interferences, and the fact that we can truly see what's going on inside the controller, we are seeing that it doesn't have the ability to accurately locate the

guys in a hazard zone. But that was, you know, when we started looking in Gen II, that was a big part of it.

It would alleviate this problem, and that was why there so much, you know, desire to look at that, we, you know, because at the time when I said we considered this reasonably successful, and decided to go ahead with underground testing, everyone thought, well, if we protect 90 percent, that's a whole lot better than zero percent. So when the machine -- when the hauler was away from the miner, it had 100 percent protection around it. In this case when the car was loading the car driver knew where the miner operator was, and the miner operator knew about what the car driver was going to do.

I mean, that's at that part of mine cycle happens over and over and over between these people all the time. So there is an awareness of the two, you know, what each other is doing, so again, it felt like this was a lot better than doing nothing at the time. But before this was

completed, Gen II comes along and solves this problem once they get the technology where it needs to be.

MR. ADAMSON: Has the mine that uses wire mesh, tried other alternatives as far as other mesh that's available, and is just as effective as far as providing the support for the immediate (inaudible)?

MR. BARRAS: Not that I'm aware of. I think it's always been, yes, what we refer as the (inaudible).

MR. ADAMSON: And you had mentioned about the reward issues about, whether it continues, or a machine, you didn't really explain what type of machine that would actually not stop before a locator would have been contacted. What machine and how was that set up? When was that tested?

MR. BARRAS: Well that's been throughout the testing that's going on for about the last two years, and when we would take the machine back and just do the dynamic testing. You know, hang a

locator. So, you know, we've seen that as early as some of the first tests. You know, 19, 20 months ago, 21 months ago, and continue to see them up through testing that was done three or four months ago.

MR. BURGGRAF: And that was a battery coal hauler?

MR. BARRAS: Yeah. On a battery coal hauler, yes. That's only hauler we are testing has been on the battery coal hauler, the BH-18 is (inaudible). And as I say there is a test planned at Gateway, a different mining environment, so we'll see how that does (crosstalk) --

MS. McCONNELL: You don't have any plans on trying it out on diesel machine?

MR. BARRAS: We don't have any diesel coal haulers or anything like that to try it on.

MR. BURGGRAF: One thing to know in our region, and that's all I can talk about, we've tried these systems in five scene and six scene and the surrounding lines are similar, so it's not really tied to just one coal mine, at least the

environment -- and nothing there for testing it any other places, but I've been in their scenes before, and they are similar. So it may very well be at least in like Coal Lake Center issue.

MR. ADAMSON: As far as the coal hauler issues, or like with both proximity systems that are available for use?

MR. BARRAS: Are you talking about Strata in?

MR. ADAMSON: As in the dual systems.

MR. BARRAS: Again, don't have enough production experience with that strata to answer it. I'll say that that testing is going on at Gateway and happening accordingly.

MR. ADAMSON: So the issues that you were specifically talking about were the miner wearable device would have been contacted by a coal hauler if that was specific it?

MR. BARRAS: Yes. That was specific to the Matrix, the JOY, SmartZone, however you wanted it to be.

MR. ADAMSON: Was that in a high tram

condition?

MR. BARRAS: Yes. That was churning out the locator at full speed, all the time training is straight on, other times it's turning into a cross-cut in any way we could think of to test.

MR. ADAMSON: Because I've seen both systems as well, and I appreciate the information. I also have seen those systems work, the high tram, low tram, the (inaudible), so many times.

MR. BURGGRAF: I personally witnessed the test at the Gateway Mine when we were testing the Strata, and did the same thing, it ran past the locator, so, I can't tell you what frequency, I did the same thing and it ran passed the locators so, you know, I can't tell you what frequency. I mean not just watching that one day, you were testing it's, so we have experienced the same thing, but I'll say that was probably three years ago.

MR. BARRAS: And I mentioned it earlier, but before we put the machine in production we are making those zones much larger to give it that

safety factor. But again, the bigger the zone, the bigger the opportunity or interference.

MS. McCONNELL: I think I don't have anything else. I want to thank you very much for your testimony. Do you have a question for us.

MR. BURGGRAF: No. I don't have a question, I've got some additional comments, I'd like to close.

MS. McCONNELL: Okay. Go ahead.

MR. BURGGRAF: Thank you. John and I -- we attended the public hearing in, closed room, part of the 100 Criteria and Procedures for Assessment and Civil Penalties, on February 12, 2015, Chicago, Illinois, and Ms. Sylvie asked to speak to us after the hearing on this Rule, you were present. Okay. So you were aware of the discussion.

MS. McCONNELL: Mm-hmm. Yes.

MR. BURGGRAF: And I informed Ms. Sylvie at that time that the technology had not advanced far enough to effectively, reliably operate on local equipment, we still feel the same way. We

really wanted it to happen, just like a lot of other people want it to happen. Just like MSHA wants it to happen, but it's not there yet but, you know, I can't tell you how many times there's been a change in the software, and we are all hopeful it's -- you know, we got it this time, you know, and it's going to work, and so there's been a lot of disappointment, too, so that we want it to work, just like you want it to work, just like the vendors want it to work.

The proximity detection systems are dependent on electromagnetic fields that are impacted by metal roof support material, power cables, and the geologic makeup surrounding Strata. Some mines have greater challengers than others, and with currently technology exceptions would have to be made, and the fields would have to be reduced enough to not cover the corners of the coal hauler when approaching the continuous miner. Like we showed you with the Strata system.

The current technology cannot comply with statement on the MSHA Fact Sheet which Calvin

referred to earlier, and it's down here, it says that, "It would have to prevent adverse interference with or from other electrical systems." Our big issues is "from" other systems. Okay. The technology is still not ready for production, and I ask MSHA to delay this Rule until it is, and work with the vendors to perfect.

Peabody has invested a lot of time and resources in this effort and we support you during research, because we see positive results once the systems are perfected. Peabody continues to support research and wants a solution as do a lot of other people. Okay. A couple things, you know, the ruling of three years, what's the rebuild cycle for cars. These guys have had these cars for seven years, and we haven't rebuilt them. So three years is not the kind of rebuild cycle, the state of the industry and everything.

You know, it takes a little while to have to send one out for a rebuild, so we need a longer period of time for that. Also I feel like, you know, we are willing to put it on the cars,

and test it and everything, but the Rule doesn't give us an incentive to do that. I'm better off leaving it off my cars until the Rules goes into effect, because I have a longer timeframe then, to comply with the Rule.

If I got it installed now, and I'm testing it, I'm going to have to comply sooner. So, it's a disincentive to get people to do trials. So, you know, changing -- why can't we get into more changing batteries on these battery haulers? I don't know. We haven't really got into that too much, but may be an issue, in some cases it may not.

Another thing is, you know, where does this force the miner operator to stand? We have a Respirable Dust Rule too, and he may be required -- he or she may be required to stay in a more dusty, respirable dust environment, so we need to think about how this affects that too. But anyway, I do appreciate the opportunity to speak and discuss this, and I appreciate your questions.

MS. McCONNELL: And I appreciate your

presentation. It was very good, and you gave us a lot of information for us to take into consideration, and I thank you.

MR. BARRAS: Thank you.

MR. LINDO: What is the average rebuild cycle on the mobile machines?

MR. BAKER: We, at this time, at Wildcat Hill, that's all I have to speak to about what we are doing at our mine. We've got several battery coal haulers that are 2009 models, and the first one we received in the Peabody system that we have running at our mine, was at the end of 2008. And this year I've just done partial rebuilds only, where I went through the center section, and kind of the moving parts here. And done some efforts as far as building services and electrical performance on the bed, but I have not touched the tractor, or what we call the tractor can and will appear due to the economy.

MR. ADAMSON: So on a best guess, it's about seven years?

MR. BAKER: Yeah.

MR. ADAMSON: Okay. During those partial rebuilds do you do those partial rebuilds at the facility or do you take them out of service?

MR. BAKER: Yes. We take them out of service and send them in to (inaudible).

MR. ADAMSON: What's the turnaround time, roughly, for those partial rebuilds?

MR. BAKER: The partial rebuilds, the first one was roughly ten-and-a-half months.

MR. ADAMSON: One more thing before we close.

MS. McCONNELL: My goodness! I'm beginning to feel for --

MR. ADAMSON: The stop zones that you've been thinking here with the Strata system, was the continuous mining machine or operate in a warning zone, even if that was expanded, it still would allow the miner operator to be close once that continues -- once the ramp car got to its location?

SPEAKER: Some of those zones, the way

they are around the machines, can be alarmed, have been alarmed, and similar to, you know, even having a miner operator moved is still -- you know, the ability for that to happen is still there. Or, are miners going -- may miners have to move locations while these proximity systems are installed and used? We have seen that in and around mines today even.

MR. MELVIN: And we have, dove into that, but the fact is on a straight, there isn't a crosscut or a heading that you can get into, and you really are tied into more of this model in those situations. But we have certainly adjusted miner locations to help with (inaudible) trips, but the straights, and the turning of a crosscut, there is nowhere to go.

MR. BARRAS: And I know they did a lot of generator adjustments and tracks and metal replacements to try to eliminate that. You know, going back to the work we did, and we actually have a surface trial, we did. We've built a mock coal mine inside the building and we had, I guess

it's more people at the time, and the work was during that, and they've made every attempt possible to cover those corners without pushing that shut-down zone out to the (inaudible). And as you know during the mining cycle at some point you are going to be there, and it's just to say that the decision made at the time, coal miners don't like nuisances, and they'll look for ways, and maybe not the ways, to avoid them, so this was the best solution we came up with that.

MS. McCONNELL: Thank you.

MR. MELVIN: Thank you.

MS. McCONNELL: We only had one speaker, and Mr. Burggraf and Peabody were our only speakers signed up. But that doesn't mean that somebody else is sitting there and thinking and hearing testimony and have a question or may have a statement they'd like to make. This is an informal meeting. As you can see it's a lot of give and take, and this is a good time, to have a good discussion with us. It doesn't preclude you from providing comments later, but we learned a

lot from these interactions, so I encourage anyone who is here today to come on up and write something for the record. We don't bite.

So I guess that's, no one is -- if I took a 30-minute break would you also -- would that give you more time to consider it? Come back and if you think about it? I have a feeling that's not going to happen. So since I see that no one wishes to make a presentation, I'm going to conclude this hearing. I thank everyone who -- I thank Peabody for coming forward and making a presentation. I thank everyone else who came to the meeting to attend.

And it shows your interest in this rulemaking, and I want to emphasize, again, that any comments that you do have, we need them by December 1st, and we will take all your comments and concerns into consideration when we develop the final rule. And I continue to encourage you to participate and provide your comments you know, during this rulemaking process. So thank you very much. And our Public Hearing is concluded.

(Whereupon, at 10:21 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