UNITED STATES OF AMERICA

DEPARTMENT OF LABOR

MINE SAFETY AND HEALTH ADMINISTRATION

HIGH VOLTAGE CONTINUOUS MINING MACHINES

PROPOSED RULE

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HEARING

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TUESDAY,

NOVEMBER 30TH, 2004

The Hearing was held at 9:00 a.m., at the Radisson Hotel, 2 Waterfront Plaza, Morgantown, West Virginia, Marvin Nichols, Mediator, presiding.

PANEL:

MARVIN NICHOLS Mediator
ROBERT BORING
SALWA EL-BASSIONI
RONALD FORD
ELIO L. CHECCA
RON STAHLHUT
SANDRA WESDOCK

A-G-E-N-D-A

P-R-O-C-E-E-D-I-N-G-S

9:00 a.m.

MR. NICHOLS: Good morning, everybody. My name is Marvin Nichols, and I'm the Director of the Office of Standards for MSHA. On behalf of David Dye, the Acting Assistant Secretary of Labor for Mine Safety and Health, I want to welcome all of you here to this public hearing today.

This is the fourth and last public hearing on these two rules. The purpose of these hearings is to obtain input from the public on a proposed rule that was published in the Federal Register on July the 16th, 2004.

The modified hearing location and date notice, as well as the extension of the post-hearing comment period was published in the Federal Register on August the 12th, 2004. And we have copies of these documents at the registration table if you desire any extra copies.

The Proposed Rule we are addressing today would include construction and design requirements for approval of high voltage continuous mining machines under MSHA's Part 18, and Mandatory Safety Standards for high voltage miners and underground

coal mines under Subpart 1 of Part 75.

The Proposed Rule would also amend Subpart K of Part 75 to allow the use of such machines in permissible areas of underground coal mines.

Let me take a minute to introduce my colleagues up here. To my left is Larry Checca. Larry is the Chair of this High Voltage Continuous Mining Committee. He is an electrical engineer with our tech support group.

Next to Larry is Ron Stahlhut, an electrical supervisor in Vincennes, Indiana, our district data office. And at the end of the table is Sandra Wesdock. Sandra is an attorney from our Solicitor's office.

To my immediate right is Salwa El-Bassioni, Salwa is an electrical engineer in Coal Mine Safety and Health's headquarters office. Next to Salwa is Bob Boring. Bob is an electrical engineer from our A&CC tech support center.

And at the end of the table is Ron Ford. Ron is an economist with my office in headquarters. And at the registration table is Susan Miles. Susan

is a regulatory specialist in my office in headquarters in OSRV.

This hearing is being held in accordance with Section 101 of the Federal Mine Safety and Health Act of 1977, and it is the practice of MSHA, all of our hearings Formal Rules of Evidence will not apply.

Therefore cross examination of the hearing panel will not be allowed. But the panel may explain and clarify provisions of the Proposed Rule. Those of you who have notified us in advance of your intent to speak will be allowed to make your presentations first.

And I will call the speakers in order that the requests were made. Following these presentations, others who request an opportunity to speak will be allowed to do so. We invite all interested parties to present your views at this hearing.

And if you are sitting in the audience now, and wish to speak, pleaSe sign in at our registration table. We will remain in session today until everyone who desires to speak has an opportunity to do so.

Also, if you are not speaking today, we would like you to sign our attendance sheet at the registration desk, so we will have an accurate record of the attendance at this hearing.

We will accept written comments and information at this hearing from any interested parties, including those who are not speaking. When I call on you to speak, please come to the speaker's table and begin your presentation by identifying yourself and your affiliation, for the record.

If you have a prepared statement, or any supporting documents that you would like to submit, for the record, please leave a copy with us today. You can give written comments on this hearing to us today, or you can send them to MSHA's Office of Standards, electronically, by facsimile, by regular mail, or hand delivery, using the address information in the Federal Register Notice.

The post-hearing comment period on this Proposed Rule will end on December 10th, 2004, and submissions must be received by that date. A verbatim transcript of this hearing will be made part of the record, and it will be posted on MSHA's website.

If you would like a copy sooner you can make your own arrangements with the Court Reporter, and the Court Reporter company information is available at the registration table.

Before the speakers begin their testimony I would like to give you some background on the Proposed Rule that we are here to address today.

The mining industry has been moving toward the use of high voltage continuous mining machines to increase productivity. This efficiency can be accomplished with a minimal increase in machine size. When paired with more efficient roof bolting and section haulage equipment, a high voltage continuous mining machine can increase production over a low or medium voltage continuous mining machine.

These machines use less electrical current and permit the use of smaller cable. Smaller cables are easier to handle and can reduce injuries to miners.

MSHA's existing regulation, 30CFR75.1002 applies to the use of electrical equipment and conductors. This regulation does not allow the use of high voltage conductors, or cables, except for high

voltage longwalls, in or inby the last open crosscut, or within 150 feet of pillar workings.

Consequently mine operators submitted 38 petitions for modification that MSHA has granted for the use of high voltage continuous mining machines. Since the Proposed Rule was published, mine operators have submitted additional petitions, some of which MSHA has granted.

In developing this Proposed Rule we reviewed the granted petitions for modification. The Proposed Rule includes most of the provisions from granted petitions for modification, as well as some new safety provisions with enhanced safety protection for fire, explosion, and shock hazard.

The Proposed Rule would improve the design requirements for high voltage continuous mining machines consistent with existing requirements, accommodate new design technology that is practical, and lessen burdens on the mining community associated with a petition for modification process, while preserving safety and health protection for miners.

To date we have received five comments on this Proposed Rule. And you can view these comments

on our website. Our purpose here today, then, is to further receive information on the Proposed Rule.

And our first presenter will be MaRk Fuller, Amercable.

MR. FULLER: Thank you, Marvin, and my name is Mark Fuller, with Amercable, and we make the Tiger brand mining cable products. So I asked for time today to speak and just talk about the cable design, and some of the things that go into it, that we have built into it.

Amercable was involved with this from the very beginning, and from the very first 2,300 volt continuous miner. And we met AND came up with special cable constructions, and special construction, and it has a lot of features that are built into it for safety, and for strength.

And one of the things I wanted to talk about first was the jacketing. And one of the jacketing compounds that I noticed was omitted from the document RAN1219-AV34, was polyurethane. It is called TPU, the acronym, that is thermoplastic polyurethane, and it is an extremely tough jacket as compared to rubber jackets that everybody is familiar with, neoprene hypeline and CPE.

The polyurethane, of course, is a plastic as its name implies, but it has some tremendous physical properties, and is highly colorable, so it is very visible. Polyurethane has over 5,000 pounds per square inch tensile, and it is almost double that of any rubber jacket out there, and the polyurethAne has over 100 pounds per inch tear resistance.

And so those two things together make it almost double any rubber jacket out there. And the reason I focus on that point is because polyurethane is extruded only in one layer. The rubber jacket, of course, has two layers, orange outer And then a non-black contrasting color inner jacket, and that is CPE rubber.

But the polyurethane, due to the nature of the material, it is so tough, we extrude it in a single pass, and it is very, very resistant to abrasion, also. It is five times more resistant to abrasion tests in the lab than is the rubber jacket, most of the rubber jackets out there in the field.

So I would ask that that PPU could be included into this as a, very much a part of the 2,200 volt continuous miner cable, and there are repair kits available for it, and everything. So it

can be handled in the normal methods.

Looking inside the cable we look at the power conductors. And this is a 5KV rated cable at 2,300 volts. And being a 5KV rated cable, it has a strand, of course, and then an extruded strand shield, which is a semi conductive layer over the strand to make it nice and round.

If you put tapes over the strand there is high points everywhere there is a bunch of wires. So the extruded strand shield is certainly a feature that is incorporated. Also these cables are rated, and routinely used at 5KV and 4160 and now we are talking about 2,300.

And being a 4,160 volt rated cable it has 110 mils of insulation. And this insulation is good for 550 volts per mil. In other words, it will hold two mils, let's see, four mils of this insulation would hold 2,300 volts. So we have 110 mils of EPR, that is ethylene propylene rubber.

And it is very strong, mechanicaLly, the EPR rubber in and of itself has 1,700 pounds per square inch tensile strength. So there is a good bit of mechanical strength, a lot of mechanical strength in the insulation.

And, of course, it is very thick, much thicker than it would need to be if we were designing a 2,000 volt cable it has only 80 mils of insulation, some have 70 mils. So we have 110.

Secondly on the insulation it is tested at 13 KVAC, before shipping from the plant. Every reel gets tested at 13,000 volts AC before shipping for the plant, so you know it is good solid, and very pure insulation.

When we were talking about the design of the very first cable, for the very first 2,300 volt miner, what things can we do to make this cable as safe as it can possibly be, you know, with our materials that we have.

And one of the things that we came up with was instead of like other 5KV cables, have a non-conducting tape over the insulation, let's put a conductive tape over the insulation. And so you have 100 percent coverage with the conductive material, with a very good resistance, highly conductive tape.

And I brought a data sheet here from our tape supplier, and it indicates the resistance in OHMS centimeter, which is how that is measured, and I will give this to the panel when I'm done.

But actually the tape material is very conductive. And in the case of a failure, impact or a crush, I have seen this myself in the laboratory, and even on field samples where that tape is crushed, it has a fabric backing. The fabric is impregnated with semi-con and the minute that gets down into the fault area it tracks immediately out and trips.

So the semiconductive tape was a very, very important feature that was incorporated into this cable for safety. And over the -- the semiconducting tape of course is applied helically, it is wrapped around the cable, and there is about a 10 to 12 percent overlap, minimum, so there is really no chaNce of pulling that apaRt and having gaps in the insulation.

Over the semiconducting tape is a nylon copper braid shield, or some type of textile and a copper braid shield. This is braided together in what is called a basket weaVe, and this material has a 60 percent minimum coverage over the semiconductive tape.

So we have, you know, very good coverage in case of a cut-through. And then, of course, the tape is 100 percent coverage. And this, again, is

for the highest degree of safety that we can build into the cable.

There is two grounding conductors and, of course, the ground check conductor, and the grounding conductors, the total of the two grounding conductors comprise almost 80 percent of the area of one power conductor, and the CFR30 says it only has to be 50 percent.

So we have plenty of grounding conductor built into the cable. And that is according to the Insulated Cable Engineers Association, which is a group of cable manufacturers, engineers.

I have been on ICEA And they have this specification, S753801. And everything is detailed here as far as the insulation wall, jacket wall, minimum physical properties for the insulation and jacket, so on and so forth.

So we follow this plus go the extra mile to put in the semiconductive tape.

MR. CHECCA: Can I ask a question?

MR. NICHOLS: Go ahead.

MR. CHECCA: This is Larry Checca. When you compare the two cables, as far as the shielding and the construction of those cables, internally

excluding the jacket, what is the difference, the major difference between the two?

MR. FULLER: Are you talking about polyurethane?

MR. CHECCA: TPU versus rubber.

MR. FULLER: The main, the internal construction is exactly the same. It is all in the jacketing. In other words, the TPU would be a single pass jacket which would go over the core, and then the CPE rubber is a two pass jacket with reinforcing twine between the two layers.

MR. CHECCA: Does it use the semicon?

MR. FULLER: Yes, it has, they both have the semicon.

MR. CHECCA: Okay, thank you.

MR. FULLER: So that takes care of the shielding. When we look at the rubber jackets, of course, we have around 3,000 pounds per square inch tensile strength, 2,900 to 3,000. And we have about 55 pounds per inch thickness of tear on the rubber jacket.

Of course it has the two colors, the orange outer and, let's say, a green or a blue inner. And that is some assistance, you know, provides

maybe a little easier determination. But my point is, on the TPU, with the sheer physical strength and abrasion resistance, it is virtually never going to be -- we have used this in the open pit mining industry for about 11 or 12 years.

And it has a really good experience with the TPU there as far as abrasion resistance. You never weaR through the jacket like you can with a rubber jacket, pulling Around the rocks in a copper mine. They used to just destroy the rubber jacket in maybe a year or two, and then this TPU jacket there is cables out there ten years old that you can still read the legend, you know, the outside is scuffed up, but it is not worn away at all.

And we also have this TPU being used on some shear cables. And we have this TPU material on many, many of the 2KV continuous miner cable, 1,000 volt miner cables. So it has a lot of field experience, and it is being used on the 1,000 volt miners, probably, about five years. There is a lot of mines using that right now, and really like it. So that is why I think it should be incorporated for the 2,300 volt miners.

So, anyway, when we look at the materials

here, again, we have the -- going back to the rubber jacket, that is a two pass with a twine layer in between the two layers of jacket, twine webbing in between the two layers of jacket.

And we also have the jacket layers bonded. And so that is a very, very good cable. That design has been, particularly the two pass jacket, has been used for more years than I have been in the industry, and has been successful.

But whenever a new material comes out that is of benefit to the coal mining industry, or all of mining industries, we use that. And that is one of our functions as the suppliers, to have different things and to offer them for use.

Anyway, in conclusion, the design of the cable, the rubber materials, the special shielding, and manufacturing processes make this cable capable of withstanding the extremely rigorous environment of mining.

This, coupled with the extremely sensitive ground fault protection described throughout the document, under 1219-AV34, indicate that mine operators should be allowed to handle this cable with the hook sticks, or ropes, and twines,

because the high voltage rubber gloves, with the leather casings, I have used myself in a laboratory situation, at least, not in a mine. But they are extremely cumbersome.

So what I'm asking, hoping for, is that we can look at some handling methods and try to open that window up a little bit differently from what we see in this document.

MR. NICHOLS: Go ahead.

MR. FORD: Mark, I have a question. You have talked, in other hearings, about the TPU cable, but you haven't yet talked about the cost of it. Can you give me an idea of the comparison on what it would cost between using the TPU with the other jackets that are currently used now, like a measure per square foot, or something like that?

MR. FULLER: It is just a ballpark number for the TPU, maybe 15 percent, added. The jacket is more expensive.

MR. FORD: Fifteen percent higher than what is being used now?

MR. FULLER: Than a standard rubber jacket, ballpark.

MR. FORD: Okay, thank you.

MR. NICHOLS: Go ahead.

MR. CHECCA: Larry Checca again, Mark. Is there anything that can wear TPU jacket? I mean, is there something, you said you can run it over rocks, and so on, and it is five times the strength as the regular rubber jacket.

I heard, and I don't have any evidence, but I understand if the jacket, if the cable rubs together, like if you have it stored in a crosscut or entry, that that has a tendency that it can wear against the cable jacket?

MR. FULLER: Right, that is exactly right. Now, that has been the problem -- originally, now, TPU was introduced over 20 years ago, originally. And exactly what you said, LARry, was a big, big problem. But now the suppliers have included an internal lubricant in the material, and really it is not a problem any more.

MR. CHECCA: Okay.

MR. STAHLHUT: Mark, this is Ron Stahlhut. The TPU jacket you said, can it be extruded in a double pass like a rubber cable? You mentioned it is not, but can it be?

MR. FULLER: See, the thing with the TPU is we could, let's say we can do that, but we can't bond layers. And remember the key ingredient on the rubber jacket, well any jacket, if it is in two layers, that they be tenaciously bonded.

And we can't get any bond at all with the TPU.

MR. STAHLHUT: Could you use one layer of rubber with the TPU over it?

MR. FULLER: Again, we wouldn't have any bond there. The materials are so dissimilar that all types of adhesives have been tried. It is not like we sat on our hands but all types of adhesives have been tried and it just doesn't develop the bond of a rubber jacket, it is the single layer is extremely tough.

MR. STAHLHUT: To clarify the question. I guess on the double jacket cable, they are -- both layers are bonded together?

MR. FULLER: On the rubber jacket they are.

MR. STAHLHUT: I thought there was a cord between them. Maybe I'm confused.

MR. FULLER: There is a cord, but the

cord has a -- it has a wrap with maybe one inch little diamonds. Do you know what I mean? There is about two pics per inch, is what we call it in cable talk.

So there is little diamonds in there. But, yes, the jacket in between those spots, the coverage does not preclude jacket adhesion layer to layer, on the rubber jacket.

MR. NICHOLS: Anybody else?

(No response.)

MR. NICHOLS: Okay, Mark, thanks. Are you leaving anything with us today?

MR. FULLER: A page on the semiconductive tape.

MR. NICHOLS: Okay, thanks. Our next presenter will be Larry Vocelich, with the UMWA, and I'm sure I mispronounced that last name, Larry.

MR. VOCELICH: Thank you, Mr. Nichols. My name is Larry Vocelich, and I'm President of Local 1810 in District 6 and also a safety committeeman.

In your opening statement you mentioned about, I think you hit it on the head what this is all about, and you used the word production, to increase production.

Well, first of all, MSHA stands for Miner Safety and Health Administration, there is nothing there about production, and that is our major concern, is the health and safety of our miners.

And I stand in front, or sit in front of you today, opposing these changes. I feel that 4160 is way too much power. There is going to be problems with the storage of this cable, as far as the splices, the temporary splices, there is no limits.

With the long wall mining and the technology today, the mechanization in the mines today, we need more water to keep the dust down. So by adding, increasing the voltage, there is going to be more electric fusions in the mine.

It seems like we started getting the death rate down and then we want to change, you know, if something is working, there is an old saying, if it works don't fix it. Same way with just a year ago, within a year, we was up in Pennsylvania, and we had to testify in opposition against where they wanted to, on the dust.

You know, we have come a long way in 30 years, and I will be damned if we are going to go

backwards. There is no limit to how many splices, temporary splices. We would like to see that there be a limitation of the splices. These splices, they need vulcanized.

Like I said, with the dampness, it is going to create a problem, not just electrical but, you know, it ain't going to increase the production, it will be down all the time with this power.

It shouldn't be -- right now it is 2,400 volts, it is 24, and you want to go to 4,160, which is way too much. The torque on this is going to cause problems. The moving of the cable, the gloves, the hooks, there is nothing really spelled out about this. I think, you know, technical people, when they put stuff together, I think they need to work in the mines for a while to see how things are actually done. Because you have the gloves, that ain't going to happen, you are going to have to have some type of hooks, you are going to have some type of storage, etcetera.

Our biggest concern is, you know, it seems like if we bring up some type of a safeguard to increase safety at the mine, we can't get it. But any time management asks for variances, they are

given a dime a dozen.

Part 48 has no teeth. The training, that needs to be increased. With this power, if this goes through as-is, the people, they need to be educated on this. I see no place in here, the length of the cable, what it is allowed to be.

And just to sum everything up, we are in opposition of this. They shouldn't go over the 24, which is what it is right now, with the petition that has been filed, and then you are allowing -- like I said, I can't put enough emphasis what MSHA stands for, it is Miners Safe and Health Administration, it has nothing to do with production.

The production is there with the long wall mining and stuff. And we definitely oppose this. Thank you for your time.

MR. NICHOLS: Thank you, Larry. Salwa has a question.

MS. EL-BASSIONI: Salwa El-Bassioni. I have a couple of questions. You mentioned the issue with dust. Could you clarify your comment on that?

MR. VOCELICH: Well, they changed the regs here a while back, about nine or ten months ago, milligrams per dust. They was going to increase four

times fold. And it just seems like whatever management wants to do to make it easier for them, that it is more or less granted.

And, you know, it is a battle we have been fighting for years. MSHA is supposed to be an enforcement agency. And it seems like every year it gets more and more like an advisory agency.

And it is just like going down the road. If the troopers weren't allowed to fine you, they were just going to warn you, don't speed, well nobody is going to heed to that, everybody is going to speed.

And I think management has too much say. I mean, they have the right to have input, just like we do. But we have a system that is working, why change it?

MS. EL-BASSIONI: Are you saying that if the correlation between high voltage and the amount of dust, is that what your comment --

MR. VOCELICH: Well, no. I was just saying that nine months ago, it just seems like once or twice a year it is always a new battle, where management is trying to change the rules.

There is no need for 4,160 on miners.

The production is there and just like Mr. Nichols said, in his opening statement, this is all due on account of production. With the long wall mining, and the miners they have right now, I think there is roughly 23 miners in the country right now, that is around 2,300 or 2,400 volts. And they are getting by.

I mean, they increase the voltage all it is going to do, like I stated before, I don't mean to be repetitious, but with the dampness in the coal mines and stuff, it is -- fatality rate is going to go up.

There is no way, in the coal mine, that you can keep the mine dry. Whether it is natural or manmade. The production we load today you have to have a lot of water in the mine to keep the dust down. And any time you have water in the coal mine you have the chance of electrocution.

And increasing this voltage on the miners you are just adding to the problem.

MR. NICHOLS: Okay, I think we understand that position.

MS. EL-BASSIONI: I have a couple more questions. You mentioned the gloves and the hooks

and tongs. What is the issue here?

MR. VOCELICH: Well, you know, to handle cable of such magnitude, 4,160, in the coal mine things get run over, just the wear and tear on cables and stuff. And with the way this law reads, the proposed changes, a temporary splice, there is no limitation on how many splices, how close they can be, whatever.

And when you are handling this stuff a lot of times you just ain't got time, you are not going to be wearing them gloves all the time. And I will tell you, right now, people are going to be grabbing these cables without gloves and stuff, so it is going to be a problem, it is going to be a serious problem.

In fact, you know, it would be better to have hooks or something to handle, than the gloves, because the miners ain't going to be wearing these gloves all the time. It is going to create a safety problem.

MS. EL-BASSIONI: One more, it is the last one. You mentioned that there is no limit on the cable length?

MR. VOCELICH: Not that I'm aware of. If

there is, I missed it.

MS. EL-BASSIONI: In Part 18 it refers to the tables, which --

MR. VOCELICH: The length that they are allowed?

MS. EL-BASSIONI: Yes. I just want to clarify that.

MR. VOCELICH: And then there will be variances on that, but that is fine. But just to sum up, and I made this statement in Pennsylvania on the dust, you know?

MR. NICHOLS: Well, now, just for the record I want to say that what you said about increasing the dust limit four times the TLV with the old rule, that is just a mischaracterization of what those rules were trying to do.

MR. VOCELICH: Well, what you was trying to do, and what was going to allow the company to do is two different things.

MR. NICHOLS: All right. You want to wrap it up?

MR. VOCELICH: And as far as the generators, I definitely oppose diesel generators on the --

MR. NICHOLS: Well, that is a second hearing.

MR. VOCELICH: I understand that. But you said in the second hearing you was going to allow us to also bring up the electrical part, two.

MR. NICHOLS: Well, after we get through with everybody on --

MR. VOCELICH: Well, just for the record I'm against diesel. I have been running a dozer and I get diesel fumes, and I know what it does to you. And I'm outside, and I know what it does to you.

So, and in a closed environment, we definitely oppose this, also. And before we go backwards, I would just like for the record, you know, hell freeze over before we put our miners health in jeopardy.

Thanks for letting me testify.

MR. NICHOLS: One more.

MR. CHECCA: Larry Checca. Something about the number of splices and the location of the splices, do you have any recommendations on how many splices are enough, or too many, or --

MR. VOCELICH: Well, first of all, you know, we are aware that if the company don't make a

profit they don't need the workers, and we don't have jobs.

And a lot of the companies, like the company I work for, we have equipment that is outdated, wore out, and everything. And it just causes other safety problems.

And if you don't put some type of limitation on the splices, and that is secondary compared to the temporary splices, not vulcanizing. I mean, that is absurd. Anybody that worked in the mine, you know, with a temporary splice you sure in heck don't want to be around water and dampness with that.

And cables you are always hanging them up because you have equipment running through the break-throughs, and stuff. And you have to hang them up or they are going to get puncture holes in them, and everything else. So you are handling these cables all the time.

And there is no way with any type of voltage that a temporary splice, I think the way it is right now you are only allowed what, 24 hours with the temporary splice? And now we are coming up with something that is vulcanized tape, but it is not a

boot.

It is not, as far as I'm concerned, insulated properly, and we are going to cause problems. There is going to be electrocutions in the mine.

MR. NICHOLS: Anything else for Larry?

(No response.)

MR. NICHOLS: Thanks.

MR. VOCELICH: Thank you.

MR. NICHOLS: Okay. Our next presenter will be Ted Holland with the UMWA.

MR. HOLLAND: Mr. Nichols, ladies and gentlemen, good morning.

MR. NICHOLS: Good morning.

MR. HOLLAND: I'm a safety committeeman with Local 1810, I work for the Ohio Valley Coal Company. Plus, off and on, mostly on for the last 32 years, I'm a miner operator, presently am.

What we are talking about, on this high voltage, I don't know whether you realize it or not, but you do a lot of movement as a miner operator. And this cable is constantly under your feet, in the situation we are.

It is a very hard thing to be able to

watch equipment, and watch your top, and actually watch where you are stepping, because you have this slack pulled up with you, it is constantly there, you are always right there over this miner cable.

With running a miner it is in a constant movement, back And forth, you are always dealing with this cable, it is wanting to move out in the way, you know, you are constantly moving it out of the way.

You stressed on the wearing the protective gloves to handle this. I already carry two pair of gloves with me, now I'm going to have to carry three. I'm going to have to pack a suitcase when I go in to run miner, taking enough stuff with me to handle the day.

It is always a wet area because of controlling the dust. I have hazards that I already watch for top, because I'm out from under the canopy any more on a remote miner, I don't have the canopies.

It is just another hazard that you are putting in my way, because I have equipment to watch for, and now I have to watch not to step on this high voltaGe cable.

When you get into the process of the

buggies hauling out, you talked about hanging this cable And guarding it, that is fine. But you are always going to have loads of coal rubbing it, that situation.

It is not a good thing to try to guard. We tried not even to run under high voltage cables, high lines, with loaded equipment. But this is going to put us to where we are running underneath it with loaded buggies all the time, because of the systems we run, we have to hang it up so the buggies can get under it.

The slack they mentioned about you storied out by. That usually doesn't work because you have to pull it up in the last open, or you are talking about de-energizing it, rehanging it, you know, every cut, which is not a situation you want to get into.

So it is not a practical thing to have that slack out-by, because they are going to have to have the slack in-by. And then you get into a three entry gate system which a lot of us run, now you are having a hard time getting it out of the way of a bolting machine.

So on a basic day to day running of it,

that is where I see that we are going to have some problems. That is pretty much what I have.

MR. NICHOLS: Are you operating a high voltage miner now?

MR. HOLLAND: No.

MR. NICHOLS: Any questions for Ted?

(No response.)

MR. NICHOLS: Thanks, Ted. The next presenter will be Carl Morris, UMWA.

MR. MORRIS: My name is Carl Morris, UMWA. I work for Console Energy a Robinson-run mine. I became a certified electrician in 1976, qualified person under the Code of Federal Regulations.

In that time I have worked as a section mechanic and the problems that we have encountered, that I see the problems with this high voltage on the miners, is we can only run low and medium voltage on our equipment, but to be able to splice cables, and have the number of splices in the cables that we sometimes have, with the taping the cables, the tape will not stay on the cables.

And as they run over rollers and drag along the bottom, tapes continuously rolling back off, and we tried all kinds of tape in cables. And

the only type of splices that stand up to the wear, at all, we use a lot of the 3-M porous splices.

And those are very good, they take the wear pretty good. And we have also used some boot splices, but the 3-M porous splices put the jacket back a lot better, closer to what is original than any type of tape.

We have tried all kind of tapes and none of them really hold up to the wear that we have. Currently, for the last two years, I have been a shield operator on a high voltage long wall. We have had our high voltage long wall petition for several years.

And it is mine-specific. When we went to the high voltage long wall we had meetings at the mine, and addressed the conditions that we have at our mine. And I think that is one of the things you are going to miss here, with these rules, with the high voltage miners, is not having a petition that is mine-specific towards the conditions at that mine.

When you make a rule for the whole industry it is not going to address the problems that you have at the mines. Some mines are dry and you can use the high voltage gloves.

Ours is a wet mine, and the cables are wet. Everything that you touch is wet. And we tried, on our high voltage, in our petition, to handle the cable handler on a long wall, it says we can use either high voltage gloves, or a hot stick to handle the cables.

And we found that the gloves are of no use at all, because you may as well be bare handed to the amount of water that you get on those gloves, and they are wet continuous. I mean, we don't even try to use those.

All the splices that we do on our high voltage long wall cables we run 4,160 on our high voltage long wall cables. And all those splices that we do, we do nothing but the 3-M porous splice, because they are the only thing that holds up.

And on the long wall it is going to be a lot different from the miner sections because from the power cord to the head gate is all -- all of our cables are hung in a monorail cable handling system that is -- and all the cables are in conduit.

And from the head gate to the shear our cable is in a plastic britney cable handler system. So you have very little contact with the cable at

all. And it is protected fairly well, which you won't have with the high voltage miners.

The high voltage miners you have the cable down on the ground, dragging, you have it hung on some sort of rollers that will allow it to roll over, you have it hung up on insulators. Even though it is hung on insulators it will still be laying against the rib, and it will be up at a height where equipment and canopies, and we run load machines on our equipment, behind our miners.

If we were to have one, we have a lot of problems with the canopy on the loading machine hitting the miner cables. And when you do that, you have the cable right at your face level when those canopies hit that, and damage that.

We were told, when we got our high voltage petition for our long wall, how safe the high voltage cables was. Any bump on the cable would immediately give you a ground and trip it out.

About three months ago, like I said, I was pulling the shields on the tail gate, we were cutting out the tail GATE, and as you double cut the tailgate you get a wrap in your britney cable handler. And it fell off into the conveyor side of

the shear, and the cable was smashed and shear, the shear operators didn't see it.

And instead of a trip like we were told was going to happen, whenever we got a ground, we immediately got a phased phase on that 4,160, and it blew the cable nearly in two. We had to, there was no repair to the cable, we had to cut the cable off, reenter the cable into the shear, and the resulting explosion, and the noise, and the light show that evolved from that phase to phase occurrence on that shear cable, I had my back turned, and I had my earmuffs on, and I was standing next to the tailgate drive.

Which if any of you have ever been on a long wall, you know, it is a very, very noisy place. And it was deafening, the explosion, just from the cable blowing up, and the lights flashed.

We have a fluorescent light on every other shield, so we are very well lit. And the light flash and sparks that came off that cable blowing up was spectacular, it was like a fireworks show ten feet away from you.

Fortunately the shear operators were at their respective drums, and they were away from it,

and no one was injured, we just lost the power, and lost a few hours production.

But, like I said, on the long wall, we are blessed that we have that cable handling, high voltage cable was enclosed in that Britney, and there is very little need to even touch the Britney.

But when you get on a miner section, where that cable is going to be running over rollers, or dragging, and you are going to be moving equipment in and out of the working place, backing out, going in, you are going to have to handle that high voltage cable.

And to do that with gloves is, you just as well do it bare handed. And to not repair that cable back to original is going to be a real problem, you are really going to put people in jeopardy if you don't require some sort of boot or, like I said, the porous splice is some sort of a vulcanizing splice.

And too, we need to limit the number of splices in the cable. At our mine we had to, even with the low, with the medium voltage, low and medium voltage, because we used to run 575 miners, now we are running 995 miners.

But we've got with management, on a local

level, with the safety committee, and limited the number of splices that we allow in our cable, ourselves. But that is something that you guys need to look into, what is safe.

And it is not really that difficult to limit the number of splices and the distance between the splices. We've had some people have a splice here, and two feet away you put another splice in. That is ridiculous. You know, you cut that piece of cable out and make one splice, and you are done.

And if you have three or four splices in a 60 foot area, you cut that 60 foot out, and you make one splice. And if you have to add more cable, or change the cable out, and send it out to be vulcanized, you can do that.

It is not really a big deal, it is not really a hardship on the operators to do that. But the thing, I think the most about this, first of all you don't need the 4,160.

I don't think that any of the manufacturers are going that high. I think 2,400 volts, or something like that, is what they are running. We don't have high voltage miners at our mine.

But to put rules that cover everything into operation is, I think, a mistake. And I'm in favor of the petition that we currently have, because you can deal, then, with the conditions at the mine.

I have been in a lot of mines than probably some of you have, but the conditions, from what I'm told, change from mine to mine. And to do it on a petition basis would be far better, so you could address the conditions at that mine. Thank you.

MR. NICHOLS: Thank you, Carl. We have questions?

MR. CHECCA: Yes, Carl, my name is Larry Checca. In the preamble we asked for comments concerning the installation of the trailing cable. The original petitions require the cable to be hung to the last open crosscut.

And then as we receive more petitions with lower seam height we felt that maybe an alternate would be using an unused entry for the cable.

MR. MORRIS: What was that? I'm sorry, I don't hear very well.

MR. CHECCA: I will start all over.

MR. MORRIS: I think I got most of it up to now.

MR. CHECCA: Okay. There were two options in the Rule, as far as installation of the trailing cable. One is to hang it to the last open crosscut and the other is to use and unused entry.

And we asked for other ideas from you folks. And I was wondering if you had an opinion on what you can do with that trailing cable from the power center to the machine, as far as installation?

MR. MORRIS: Well, I think, you know the operators are going to agree with you and say hang it because there will be less damage to the cable if it is hung. If you put it on the ground you have more of a chance to damage the cable.

But the problem with that is if you hit the cable one time, and it is hung at face level, you are going to have a major explosion like we had on the shear cable. And it is going to be right at your face.

And an electric arc is intensely hot. I've scarred my hand right here. I'm sure you can't see it from there, but I have a burn scar on my hand where I accidentally shortcircuited a 240 volt

battery on a locomotive. And it blew all the skin off of my finger, and thumb, and the top of my hand.

I mean, it was just hanging in shreds at the end of that. And that is a 240 volt short circuit, and not a 4,160 phase to phase arc. The arc is intense.

So which would be better for the operators? To hang it up. Which is going to be better for the miners, to put it on the ground so that if you do hit the cable it is down away from your face, down away from your body and your hands, and away from the operators, rather than hit it up here where it is going to be up close to your face.

MR. CHECCA: Okay, thank you.

MR. NICHOLS: Go ahead, but speak up.

MS. EL-BASSIONI: Salwa El-Bassioni. I have a couple of questions. You mentioned that there was a cable that blew up?

MR. MORRIS: Yes.

MS. EL-BASSIONI: And where was that?

MR. MORRIS: That was a Robinson-run coal mine, Consol Energy.

MS. EL-BASSIONI: Robinson?

MR. MORRIS: Robinson-run coal mine. It

is up the road here at Chinston, West Virginia, just on the other side of FAirmont, and it is a Consol Energy.

What happened the cable handler fell over into, between the pan line and the shear. And when the shear backed up it smashed the high voltage cable. And when it smashed the cable instead of grounding it against the shield, it smashed it so quickly, and so hard, that it smashed the phases and the grounds together at one time, and created a phase to phase arc, which the cable just blew up.

I mean, you would think you had a stick of dynamite there.

MS. EL-BASSIONI: You also mentioned that we should limit the distance between the splices?

MR. MORRIS: Yes.

MS. EL-BASSIONI: Do you have any recommendations?

MR. MORRIS: Well, I don't think you should have splices closer than 25 or 30 feet. But that is just, you know, that is something I think you all, and probably our International Safety and cable manufacturers need to look at as far as, you know, I'm not an expert.

I think you need to talk to some experts about that. But to have, if you don't put a limit in it, what you are going to have is you are going to have splices two feet apart, three feet apart.

The area immediately behind a miner, I think, I just got a chance to look at the rules quickly. I think the rules call for no splices within 35 foot of the machine?

MS. EL-BASSIONI: Right.

MR. MORRIS: But the area around a miner, for the first 50 or 60 feet, back where the buggies, shuttle cars, and loading machines operate, is the places where the cables are damaged. And on our low and medium miners you will end up with taped places, damaged places, and splices two and three, and four feet apart.

Like I said, whenever we find them like that, as an electrician, whenever I find them like that, if we damage a place, and there is four damaged places within ten feet, we cut the ten feet out and make a splice.

But you don't have to do that. And under your rules you won't have to do that. So it would be better to have that in the rules that whatever you

set it at. I would say 50 feet apart.

But, like I said, you need to talk to some cable experts, and I'm sure you have electrical experts that you talk to. I see Mike Hall here today, and he is the closest thing we have to an electrical expert in this district.

MR. NICHOLS: The closest thing?

(Laughter.)

MR. MORRIS: Well, he is our electrical expert. Mike has helped me out a lot with electrical problems we've had at our coal mine. And that is the people that are more knowledgeable than the working miners, you know?

MS. EL-BASSIONI: Thank you.

MR. NICHOLS: Yes, Mike is good. We have one more question here?

MR. STAHLHUT: Yes, sir. Ron Stahlhut. You mentioned the cold pour splices.

MR. MORRIS: Yes.

MR. STAHLHUT: And I was wanting a little clarification on those. What was your experience with those being used at, were those used on continuous miners?

MR. MORRIS: We have used them on

continuous miners, we use them on the continuous miners. We do nothing but the cold pour splice on our 4,160 high voltage long wall cables.

MR. STAHLHUT: And those are in Britney, right, the long wall?

MR. MORRIS: Either in Britney or in, from the power car to the head gauge they are hung in -- we havE a monorail cable system that handles our high voltage cables. Anything that damages a high voltage cable from the power car to the shear, or the power car to one of the conveyor drives, we do nothing but the cold pour splice.

MR. STAHLHUT: The cold pour splice, you say you have used them on the continuous miners?

MR. MORRIS: Yes.

MR. STAHLHUT: How was your experience there, when they were used, did they hold up to the abrasion of the coals, and the stuff?

MR. MORRIS: Yes, they get back pretty close to original jacket condition. Now, the problem with them is, that we've run onto is, if you don't make a really good splice, and then you pour them, and there is not a lot of flexibility in there, and you have a problem inside that splice, you just as

well cut that baby out, because you are not going to take a knife and cut that rubber jacketing away like you would a rubber jacket. You can't get it back into them very well.

MR. STAHLHUT: Okay. So I guess to clarify that you are saying there are some installation problems with the cold pour splice, or there can be, if not properly done?

MR. MORRIS: Well, any splice that is not properly made is a problem. If you properly make the splice, I personally, haven't seen problems with them. But I have seen when splices aren't properly made inside, AND then you pour them, then you -- and you later have a ground or a phase to phase condition inside that pour splice, you may as well cut that baby out and start again, because you are not going to be able to cut that pour splice off like you can a jacket And repair the lead inside it, and then pour another splice in it.

That stuff is really hard, really sticky, and does a really good job. It is just about like a vulcanized splice.

MR. STAHLHUT: Okay, thank you.

MR. NICHOLS: Thank you, Carl. The next

presenter will be Jim Tayler, UMWA.

MR. TAYLER: Good morning.

MR. NICHOLS: Good morning.

MR. TAYLER: My name is Jim Tayler, I'm Chairman of the Safety for Local 1570. It is a pleasure to be here with you today. And, no, we don't have a high voltage miner. We might get it, might not, but I have some questions.

These are questions that will get hit to me. I do agree with Brother Carl that we do do mine specific petitions because of the conditions in the mine. Like we have some entries that these cables could be laying in, if they decide to put them on -- they are going to be on the ground so far back, anyway, from the miner, you understand?

But there is places, we will have that much water, maybe two feet of water. We try to pump on them, pumps go down. But that doesn't stop the mining process. The first two feet of water you wade through two feet of water, you keep on mining.

So we have to address, you know, that cable being underwater. Because once you are mining up there that cable is going to be laying on the ground so far back from that miner, anyway. You

can't hang it, it is going to be there, you are dragging it along with your miner.

It seems like we turned our section people into part time electricians. They have to wear the gloves that they never wore before. You can't incorporate this into Part 48 training. This is specific training for these men.

Before anything high voltage they have been told stay away from it, don't touch it. Now we are going to say it is okay to touch it, you just have to weaR the proper gloves. Now, these gloves are going to be used, and I'm just telling you, they always tell us our worst enemy is time and comfort, and that will come into play here.

Because these guys will drag the cables back, they will take their gloves off, throw them on the machine, get ready to mine again, put their work gloves on. You can't wear these all the time.

What about that old guy, he has to drag them tubes up to that miner, put his hands on the cable, cross the coal pile into the cable, to get the tubes to establish your ventilation to the phase. Do you think that guy is going to put them high voltage gloves every time he's got to put his hands on there,

just to drag the tube up there? Time and comfort.

The next time he will say I can get by, I'm not going to be up there very long, I'm going to hop over that cable real quick. I'm telling you, time and comfort is our enemy. We are human, we take shortcuts. I wish we didn't, but we do.

And high voltage cables will be a problem at some mines, like I said, due to water. Hanging them, sometimes you can't hang them. Sometimes you've got your tubes running up your face side. You put rollers in, like Brother Carl talked about.

We have canopies. That was a good thing we did. We put canopies on machines to keep guys from getting crushed by falling out ribs. But now when you've got a 16 foot entry, and you've got a buggy that is 14 feet wide, that don't give you a lot of travel space.

You are going to be walking beside them cables now if they are on the ground. You are going to be walking on top of them, you are going to be stepping on them, getting by there, take a methane check, get up there to shovel the ribs in so your loading machine can pick it up.

It is going to be buried under coal on a

rib. You are going to have to pull them up, get them out of the coal, pull slack. Everybody is going to be handling these cables.

Now, we can say we will put them gloves on, and sometimes we will. But people get comfortable, it would never happen to them, I've never had any problems. People forget to wear them gloves all the time, or they will get damaged and the guy will say, help me get that, here is a pair, I will put these on, and there is a hole in them.

I'm telling you, we are going a little far when we are making just every day coal miners, some of the laws are for electricians that they don't have specific training in. Our annual refresher is packed full. Everything goes into that, roof control, ventilation, first aid, it is full.

It is all you can do, you can't put anything else on there, especially specific training on high voltage cables. It has to be separate. The company is going to have to sit down for a couple of hours and make it a special training.

Petitions need to be mine specific, like Brother Carl said, whether they are wet, whether they are dry, whether you are mining two foot of water.

Like I said, when the pumps go down you keep mining.

MR. CHECCA: Can I ask you a question?

MR. TAYLER: Sure. I will try to answer it. Maybe I can, maybe I can't.

MR. CHECCA: Okay. You've talked about the gloves and how they wouldn't be worn. And you are talking about --

MR. TAYLER: They will be, for a while.

MR. CHECCA: Yes. And now you are talking about a petition to make that application mine specific. What would we do different in the Rule, than in a petition, as far as requiring gloves, or requiring some personnel protection?

MR. TAYLER: Well, see, I'm against it. I don't think we need it.

MR. NICHOLS: Well, that is a good question.

MR. TAYLER: Sure it is a good question. How -- you would have to get input -- we could have a whole other meeting from --

MR. NICHOLS: No, no. I mean, addressing gloves in a petition versus the regulation. I mean, you can't have it both ways.

MR. TAYLER: Right. But I was thinking

about conditions of the mine. A dry mine would have less chance -- I mean, we have a petition at our mine right now that we run quality in our intake escape wire. I don't think any other mines have got it. But we build enough stipulations in that we didn't want to go to battery.

We build enough stipulations in that we've never had one incident in our intake escape trolley power. Now, we have a door man stationed, he controls it, turns it on and off. When you are not on it, it is on the off position.

Now, a lot of mines, Consol, didn't want that, because they didn't want to station a man there. They wanted the power intake escape way, but they didn't want to follow the same safety concerns. That is what I'm talking about, safety concerns for mine specific sites, whether they are dry, whether they have water.

We don't address anything if the cable is underwater. You don't think it can be underwater? You don't think people mine in this industry with two feet of water on the floor? They do. Federal II does, we do. We've got violations for it, and they will pump it, but if that pump goes down, I'm telling

you, mining don't stop.

Them buggies will be up until I've seen it coming in the floor, where their feet are, water that deep. Mining doesn't stop. So these are just some concerns I had.

These are questions that will come to me. I hope we work things out so that everybody is happy on this thing. I don't know if we can do that. But mine specific, you have to address the condition of that mine.

We have one part of our mine just dry. I mean, it is heaven. The guys call it heaven when they go work up there. If they get to go to that side of the mine it is heaven, because it is dry, and the rock dust stays put, and it is all nice and white.

But then we've got the other side of the mine where you can't keep rock dust and the water pouring out of the top, two foot of water on the floor, the guys is making belt moves in water that deep, having to wear rubber boots up to their knees to carry the structure stuff.

Everything should be kind of mine specific on the condition of that mine. I thank you

for your time.

MR. NICHOLS: Thank you, Jim. Any more questions?

(No response.)

MR. NICHOLS: Thanks, Jim.

MR. TAYLER: You are welcome.

MR. NICHOLS: The next presenter will be Mark Cochran, UMWA.

MR. COCHRAN: I'm Mark Cochran, Local 9909, Leverage Mines. I don't have much different to add than what anybody else has spoke about. I have been a certified electrician in the mines for more than 20 years.

I also have problems with this rule. Most importantly is the cable handling. I first have been taught, from my first day in the mines, that the hazards of coming in contact with high voltage cables. The violations at our mines on cables, most of them are found where the tape has peeled back from the outer jacket and have exposed power leads. This, in your rule, I believe it says in here that the cable will be checked every day.

Well, that is part of the pre-ops check now and we still run into problems with that. My

understanding is, also, that if the jacket is damaged that the cable can be taped. To me it is a major concern. If the outer jacket is pulled back and just tape put on it, have a pinhole or something in the inner jacket, allowing someone in the wet conditions of mining in mud and water, that they could come into contact with this.

Also I would like to say that it is unrealistic for us to sit here and say that no one will ever come into contact with this cable without use of approved gloves and not hold it against their body.

I mean, we all know that when we are moving a cable we flip it up on our shoulders, whatever is necessary to get it, you know, with the aged workforce, our long wall was blessed, they have a cable handler, which helps protect the cable, also.

And for this reason I personally feel that it would be great if the cable could be de-energized where it cannot be guarded properly, and have to be handled.

MR. NICHOLS: Is that it, Mark?

MR. COCHRAN: Yes, sir.

MR. NICHOLS: Any questions of Mark?

(No response.)

MR. NICHOLS: Thanks. The next presenter will be Tim Cox, UMWA.

MR. COX: Good morning.

MR. NICHOLS: Good morning.

MR. COX: Tim Cox with Local 9909, Consol Energy. I have more than 21 years underground with Consol. And, like the other gentlemen, I'm opposed to the number of splices.

Our mine is very gassy, very gassy mine. And a splice in a high voltage cable, which you've just heard a mishap, and one thing I have learned in 21 years, working for Consol, mishaps happen in the underground coal industry.

A trailing cable blowing up in a 300 foot entry could cause a catastrophic explosion at our mines. Leverage number 22 has had numerous fires, an explosion in 1999, and the splice limits that are not int e provision, because there is no data, you've said that six years is all you have been running these high voltage cables on trailing cables, or is that just a test?

MR. NICHOLS: No, I think it was six years ago we approved the first petition for a high

voltage miner.

MR. COX: Well, six years, I've got 20 years underground, and ever since I have been in the coal industry they have told me not to touch 4,160, not to touch 7,200, not to touch 12,470.

When you take the plugs apart put the caps on them because that cable can hold power. We have, just like that gentleman said, our people aren't perfect. They will do it in spite because they are lazy, but they still have to feed their family.

High voltage cables hanging in an entry, canopies, everything is big in the mines. A lot of people forget that. Very easy, you know, to scuff a cable and not see it.

You are talking about putting a red jacket inside, my buggy is red, your light glares off of it. You might not see that stuff. There is a law that says you have to handle your cable from the power center to the miner before you start your shift.

Do you think that is actually done every day? It is not. There are too many variances, especially with that splice deal. In by the last of

the crosscut is bad. In a 300 foot heading you have 300 foot of cable, high voltage cable, that is laying in an entry that could explode.

I think that is a bad deal. Now, that is just at our mines, with a three heading section you have, you know, that much cable pulled up in the last of the crosscut.

The splices, you guys have more knowledge than me in the industry of how many people have been electrocuted when there was a proper splice made. Well, something happened. And then they find out it is a set of events that happened, that killed that man.

Well, it is still happening today. We have to limit, right now if we have a bad 12,470 cable, it has to go outside and be vulcanized. That don't stop you from mining, they just vulcanize the cable and bring it back in. That is what I'm opposed to, gentlemen.

MS. EL-BASSIONI: I have a question, Jim.

MR. NICHOLS: Go ahead.

MS. EL-BASSIONI: Salwa El-Bassioni. Are you proposing that we should prohibit splices, period? I'm not sure, I couldn't understand.

MR. COX: In by the last open crosscut I believe we should not allow splices in high voltage cable. I think that is bad. And, like I said, 300 feet are outside headings.

MS. EL-BASSIONI: Thank you.

MR. NICHOLS: Thanks, Tim. Our next presenter will be David Thomas, with Joy. But before David comes up let's take a break until 10:30. So, David, if you could be ready to go at 10:30, and we will make room for your presentation.

(Whereupon, the above-entitled matter went off the record at 10:13 a.m. and went back on the record at 10:30 am.)

MR. NICHOLS: Our next presenter is going to be David Thomas with Joy Mining. And I understand, David, you have some prepared comments, and then you want to do an overhead?

MR. THOMAS: Yes, correct.

MR. NICHOLS: When you start your Powerpoint I think the panel will need to get up and step aside so we can show it on the screen here. So, go ahead.

MR. THOMAS: Okay. Thank you, Mr. Nichols. My name is David Thomas, I'm with Joy

Mining Machinery for the past 24 years. The past ten years I have been a certification engineer representing Joy.

My prepared statement is, Mr. Chairman, members of the Proposed Rule Committee, and all interested parties, I'm presenting this information on behalf of Joy Mining Machinery to address the recent Proposed Rule that was published in the Federal Register on July 16th, 2004, concerning high voltage continuous mining machines.

Comments by interested parties were requested, and since Joy is the world's largest producer of underground mining machinery, and a current supplier of high voltage continuous miners, we have great interest in this area of discussion.

Joy has been actively involved in designing, manufacturing, and commissioning high voltage mining equipment throughout the world. To date we have produced 59 high voltage continuous mining machines operating in three different countries, that require some different form of approval, or certification, for the equipment.

The first discussion point raised an invitation to comment on reorganizing the regulations

differently than that proposed. We would recommend that MSHA consider creating a primary section of regulations that addresses the requirements common to all equipment designed for voltages in excess of 1,000 volts.

We would also recommend subsections based on the different types of equipment, such as long wall, continuous miners, haulage, drills, and so forth, that would contain only the extra regulations specific for that type of equipment.

We have reviewed both the PaRt 18 and the Part 75 Proposed Rules, and have the following comments to make on both sections. Although the Part 18 Proposed Rules directly affect us as the manufacturer, we have encountered problems with our customers trying to understand and meet the requirements listed in the current petitions, and subsequently included in the Proposed Rules.

Therefore we will respond to parts of the Part 75 Proposed Rule that we have encountered, that are keeping the equipment from being used to its full potential.

Our review of the Part 18 requirements resulted in minimal changes that we feel are needed.

We understand that the current Proposed Rule is a derivative of the high voltage longwall regulations, but would comment on the Proposed Rule under Part 18, paragraph 54A, requiring separate compartments, barriers, or partitions of low and medium voltage circuits from those with high voltage circuits.

On a continuous mining machine there are a number of small enclosures that may house high voltage components, unlike a long wall shear that typically uses only one main controller.

We would ask that MSHA include the ability to consider the enclosure's cover as the barrier, and allow cover interlocks to be used to de-energize the entire controller on the removal of the cover from the enclosure.

Locating high voltage and lower voltage components together, in an enclosure, does not in itself increase the risk of exposure to energized high voltage conductors or parts. It is not the location of components that is the risk, but rather the access to potentially energized high voltage components.

Barriers, partitions, or the enclosure itself can prevent access. This would allow existing

designs of controllers that include various voltage circuits to be housed in a convenient enclosure, and still prevent the exposure of persons to high voltage energized conductors or parts.

Part 18, paragraph 54B needs to better clarify the barriers or partitions need not be interlocked if the enclosure cover is interlocked.

Part 18, paragraph 54E, and Part 75, paragraph 54C, describes the additional circuitry that must be added for continuous miners that are designed with an ungrounded three phase power circuit.

We do not see these requirements of additional circuitry as adding any level of safety to the machine when, in fact, it reduces the safety of the personnel who must work on the machine.

We would recommend that this paragraph be deleted. Having an ungrounded power transformer secondary circuit on board continuous miners is not a safety issue, as evidenced by the successful and safe use of these circuits on continuous miners for over 30 years.

In fact it could be argued that grounding a transformer secondary circuit increases the risk of

electrical shock by exposing maintenance personnel to a greater number of potential shock points, when fault finding or testing.

Additionally there is no requirement for the grounding of power transformers secondary circuit in the current high voltage shearing machine regulations.

As a current manufacturer of high voltage continuous miners we do not have issues with the other requirements defined in the Part 18 section of the Proposed Rule.

The enclosure design and testing, minimum creepage and clearance design distances, and control voltage transformers grounding requirements have always been part of the design and were incorporated on the original high voltage machine placed in service during 1997.

Reviewing the proposed rules of Part 75 we wish to highlight areas that have a direct impact on the ease of use, and coal miner acceptance of operating the high voltage continuous miner.

From research recently conducted it becomes more imperative that our fleet of continuous mining machinery in the United States be upgraded to

high voltage input to take advantage of technological advancements now available.

In just a few minutes I will be introducing you to an expert in the electrical power distribution field of underground mining who has some exciting details to reveal on his research with high voltage mining machines.

His conclusions will, I anticipate, move our country in the direction of utilizing high voltage mining equipment, and benefit from the many advantages offered, such as lower cost energy, and higher productivity.

Our major concern that we wish to comment on deals with the issue of the installation and handling of the high voltage trailing cable, along with the use of high voltage gloves, all of which seem to hamper operator acceptance of the machinery.

Part 75, paragraphs A-27, A-28, and A-33, address the trailing cable and glove issues. It is the content of these paragraphs, and their potential impact, which cause us to ask MSHA to reconsider the overall concept of just exactly what we, as an industry, are trying to achieve, and what impact it will play on the coal miner who must adhere to these

final requirements.

Our overall comment is that this high voltage trailing cable should be treated the same as any other trailing cable used on underground phase equipment. Information provided to this committee, from other experts, concerning the improvements and design of the high voltage trailing cable over that of the medium and the low voltage trailing cables, describe the extra features that contribute to an overall safer power system.

Couple this enhanced cable design with the numerous additions of safety features, such as the proposed look-ahead circuits, reduced tolerances of electrical potential, and daily inspections being mandated by this Proposed Rule, results in the safest trailing system found underground.

Bulky, cumbersome to use, high voltage rubber gloves designed for work on bare, high voltage circuits, are probably not the best possible protective device to use when handling this special trailing cable.

Our involvement, over the past seven years, with operators of continuous miners, have shown that these gloves become a hindrance to the

safe operation of the equipment.

The machine operator cannot easily relocate the trailing cable when needed, or perform many of the other tasks that he or she must do while wearing these unmanageable gloves.

We recommend MSHA should consider mandating the use of workgloves in good condition, and recommending supplemental items, such as mitts, hooks, tongs, or slings, be available for use by the operator.

Our data being presented today will conclude, without a doubt, that using work gloves to handle the high voltage trailing cable is the best possible solution to offer the underground coal miner to perform his or her job.

Along the same thought process, the high voltage trailing cable should also be treated as existing medium and low voltage trailing cables, as it routes from the power center to the continuous miner.

This cable, complete with all of its enhanced design, and protective circuitry, must be permitted to be placed on the mine floor or hung, if preferred, from the rib along the entryway.

Movement in this entryway should permit food and maintenance vehicular traffic, just as the medium and low voltage trailing cables. The goal for the United States coal industry is the introduction of high voltage continuous miners that incorporate enhanced design and safety features and do not negatively impact the productivity of the coal miner.

Our country must not hinder productivity by limiting the use of new technology, especially at a time of increasing global demand for power generation. Rather we need to ensure our country benefits from being the leader in coal production, miner productivity, and safety.

Thank you for your time allowing our company to comment on this important subject, and for the consideration of our options on this Proposed Rule, consideration of our opinions on this Proposed Rule.

Now it is my privilege to introduce to you Dr. --

MR. NICHOLS: Let me see if the panel has any questions so far.

MR. THOMAS: Okay.

MS. EL-BASSIONI: I have a question.

MR. NICHOLS: Go ahead.

MS. EL-BASSIONI: What is your definition of a work glove?

MR. THOMAS: Our definition of a work glove is a leather type of glove that the typical coal miner has underground that he uses every day in his normal duties.

MS. EL-BASSIONI: And are they requirements that that work glove has to meet?

MR. THOMAS: No.

MR. NICHOLS: Go ahead.

MR. CHECCA: Just maybe some clarification. You had talked about, under Part 18, the barrier, you talked about barriers, or just the copper interlock would act as a barrier to access anything in that enclosure.

Are there situations where troubleshooting of a control circuit would have to take place, and are you proposing some method of getting around the interlock for the control circuitry?

MR. THOMAS: Our current existing designs, that have been in place since 1997, have cover interlocks on every enclosure that contains

high voltage equipment, where you have the possibility of accessing the high voltage component.

We do install a small bolt-on cover onto the main cover of the controller that has access to certain terminal strips, or fuses, that are the 120 volt circuitry, typically. So those are barriered, or partitioned off from anything that was inside the controller.

But the way that the current ruling was proposed it didn't allow for us to utilize that design that we have had in place since 1997, where we were allowed to utilize just cover interlocks, and we were able to include low, medium, and high voltage all on the same controller.

MR. NICHOLS: Anybody else?

(No response.)

MR. NICHOLS: David, about three years ago we had information that indicated that Joy, within five years, would no longer manufacture anything but high voltage miners. Can you --

MR. THOMAS: Yes, I remember that statement, that we hoped would happen. And the result of that is we have, at this point, 59 miners, 41 of those being made for the United States, the

remaining are in other countries.

We had hoped, at this point in time, that we would be manufacturing much more high voltage equipment, but due to the petition process, that our coal companies have experienced, we have a lot of reluctance to order anything above a 950 volt mining machine.

MR. NICHOLS: Okay. All right, we will -- go ahead.

MS. EL-BASSIONI: Do you foresee the manufacturing of 4,160 volts continuous miner any time soon?

MR. THOMAS: I see it happening, yes, I do. And I would, as a manufacturer, don't want to limit this rule just to 2,400 volt. As a manufacturer we would like to keep the 4,160 available because if history follows itself, and you take a look at the longwall equipment, the first machines were 2,300 volt longwall shears.

And most of the machines sold nowadays are the 4,160. That is just the next movement. So we might as well keep our rules set up, that we can move to 4,160 when the time permits, and we also reduce the current that is needed to run that

equipment at that higher voltage.

MR. NICHOLS: Anybody else?

(No response.)

MR. NICHOLS: I believe you told me, earlier, that you will be leaving a disc with us?

MR. THOMAS: Yes.

MR. NICHOLS: Okay.

MR. THOMAS: Even though you are sitting behind me I will assume I'm addressing you directly. Thank you.

To finish up my presentation, it is now my privilege to introduce to you Dr. Thomas Novak, department head of mining and minerals and engineering in Virginia Polytech Institute and State University.

Dr. Novak's expertise in mine electrical systems, his expertise is in mine electrical systems, and he has conducted numerous research projects dealing with underground power systems.

Dr. Novak, well known and highly regarded throughout the mining industry, has held positions at the University of Alabama, Penn State University, the U.S. Bureau of Mines, Pittsburgh Research Center, and Republic Steel Corporation Northern Coal Mines

Division.

He has published many articles and presented numerous papers detailing underground mine power systems, and has been an expert consultant on many legal proceedings.

Joy contacted Dr. Novak to investigate his desire to conduct research on the safety aspect of high voltage trailing cables, compared to cables used on medium and low voltage machines.

This topic has been discussed throughout the industry, beginning with the introduction of the first high voltage continuous miner. Various opinions on the level of safety gained were given, but substantial research and analysis were not available to support the opinions. At least not available until now.

The research and resulting factual data have now been completed, and I desire to make it available to the mining industry, today, at this hearing.

Mr. Chairman, it is my pleasure now to pass the podium over to Dr. Novak, to present his research on the safety analysis of trailing cables used on high voltage continuous miners.

And I have given each one of your panel members a study research paper that Dr. Novak has prepared for this.

DR. NOVAK: Thank you, Dave. Just one point of clarity. I'm a professor at Virginia Tech. However, I'm acting as an independent consultant, so I just wanted to add that disclaimer.

When I began this study I really didn't know how it was going to turn out. I had been approached by Joy Mining Machinery to do the study and I agreed to do it, but I didn't indicate, in any way, how I thought the results of the study would turn out.

Now, the purpose of the study was to answer two major questions. The first one, is a trailing cable in high voltage systems more likely to be damaged and cause a shock hazard as compared with cables used on existing low and medium voltage systems?

And the second question is, if a direct contact shock does occur, on a high voltage system, is it more dangerous than one from an existing low and medium voltage system, given the fact that we have the additional requirements such as a much lower

ground fault current limit as well as very sensitive ground fault protection?

To start off, and I'm not going to go into this in detail, I think Mark Fuller, from Amercable, described nicely the differences in cable construction between the medium voltage and the high voltage.

But we will start out here by pointing out, this is a cross section and actual photograph of a low voltage cable which is typically used in a 440 volt, or 550 volt applications.

The standard configuration is a symmetrical arrangement to the power conductors, each power conductor then has a separator, which is a mylar tape wrapped around it, then its insulation, typically 80 mils for this case.

And then you have your inner and your outer jackets surrounding the insulated material and the ground of your conductors. Now, the major difference between this and medium, and high voltage cables is there is no shielding that is required for this particular cable.

Now, as we move up to the medium voltage system, the major difference between this and the low

voltage cable is that a shield is required. The shielding is a braided copper and nylon covering around each phase conductor, the insulation of each phase conductor.

And the copper has a 60 percent coverage. And this, essentially, presents a grounding conductor around each phase conductor, which will minimize, significantly minimize the potential for phase to phase types of faults, and although you can't totally guarantee that they would not occur.

But by having the grounded conductor around there it would have to go through there, in order for a phase to phase fault to occur, because the contact of the phase conductor with the grounded shield should cause the ground fault protection to activate.

Now, there is some significant differences. I want to go through the thicknesses of the insulation, or things of that sort, but some major points to point out, and Mark also did this.

Around each copper phase conductor you have a conductor shield which is made of semiconducting material. Now, around that you have the insulation, and a big advantage of this over the

medium voltage cable is that you have a semiconducting tape that is wrapped around the insulation of each phase conductor prior to the nylon shielding.

So as Mark pointed out, essentially instead of having that 60 percent coverage that you have with simply the nylon, copper nylon braided shield, you also have the coverage of the tape which essentially results in 100 percent coverage.

And, I would like to point out, in the picture on the top right, the requirements of the outer jacket, two separate colors being required, the inner jacket in this case being green, while the outer one is orange, which should help identify any torn pieces of jacket that have been removed in the process of the normal mining operation, such that a worker, a miner, would identify this condition prior to it becoming a more serious condition, so that the cable can be repaired.

What I tried to do in performing this study was to identify typical hazards that one may encounter associated with trailing cables. And the first one being if the cable is actually punctured by a nail, a spad, surveying spad, or some metallic

object, so that it pierces the outer insulation, excuse me, the outer jacketing of the cable, and through the insulation into a phase conductor, as shown here.

Now, with a low voltage cable when this happens there is no shielding around the insulation jacket of the phase conductor. Therefore there is no return path to ground. In this situation the nail is elevated to the full line to ground voltage, depending upon what voltage you are using, whether it is 480 or 600 volts.

It would be the neutral voltage, which would be those line voltages divided by the square to three. And this type of hazard can go undetected for an extended period of time because no tripping would occur, so someone could inadvertently attempt to pick up this cable, contact this metallic object, and subject himself, or herself, to the full line to neutral potential of the system.

Now, we have a significant improvement with the medium voltage cable. We have 60 percent coverage of the braided copper shield. And in most cases the shield would be in contact with the metallic object and would provide a return path to

the neutral of the power center transformer which would, then, allow the ground fault protection to trip, provided the current in the grounding conductor exceeds six amps.

Now, you could have, you know, there is a remote possibility because the grounded shield only has 60 percent coverage at a very, very thin metallic object, such as a strand of cable, or something of that sort, could possibly penetrate through the shielding material without actually contacting the copper portion of the shield.

In which case you would then have the same situation that you had with the low voltage case. Now, if we look at the high voltage cables, again, the insulation of each phase conductor is wrapped with a semiconductor tape, as well as the grounded shield.

And this, essentially, provides 100 percent coverage of the phase conductor which, virtually, eliminates this hazard. Now, the other nice advantage is that it provides, well, as in the previous example, it does provide a conductive path.

But now the fault current only needs to exceed .125 amps, or 125 milliamps in order for the

ground fault protection to operate. This is extremely, extremely sensitive, when you compare the difference between the pickup settings of the ground fault relays for the high voltage system as compared to the low and medium voltage systems.

The next shock hazard I addressed was if a cable is gouged and allows water and dirt to penetrate a power conductor, and I think a previous speaker had mentioned this situation, and what could happen where a piece of the outer jacket and a part of the insulation could be gouged enough so that it would allow dirt and moisture, or water, to penetrate to the energized phase conductor.

Now, when this happens, this creates a leakage path to the cable jacket such that a person contacting this jacket, even a few feet away from this actual gouge, can be subjected to a shock.

And, again, this could go for an indefinite period of time with the low voltage system because there is no shielding around the power conductors that will provide a return path for the the leakage current to return back to the power center transformer.

Now, if a person should contact the

surface of this cable you have the possibility of current leaking along the jacket, through the person, and return through earth back to the power center transformer which could, potentially, cause a shock hazard.

With the medium voltage cable, the braided shield helps reduce this hazard because -- let me see if I can get this here -- if you look at the gouge here, and you have a conductive, and it may be a high resistive path that allows this leakage current to flow to the surface of the cable, but if the resistance of this leakage path is low enough, between the phase conductor, through the insulation to the shielding, it will cause tripping.

However, you have to have six amperes with the existing medium voltage system to cause the circuit breaker to trip. Now, that means that the leakage resistance between the phase conductor and the shield has to be less than 65.5 ohms, okay?

If it is greater than that it is not going to trip because the fault current is not going to be over six amps. And this is a relatively low leakage resistance.

However, with the high voltage with the

shield here, you have a very low pickup setting for your ground fault relay. And it only takes 125 milliamps, or .125 amps to flow to the shielding around this phase conductor in order to cause the circuit breaker to trip.

And that means this leakage resistance that occurs here could be as high as 8K ohms. That is for the 2,400, or 2,300 volt system, for the 4,160 it would be significantly higher, and would make the system even that much more sensitive.

The third scenario that I looked at was if a cable was to be damaged to the point that their energized conductors were exposed, okay, for this to happen you have to have the outer jacket, the inner jacket stripped off, the shielding -- well, in low voltage case you don't have shielding.

So if we start out here, from the outside of the low voltage cable, typically you have a minimum of 225 mils of reinforced inner and outer jacketing. You have a minimum of 80 mils of insulation, and then just a layer of mylar tape.

We get somewhat of an improvement with the medium voltage cable. We have the minimum of 205 mils of reinforced inner and outer jacket. Now we

have the braided nylon copper shield. We also have a layer of rubber backed fabric tape, and then a minimum of 80 mils of insulation, and then right at the interface between the insulation and the phase conductor we have a layer of mylar tapes.

So that provides a little more physical protection for the cable. Now, with the high voltage cable we have a minimum of 225 mils of reinforced inner and outer jacketing. We have the braided nylon copper shield. We also now have a layer of semiconducting tape around the insulation of each phase conductor.

We have a minimum of 110 mils of insulation. And then this additional 15 mils of semiconducting compound which encircles the bare copper conductors, power conductors.

So to look at the physical construction of the cable, and the advantages that you would have with the high voltage cable, first of all, the combined thickness of the inner and outer jackets is increased by 7.3 percent.

The insulation thickness is increased by 37.5 percent. The rubber backed fabric tape on the medium voltage cable is replaced by a layer of

semiconductive tape. The mylar tape is replaced with 15 mils of the semiconductor compound.

And an important point, also, is the separate colors required for the inner and outer jackets, which increases the possibility for visually detecting damaged jackets on the cable.

Now, let's suppose that a situation did occur where a miner, or a worker, inadvertently contacted a bare energized conductor. We want to look at the situation, is the situation any worse than what it is with the low and medium voltage cables, comparing the high voltage cables now.

Now, in order to do this I constructed a three phase generic circuit so that we could actually model these electrical shock hazards. And it essentially consists, this is the secondary of the power center transformer that would feed the continuous miner.

You will have some small impedance associated with the transformer. This is the cable going up to the continuous miner. In the cable, itself, you will have some impedance due to the inductance and resistance of the cable.

Now, you also get this shut capacitance.

Now, this is not an issue with low voltage cables, as I will explain in a minute, because the shielding, when you don't have shielding the shunt capacitance is very, very low, and can usually be neglected.

This is the neutral grounding resistor. And, again, a major difference to point out here is that with the low and medium voltage systems, the federal regulations require that the ground fault current be limited to 25 amperes.

However, the standard practice, over the years, has evolved into using a 15 amp current limit on power centers. Now, when you compare this to the high voltage regulations, they limit the maximum ground fault current down to .5 amperes, compared to that 15.

That is a significant reduction in the maximum ground fault current. And also, as I mentioned, the sensitivity of the ground fault relaying which would be, you know, located in this position up here, will pick up at .125 amps for the high voltage system, whereas the medium and low voltage system it picks up at 40 percent of the maximum ground fault current.

So if you have 40 percent of 15 that is

going to be the six amperes. Now, I also modeled a, if we have a line to ground fault, I put in a fault resistance here, which could possibly model a human's body that would contact between the phase conductor and an earth ground.

Now, we can simplify this three phase model into a single phase model quite easily, and we can neglect some of the impedances such as the line impedances of the cable, as well as the impedance of the transformer, because they are relatively small and insignificant when compared to a body resistance, as well as compared to the resistance of the neutral grounding resistor, and with the reactance due to system capacitance for the high voltage system, particularly.

All right, in order to use this model we have to calculate some values for each of the elements in the system. So, first of all, let's look at the neutral grounding resistor.

If we, as required in low voltage, if we were going to limit it to a maximum of 15 amps on a 480 volt system we would take the line to neutral voltage, which would be the 480 divided by the square root of three, which ends up being 277, you divide it

by 15, and the value of your neutral grounding resistor would be eighteen and a half.

With the 600 volt system, following the same logic here, the only difference is now we are using 600 volts. Again, the maximum ground fault current is still limited to 15 amps and we have a 23.1 ohm resistor.

If we look at a 1,040 volt system, again, we still require a maximum ground fault current to 15 amps, and that results in a 40 ohm grounding resistor. Now, with the high voltage, with the 2,400 volt system, we are limiting this now to a half of an amp which tells us, now, that we need a 2.77 kilo ohm, or 2,770 ohms worth of resistance in that neutral grounding resistor to limit this value.

I didn't put the 480, I mean, the 4,160 on here because initially when I started this study it was only directed towards the 2,400 volt system, because those are the machines that are in use right now.

Later on, as the study progressed, Joy Mining Machinery requested that I also take a quick look at 4,160, which I will do later, and in that particular case that value of resistance here would

be 4.8 kilo ohms.

The cable capacitance, as I said, this isn't an issue for low voltage because it does not have shielding around the conductor. This is the phase conductor here, you have the insulation, and then you have the shielding, and if you know a little bit about electrical systems you know that if you have parallel conductors you are going to have some capacitance associated with this.

And since this is along the entire length of the cable, the longer the cable, the more effect the capacitance is going to have. And it is not really an issue for the 1,000 volt system, but it does enter into the picture a little bit more for the high voltage system.

Now, I went through some calculations, I'm not going to bore you with this. But it turns out that for a typical cable you have, the capacitance, the shunt capacitance is going to be 127 times 10 to the minus 12, that is PICO, boy, okay. That minus 12 shouldn't be there because the PICO is there, I just noticed that right there.

The length of the cable, but it doesn't change this result here. But the length of the cable

is dictated for a typical length of cable is given in Part 18 of the Code of Federal Regulations, and for this case what we are going to use is 800 feet, and this is the resulting capacitance for that.

Now, when you are modeling body resistance to identify the severity of electric shock, this is a very vague and hard to quantify term, because body resistance varies considerably, depending upon the individual conditions.

If a person is sweating profusely their body resistance is going to be lower. If they are standing in a puddle of water, if they are wearing wet gloves, or whatever.

But, typically, body resistance can be as high as 10,000 ohms, and as low as, well you know, Underwriter's Laboratories uses 500 ohms. So I tried to go to the literature and find the values that are commonly used in the Institute of Electrical and Electronics Engineers in the United States typically use a pessimistic value body resistance of 1,000 ohms.

Whereas the IEC, which is the European counterpart for the IEEE uses this curve for body resistance as a function of the voltage that is

applied across the person.

So I want to use both of these, and I'm going to use the 650 for the IEC, and then the 1,000 for the IEEE. So now we have all the information that we need here. And for each individual voltage level all we have to do is to put in the appropriate values of the voltage, the grounding resistor, the system capacitance, and body resistance for a person to identify the severity of an electric shock.

And I did this here, on a curve, and was surprised to find out, if this is applied to body resistances, and I wanted to give a range from a low value of 400 to a high value of 2,000 ohms of resistance.

This right here is, let's see, is that for the 1,040? Yes. I'm partially color blind so I have a hard time. So this is for the 1,040 volt system. And you can see all the way out to around a body resistance of 1,400 ohms you are going to have a higher body current if a person directly contacts an energized conductor, than you would for the high voltage systems.

The one on the bottom here, the blue one being the 2,400 volt system, the one right above it,

and it shows only a slight difference between that being the 4,160 volt system. So the results are extremely interesting showing that the current flowing through a body, which is the indication of the severity of the shock is actually worse for the medium volt system.

And actually in these very low ranges, down here, could actually be even worse than the, for the low voltage systems. And the reason for that is because for that maximum ground fault current limit that is required by the Proposed Rule.

This table just summarizes the body currents that you could expect at the different values for body resistance. I use 500, I used 650, and then I used 1,000 here, and calculated the body currents. And you can see this is for 480, well given a body resistance of 500.

At 600 you get 662, up over -- these are all expressed in terms of milliamps. So this one here would be 1.1 amp, and the values for the high voltage systems, both 2,400 and 4,160, at that low value of body resistance are actually lower than both the medium and the low voltage systems.

Now, if you look at the circuit breaker,

would it trip? In these cases the current would have to exceed 6 amperes before it would trip. These values aren't even close.

However, in this range here, with a pickup setting of .125 amps, yes, the ground fault trip relay would trip. And you can see here -- now, as you get out here, let's just jump out to the 1,000 ohm body resistance, the currents do start exceeding the low voltage.

However, if you look at the medium voltage system here, even with 1,000 ohm body resistance, the current through the body is still going to be less for the 2,400 volt system, and the 4,160 volt system, as compared for the 1040 volt system.

And in these cases the circuit breaker would trip, whereas in these cases it wouldn't. So what I did was to plot these all on a graph. I don't want to spend a lot of time, because I think I pretty much made the point, showing the different plots of the body currents on this log curve, and these dash lines showing pickup settings for -- this right here is for the low and medium voltage system, this right here as being for the high voltage system.

And, again, you can see, at the low value body resistance of 500 ohms, that your 2,400 and 4,160 volt systems are on the low side of the body current. Similar situation with 650.

And when you get up to 1,000 ohms the low voltage systems, they are still, the body currents are lower than for the high voltage. However, the medium voltage system, the 1,040 volt system, is still significantly higher than the body currents that you would expect from the high voltage system.

One last point I wanted to make, there has been talk about flash hazards associated with high voltage systems. But as the voltage of the system becomes available the maximum available fault current actually decreases.

And as most of you probaBly know the flash hazard is a function of the magnitude of the current, more than anything else. Now, I'm not saying that you are not going to get a flash hazard, that you are never going to get a flash hazard associated with a high voltage system.

However, I am showing here that the flash hazard is not going to, is not going to be any worse than you would get with low and medium voltage

systems. And, in fact, it would even be less.

Although, you know, when you are talking about 7,000 or 4,000 amps, you still could get a significant flash hazard. And this just shows how the maximum -- this right here is the full load current based upon the system voltages for a 1,500 KVA transformer, and this is assuming a 5 percent impedance.

So this is the full load current if that power center were fully loaded, okay, for conditions, you know, all the same, 1,500 KVA, with the exception that the system voltages are going up.

And you can see that the full load current, and this is one of the benefits that we were talking about earlier. You can use smaller cable, for this given amount, because you are transferring the same amount of power down here, with only 208 amps, as you are up here, with 480, and look at the difference in the current that you can experience.

Now, you can take this full load current and do a quick, dirty, calculation to determine what is the maximum three phase fault current that you would expect if you had all three phases bolted together creating a short circuit.

And a quick way of doing that is just to take the full load current and divide by the impedance of the transformer. And you can see that the maximum available fault current significantly decreases as you go from the low voltage through the medium voltage, and up to the high voltage.

And I will conclude my presentation at this point, and I think I'm trying to make the point that with the additional safety requirements that are specified in this Proposed Rule, the high voltage cables are as safe, or safer, than those presently being used for medium and low voltage.

MR. NICHOLS: Thank you.

MR. CHECCA: On some of the graphs you showed, where you charted the different shock currents that were available, I noticed you had a fibrillation area there. Are you implying that 2,400 can possibly be touched without causing a problem?

DR. NOVAK: No, I don't want to do that. The reason I put that up there was strictly as a reference to show you how sensitive these relays are actually getting. They are getting close to a point where they are almost capable of doing that.

But by no means am I, and I go through

this in greater detail, if you get the chance to read the report, that none of these relaying systems are designed to prevent ventricular fibrillation.

MR. CHECCA: Okay.

DR. NOVAK: But the point I was trying to make is that if we are going to consider medium and low voltage cables used, with the existing cable handling used for them, the high voltage cables, this analysis has shown that the protection that they afford is as great, or greater than the medium and low voltage cables.

MR. CHECCA: Based on your study, I know this is not part of this rule, but if the medium and low voltages systems required sensitive ground fault tripping with higher value neutral resistors, could we maybe achieve a situation where a direct contact with a live circuit could provide protection?

DR. NOVAK: I really haven't looked directly at that. But that -- you are never going to be 100 percent sure, Larry, okay? Because things vary so much, individuals vary so much. I mean, if a person could have a heart condition and have, possibly, 20 milliamps go through his heart, and that could kill them.

But based upon some of these predictions I would say that I see that as a possibility, yes, in the low voltage and -- I would have to take a closer look at the medium voltage.

MR. CHECCA: Okay, thank you.

MS. EL-BASSIONI: Tom, in your study you looked at the cable that had the two, the double jacketed cable?

DR. NOVAK: Correct.

MS. EL-BASSIONI: Do you have any opinion on that TPU cable that Mark Fuller presented?

DR. NOVAK: Actually Mark sent me a piece of that. I have, as a matter of fact, the photographs of the cable that I made came from samples that were sent to me from Amercable. And that jacket on that TPU cable is extremely durable.

I mean, it is very, very tough. Now, I have not done any testing or analysis, and the electrical analysis doesn't really enter the picture at this point. But I would venture to say that that jacket, in my opinion, is much more durable than the standard jacket that you use on other cables.

MS. EL-BASSIONI: Thank you.

MR. NICHOLS: Anybody else?

(No response.)

MR. NICHOLS: Okay, thanks. The next presenter will be Dave Beerbower with Peabody Energy.

MR. BEERBOWER: Thank you. My name is Dave Beerbower, I'm the vice president of safety for Peabody Energy.

Peabody Energy, in conjunction with Joy, pioneered the use of underground high voltage miners. We were the first company to have a petition approved for the use of high voltage miners, and have roughly half of the high voltage miners in use in the United States today.

And so I think our experience, and our miners use of the high voltage miners, should go a long way in talking about what we think to be a practical solution to the Rule.

I personally met with a lot of the operators and helpers who have handled the cable, and my comments will, in large part, express to you the comments that have been expressed to me.

And as we talk about, and I think you have heard from several of the miners here today, the gloves in particular is a bone of contention with us, as operators, in trying to maintain the good gloves,

and go through the testing procedures with them, and the cost associated with them.

What we have found is that this, we really believe, that this cable should be treated as regular trailing cable from the power center to the miner. If a company chooses to hang it, they can do that. If they don't want to do that, they should be allowed to handle it just as they would any other trailing cable, particularly with the protections that are now present in the current systems.

Secondly if, we would also suggest that for gloves, that a miner handling this cable should wear a pair of gloves, without getting specific into the type of gloves that they would wear. It could be leather, it could be a heavy duty cotton glove if it is a dry coal mine. It could be a rubber coated glove if it is a coal mine.

But they should wear some type of serviceable gloves, meaning that they don't have holes in them, and things such as that. I would agree, though, that there are some miners that would rather use the electricians gloves. And I think we can make provision for that by saying that if a miner, in good conscience, requests the use of

electrician's gloves to handle the cable we would provide them to them.

And I think we would maintain a set of these electrician's gloves on every section that uses a high voltage miner, such that if it did come up during the course of the shift, if somebody requested the use of the gloves, that they would have them available to use.

I want to kind of go through a couple of the other provisions. And we will be submitting written comments with all the things that I'm going to be talking about here. But in section 75.827, that deals with the hanging of the cable and the handling of it.

We think that 75.827 should only include portion 75.827C(1)ii, and D, and change 75.827C(I) to read from the power center coupling for a minimum distance of ten feet in by the power center.

And that is talking about extra insulation that goes over the top of the cable as some kind of a conduit to be covering. So what we are saying is that we would maintain that conduit for 35 feet on the miner, from the miner's strain gauge, strain clamp out-by, and then from the coupler off

the power center ten feet in-by. Because, again, those are the areas that would most be handled by miners.

In 75.828, again, we have talked a lot, there is a lot of discussion in several of the sections there about the gloves, our comments would be the same. In every case in which a miner should handle the cable they should wear gloves, and they can use a hook, or tongs, or mitts, or any other kind of device that a company and their miners decide would be the most practical way to handle the cable.

Under section 75.830, there is a discussion there about splices, and what types of splices should be made, and where they can be located. We believe that in the way that enforcement has been carried out right now there needs to be that reference, going back to MSHA's program policy manual cited on section 75.603, and that that should prevail as determining whether it is a splice or a repair of the cable.

Next, in 75.832A, B, and C, there is discussion there about the frequency of inspections of the trailing cable. There is one provision in there that says: At the beginning of each shift

there is an inspection that should take place.

That would preclude us from doing hot seat change-outs which we do at most of our operations. We would suggest that that language should be changed to saying that an examination should be made once during the shift, and not be specific about at the beginning of the shift.

And we are also asking that that would be a weekly, there is reference there to a seven day frequency. We suggest that that should be a weekly frequency on some of the other tests that have to be made.

And I think that will conclude my comments. Again, we will be submitting some written comments with some other small issues on them. But, again, I think as Joy has stated, and some of the other folks have stated, I think it is imperative that we get a rule that is practical, that we don't put miners in a position of am I going to put these electrician's gloves on, or not.

I think we ought to allow the technology that is available to us to be used underground, in both ways, to increase the productivity, but also to increase the safety for the miners that are handling

this cable. Thank you.

MR. NICHOLS: Go ahead.

MS. EL-BASSIONI: Salwa El-Bassioni. David, you mentioned that miners should wear gloves, regardless what type. But when they use the hooks, and tongs, and the others, are you proposing that they also use gloves when they do that, or either or?

MR. BEERBOWER: I would say either or. Again, if it is an insulated tong then it would not be necessary for them to wear gloves. Again, I don't want to preclude any type of cable handling device that is out there.

But, again, if it is insulated I see no reason for them to have to wear gloves to do that.

MS. EL-BASSIONI: Okay, thanks.

MR. NICHOLS: Anybody else?

MR. STAHLHUT: Yes. Ron Stahlhut. You mentioned wearing gloves. Maybe I got confused there when you mentioned 828. Are you recommending the rated voltage gloves, or are you talking about work gloves?

MR. BEERBOWER: Work gloves.

MR. STAHLHUT: Okay, I wanted to be clear on that.

MR. BEERBOWER: That is right.

MR. NICHOLS: Thanks, Dave. Our next presenter will be Jeff Mihallik, UMWA.

MR. MIHALLIK: Hello, Marvin. I have seen you before in the other proceedings, from last year. Just listening to some few comments, you know, first of all I have 16 years underground, 15 years at the face.

I run shuttle car, I have assistant mine foreman papers. And, you know, it kind of scares me to know that we are going to try to put that much voltage around a lot of people.

When you are running these gate roads, in a three entry section, I tell you, there is only so much area to put cable at. And the way these shuttle cars, we run big joist shuttle cars at our place, we have to have at least seven and a half foot of height to put our long wall systems in.

In a lot of areas we have over eight foot of height, okay? But it just, to have this cable, and then hanging, in an area where it could get damaged, and you not know it got damaged because of equipment, and you have scoop operators, the way the canopies are now, it is pretty tough to see if you've

run over a cable.

You know, something else concerns me, and I know that everybody has seen it in the papers now, we are getting younger and younger miners coming in. I'm 43, I was one of the last -- I work at Foundation Coal Company, Cumberland Mine, down in Curvey.

I was one of the last whitecaps ever hired there. And the rest we have had experienced miners coming in, we bring them in from other places. But, you know, and we talk about increased productivity, okay?

And in our particular situation, I mean, you can only haul it so fast away from the face. And when you have wet conditions, we are in an area of the mine right now where we do have wet conditions.

I mean, we use screen. We don't mine that fast in order to have something to make it mine faster, you know? And I just think it is something else that we are putting in the face area with a lot of people that could be, you know, to be very dangerous, a dangerous situation at the face area.

You heard what the man said about what happened in the long wall situation where you had the

explosion. I tell you what, I have been in, you know, we are one of the -- in Pennsylvania, where I'm at, we are one of the highest, we produce the most methane, I think, in our region, in our mine.

And I hate to see something like that have an accident happen with that amount of voltage, and that kind of explosion. You know, it kind of sickens me to know we are going in this direction when we really don't have to go in this direction.

Fortunately, in Pennsylvania where I work at, we do have a limitation on splices. We can only have, we can have five, but one has to be cut out by the end of the shift. We can only really have four splices in our cables.

But to have an unlimited amount of splices in cables, that is something else. Fortunately at our mine we have a policy where if we do damage a miner cable, we just switch it out, we have another, we have a jumper, so to speak. We switch in and out.

So I can't tell the horror stories that these other guys have said. But I hate to see it come to having that high voltage cable in our mines. I don't think we need it.

MR. NICHOLS: Okay, Jeff. Any questions of Jeff?

(No response.)

MR. NICHOLS: Okay, thanks. The next presenter will be Tim Baker, UMWA.

MR. BAKER: Good morning, my name is Tim Baker, I'm deputy administrator for occupational health and safety for the United Mine Workers. I'm pleased to be here this morning to offer some comments on the high voltage continuous mining machines Proposed Rule.

I do want to thank the Agency for changing the location of the hearing from Pittsburgh to Morgantown. And I think, obviously, by today's turnout, given the opportunity that miners will, including location, will arrive and participate in the process.

What I would like to do today is kind of expand on the comments that I made in Lexington, maybe broaden that out a little bit to give you a feel for the union's position on this particular rule, and some of the contents of the rule.

And I will also submit a copy of these

comments at the end of the hearing. And, of course, the union will submit broader comments before the close.

In an effort to place my comments on the record, in the clearest possible manner, I will try again to divide the testimony into two specific areas. The technical aspects of the high voltage rule as currently written, and published in the Federal Register.

And then I will also attempt to kind of do a practical application of the Rule, and there will obviously be times when the testimony kind of overlaps from technical to practical. And if that gets confusing certainly stop and ask me questions.

I would like to begin with the specific language of the Proposed Rule, and I think it is important to understand the union's position regarding the use of high voltage mining machines.

We are not here to request a prohibition of such equipment within the industry. The union, and its members, as you can probably tell from some of the testimony, accept that there is this technology available. And it is an inevitable and necessary evolution within the industry.

However, as with all new and advancing technology, we need some necessary safeguards. We need some standards to apply to ensure that you limit the risk that miners will be exposed to.

The union is very concerned about the desire for the agency not to limit the voltage. While we recognize the useful application of these high voltage machines, we must also recognize the application of high voltage equipment should not be unrestricted.

The union does take great exception with the Agency's decision not to omit a reasonable limit on the maximum voltage operators would be permitted to supply to this type of equipment.

The determination, by the writers of the Proposed Rule, to allow operators to utilize up to 4,160 volts on continuous miners, under this standard, without fully, and I don't believe fully knowing the hazards that are being introduced is unacceptable.

The union finds no reasonable explanation for this decision and the agency, really, offers no credible data to indicate that the practice is absolutely safe.

On page 42814 of the July 16th, 2004 federal register, the Agency states: The Proposed Rule does not limit the continuous mining machine voltage specified by the manufacturer to 2,400 volts, because existing part 18 allows for the approval of equipment up to 4,160.

Now, I'm aware, at this point, of only 23 high voltage continuous miners in this country. Now, I'm told there are 41 in production, or maybe it was 59 in three different countries. But I'm aware, at this point, of 23.

The maximum voltage on any of these machines is no greater than 2,400 volts. The union has just recently been made aware, as a matter of fact, just as of last week, that there are some considerations to building mining machines that go beyond the 2,400 volts, although even listening to the individual from Joy, I'm not sure how far out in the future that may be.

The union understands that the current prohibition which does not permit the use of high voltage in-by the last open crosscut or within 150 feet of pillar workings, has been superseded by the approval of numerous 101C petitions for modification

regarding the use of this high voltage mining equipment.

However, the relaxed standard these petitions have created should not be permitted to be exceeded under the Proposed Rule. The fact that Part 18 allows for the approval of equipment up to 4,160 volts, does not mean that practice would be safe in this instance.

There is no piece of mobile equipment, in the underground coal mining industry, approved for such voltages. It is impossible to predict hazards that would, inherently, be created by the introduction of equipment with such high voltages.

Subsequent statements on the same Federal Register note, the Proposed Rule, like the high voltage long wall rule, has technical provisions to test and evaluate equipment containing on-board switching and high voltage components up to 4,160 volts.

Therefore we believe that limiting the maximum voltage of continuous mining machines, up to 2,400 volts, would unnecessarily restrict the design, and have written the Proposed Rule to allow approval of equipment with voltages up to 4,160 volts.

First let me start by saying referencing high voltage long walls, with this Proposed Rule, is disingenuous. We are not talking about similar types of equipment. And I think that that should be noted.

The fact is the vast, there is a vast difference between these machines. The size and mobility of high voltage mining machines creates a variety of hazards that must be mitigated by requiring necessary safeguards, including limiting voltages.

It is important to remember that damage to high voltage mining machines, or cable supplying power to it, can come from numerous sources, including roof falls, rib falls, and from other mobile equipment, or other sources within the mining section.

To permit operators the unrestricted right to increase voltages beyond 2,400 volts, without knowing the problems that may be created is not safe. The UMWA would request that the Agency revisit the issue and prohibit the use of voltages above 2,400 volts on any piece of continuous mining equipment. And by that I mean continuous mining machines, obviously we are not discussing long walls.

Secondly, the assertion that limiting the voltage would unnecessarily restrict design is contrary to the accepted safety practices, and a departure from the Agency on its directive to proactively protect the health and safety of the nation's miners.

The Agency must limit the use of untested systems, or equipment, until they are proven safe. Prohibiting the use of voltages higher than those already approved without first ensuring it can be done safely, is a diminution of safety.

MSHA does not posses the authority to permit untested and potentially life threatening conditions to be introduced into the mine.

Finally, regarding this matter, the torque energy generated by these 2,400 volt continuous mining machines is incredible. At least one fatal accident can be attributed to the force generated between the drum of a mining machine, and the mining face.

In this incident a bit struck the face and the force shattered the bit. Fragments of the bit were dispersed around the face area, and struck a miner operator on the neck causing fatal injuries.

The union does not believe restricting the voltage to the current 2,400 volts approved in the position is unnecessary and illegally creating a potential lethal condition.

The union would seek the agency to prohibit the use of continuous mining machines with voltages beyond 2,400 volts, as is the current requirement.

You've heard a lot of discussion about splices. I will try to elaborate, just a little bit, without kind of covering over a whole lot of ground we already have been through.

We are disturbed that the agency does not seek to limit the number of splices permitted on high voltage trailing cables. Likewise, we are not supportive of a decision to permit the use of tape type splices on these cables.

In order to effectively address these issues I would like to discuss, at least in some detail, separately. By not limiting the number of splices on a high voltage trailing cable, the union believes MSHA has failed to adequately address a known problem area.

A determination to permit operators the

latitude of unlimited cable repairs would institutionalize unsafe practice. The probability of shock hazards, or explosions of cable, increases significantly with each splice, permanent or otherwise.

Cable splices, no matter what their design, should be viewed as a temporary fix. Once a cable has been repaired numerous times there needs to be a realistic determination as to the safety protections afforded the miner who must work in and around these cables.

Inadequate splices are splices that have become worn or damaged over time present a real hazard to miners. Allowing unlimited splicing of cables increases this hazard to miners.

This is not the direction that the agency should be heading. When considering this section of the Proposed Rule the agency had a duty to look at all aspects of the possible hazards that could be created.

It is not to only includes the number of splices on a single cable, but the proximity of those splices in relation to the equipment being energized, as well as the proximity of splices to each other.

The union does not believe relying on the sensitive nature of the grounding system would be sufficient protection for miners in this instance. The union does seek to have the agency revisit this section of the rulemaking and place reasonable limits on splicing high voltage trailing cables.

The union does not support MSHA's decision to permit the use of tape type splices on high voltage trailing cables. This practice has been accepted on other low and medium voltage cables, and is a problem within the mining industry.

Given the rigors these cables must endure it should be apparent that taping is not a suitable means for protecting miners from potential shock hazards. Anyone who has ever, has even a limited amount of experience within the mining industry can attest to the problems they have seen with these tape type splices.

The agency's inadequate attempt to lessen the potential problems to these types of splice created by requiring the use of self-vulcanizing tape is insufficient. This tape will inevitably roll on the cable jacket, or become tattered with use rendering it useless as a protection.

These types of splices will lead to questions by cable handlers, and equipment operators, as to the extent of the damage in that particular area. Far too often the damaged area is in need of a complete splice, but taping is seen as a more cost effective and less time consuming process.

The union would request reconsideration, by the agency, and seek to have all damaged areas of high voltage cables spliced.

Training, the union has always understood the importance of training and eduction programs for members of the mining community. The components of a successful training program are rooted in 30CFR48. New miner training and/or refreshment and task training, when done properly, combine to offer miners necessary tools to safely perform the duties for which they are assigned.

These requirements, however, do not in the opinion of the union, satisfy the entire scope of training miners need in today's industry. Just as the union acknowledges the need to introduce new technologies, the agency and the industry must recognize the need to better train miners on health and safety protections that these technologies

require.

The introduction of high voltage mining machines into any operation will affect all miners working there. Obviously the miners working in the section where the equipment is being operated, will be the most directly impacted.

However, because of the nature of the industry today, it is likely that every member of the workforce will be exposed to this equipment. Understanding that reality must force each of us to understand the need to offer all the miners, in the operation, comprehensive safety training on this equipment.

This site specific training should be used to complement and expand on other training noted in Part 48. The decision by the agency to include this training in the annual refresher is inadequate.

The union has consistently argued that the requirements of that training is already taxed beyond a reasonable chance of accomplishing the already noted training mandates. Therefore it becomes extremely important that specific high voltage training be given to all miners where such equipment is utilized on a routine basis outside of

Part 48 requirements.

The union would request that the agency revisit their determination not to require special training on this matter. Further, the union will be available to the agency to offer constructive solutions for such training.

The union does understand, and encourages, a higher level of training for individuals whose job will include testing and repairing high voltage systems and cables.

On board power circuits, on page 42816, and it is column 2 at the bottom of the page, it states: Proposed paragraph E-1 would require on board ground phase indicator light to alert the machine operator if a ground phase condition would occur on any ungrounded three phase circuit.

However, on page 42820, section 3-C of the Federal Register, proposed paragraph 3 of 75824 states that it would require a mine operator to implement certain procedures if a ground phase indicator light was provided on high voltage continuous mining machine. And it indicated a ground phase condition.

The union is unable to determine the

agency's intent with respect to the on board ground phase indicator lights based on the writing of the preamble on the Rule.

The statements on the reference pages clearly contradict one another. The union believes that such an indicator light is necessary, is a necessary safety feature, and should be required on all high voltage equipment.

We would ask the agency to clarify their position before the union offers further comments on the matter. The union is in agreement with the agency regarding the use of grounding stick to discharge high voltage capacitors and circuits.

This practice will allow the safe discharge of stored energy ensuring that miners will not be exposed to high voltage conductors or parts. The union would also like to know if a high voltage trailing cable can and will store energy after being disconnected from the power source.

The UMWA would request the agency make a determination as to the potential of such an occurrence. Should the potential exist the union would request that MSHA make the necessary regulatory steps to ensure that the stored energy is safely

discharged, also.

Tramming of high voltage mining machines in and out of the mine, and from section to section. The union sees the inclusion of the use of high voltage diesel power generators, in the high voltage continuous mining machine Proposed Rule is a matter that is not germane to the issue at hand.

The union strenuously objects to the agency's attempt to include this in the Proposed Rule. Considering the impact the introduction of high voltage diesel power generator would have on the underground workings of the mine, this issue must be dealt with in a separate rulemaking process.

It is inappropriate, and by the union's assessment, beyond the authority of the agency to proceed further with this rule, based on the inclusion of the generator language.

Therefore the UMWA would demand that the agency strike all reference to these generators from the high voltage continuous mining machine rule. Further, in accordance with section 101A3 of the Federal Mine Act of 1977, the union objects to the inclusion of the use of the high voltage diesel power generator in this Proposed Rule.

The use of such equipment is not germane to the specified purpose of the Proposed Rule, and is in fact an issue that would require separate rulemaking.

Therefore, in accordance with Section 101A3 the union requests public hearings on this objection. The union understands the Secretary has 60 days from the close of the official comment period to schedule hearings on this matter.

We will monitor the Federal Register for notice of such hearings but would request official notification, from the Secretary's office, on the union's request that its international headquarters in Fairfax, Virginia.

I would like to point out, at this time, that the union will be presenting comments, later on this afternoon, on the low and medium voltage diesel power generator Proposed Rule. And while comments on that subject may not be appropriate at this part of the hearing, many of the comments that will be made at that time will also apply to the use of high voltage diesel power generators.

It is the union's belief that should the agency have felt it necessary to promulgate a rule

for high voltage generators, that would have been the appropriate place to include those.

Records of tests, section 75832G requires a qualified person who conducts the examinations, and tests, record any unsafe conditions found and any corrections taken. It further states proposed paragraph G would require that certifications and records be kept for at least one year.

It would be the union's experience that such certified persons would normally be the section or roving mechanic, as the case may be, depending on who you have at that time. Generally a non-management employee of the operator.

Given the language you are not requiring that these records be countersigned by management personnel. It would appear to the union that we have made this argument on several occasions, and someone from management should shoulder this responsibility for ensuring that the records are properly documented and stored.

In this writing of the Proposed Rule that does not appear to be the case. The union would request the agency revisit this section of the rule and ensure a management agent, or an agent of the

operator, is the ultimate responsible person.

From a practical standpoint I would like to talk, a little bit, about personal protective equipment. And in my previous testimony I did speak, briefly, about it. And I will try to be just as brief this time.

First, there is the question of wearing protective equipment when handling this cable. The union agrees that there must be some type of personal protective equipment afforded to miners by the operators, and that equipment should, and that that equipment should be used when handling high voltage mining machine cables.

There are, of course, different types of equipment available to each of us. There are, as prescribed in the Proposed Rule, properly tested and rated insulated gloves. This is probably the most common personal protective equipment used by miners when moving this cable, and that is currently.

However, as the Proposed Rule notes, there are also mitts, hooks, tongs, slings, aprons, and other protective equipment to be used while handling such cable.

The union recognizes that each of these

has a practical use and limitations. However, if each of these PPEs are rated to be used for the specific application, with regard to handling high voltage cable, the miners should be able to select that equipment that best suits him or her, and that they would ultimately use.

It should become evident that equipment, no matter how well manufactured, will not be utilized properly if it is cumbersome. For instance, the union would agree that the use of properly tested and insulated tongs or hooks would be of great benefit to miners moving cable.

In fact, the union would suggest that a miner using this equipment may be safer than when using gloves simply because of his proximity to the cable itself.

However, requiring that a miner wear gloves while using the hooks or tongs does not appear to make practical sense. The union believes that there is a need to require the operator to supply a variety of PPEs, and afford the miner the opportunity to determine what safety equipment best suits them.

Trailing cable installations, the union is concerned that certain requirements of section

75827 introduce hazards into the mining environment that otherwise would not exist. There is no doubt that safeguards must be required at the mining operations that utilize high voltage.

However, the Proposed Rule appears to include demands that impeded safety. The union understands and agrees with the determination that extra high voltage cable should be stored in a location protected from damage by mobile equipment or other sources.

However, the Proposed Rule in fact encourages operators to move the cable to a location where barricading or such protective measures are not required. Unfortunately the other location in the mining sections such protection is not required, is in, or in-by the last open crosscut.

While this may be a legal solution for the operator it is neither a practical or safe solution for the miners in the section. The worse place to have extra cable, especially high voltage cable, is placed at this location.

The potential to have this cable damaged and, thereby, pose a health and safety threat to miners is precisely what the rule does. The agency

must reexamine this situation and create a viable alternative.

To further complicate this dangerous situation the Proposed Rule requires the cable to be hung in entries where equipment will be operated. From the outsider's view that may well seem to be the best location.

The union understands many, if not all of the PDOs require this situation. Hanging the cable along the section ribs with no mobile equipment is not, in the union's opinion, a safe solution.

The real possibility of striking this cable with the machine's canopy does exist. Should that occur the risk to the miner, from the electrical shock, or exploding cable, is very real. Because of the nature of the mining sections routine operations the union believes allowing the cable to be placed along the rib, on the bottom, would be safer for miners.

This, in our estimation, greatly reduces the risk of a serious injury. The union, however, does not want to indicate, by these statements, that the cable should never be hung.

In fact it is our determination that at

all locations where mobile equipment will encounter the high voltage cable it must be hung. For instance in crosscuts if you are going from one crosscut to the other to mine coal.

There is, in the union's opinion, never a safe time for tramming equipment over such cables, even with portable bridges. The union does support the requirements of the agency that suspended cables must be guarded by non-metallic flame resistant material at all locations where it is suspended on the mine roof.

We also agree that the cable must be suspended on approved insulators. And just, I guess, to briefly expand and then close my comments, I do appreciate the presentation that was given on voltages and the possibility of shock hazards by the doctor.

I am a little concerned, as we go down this path, that we become complacent with what we are dealing with here. To look at this situation, if we drew this scenario out, or this theory out that was being presented, I almost feel like if you give me that bare cable I can grab a hold of it, and run with it, and we will just all be okay, as long as I set

those ground fault trips low enough.

I think we can all realize that, practically, that is not the case. And while I do appreciate the presentation, and I do understand that working these theories through is a necessary thing, practical application in the mining industry is not nearly the same as working it out on paper.

And I think we need to be cognizant of that fact, and I think in most cases we all are. But I think that sometimes the presentations kind of give indications that, you know, we can do things that aren't practical within the industry.

If you have any questions I would be happy to try to answer them.

MR. NICHOLS: Thanks, Tim. Larry has one.

MR. CHECCA: You asked for clarification on the ground detector light on board the machine?

MR. MIHALLIK: Yes.

MR. CHECCA: In one part of the rule, under part 18, there was a requirement that if the circuit was ungrounded they had to supply this grounded phase detector light. We tried to write it in such a way that if the design changed, where that

circuit became grounded we didn't need that detection circuit any longer.

So we wrote it to say if it is not grounded you have to supply a grounded phase detector light. If it is grounded you don't have to. That was the part 18 requirement on the machine design.

Then we have, also, in part 75 we have a requirement to do this test. So that is why it is in multiple -- do the test if it is there. If that makes sense to you.

MR. MIHALLIK: Well, I think it does. If you are telling me that part 18 requires it?

MR. CHECCA: If it is ungrounded.

MR. MIHALLIK: Now, what does that do in relationship to part 75? Because the way I read it, it says, if it is there.

MR. CHECCA: Right.

MR. MIHALLIK: You have to take certain precautions.

MR. CHECCA: Right.

MR. MIHALLIK: But if it is not, it is just -- I mean, --

MR. CHECCA: They don't have to --

MR. MIHALLIK: It is not going to be a

requirement?

MR. CHECCA: Yes, because it is not required.

MR. MIHALLIK: Okay.

MR. NICHOLS: Thanks, Tim.

MR. MIHALLIK: Thanks. Dennis Odell?

(No response.)

MR. NICHOLS: Okay, Jimmy Tayler.

MR. TAYLER: Yes, I just have a couple of comments.

MR. NICHOLS: You have some new stuff for us?

MR. TAYLER: Well, just a couple. Because I heard some things that was brought up by Dave Beerbower, who is vice president of safety for Peabody.

I just wanted to explain a couple of things. They asked for, on 75832A, instead of once every seven days to be weekly. What you have to understand is that weekly can stretch to 13 days, because you can do it on Monday of one week, and Friday on the next.

I want you to understand that there is a gap there that can go to 13 days. And the other

thing was number 2, at the beginning of each production shift the responsible person, we teach our men, every day, to do preop checks of our equipment, that is before we put it in service.

With sometime during the shift it could be at the end of the shift you could have a damaged cable, at the beginning of the shift, run for seven hours and fifteen minutes before it is checked. So we teach our guys, on a preop check, which are required, check your brakes, check your lights, check your trailing cables, everything before you put that piece of equipment into service.

And that is the way it is going to be, it needs to stand, the way you have it written, it is at the beginning of the shift. Those are the only two comments I had. Thank you.

MR. NICHOLS: Okay. David, do you want to respond to that, or are you okay?

(No response.)

MR. NICHOLS: Anybody else want to add anything to their previous testimony?

(No response.)

MR. NICHOLS: Okay. Is there anyone else in the audience, period, that wants to speak on the

high voltage continuous miner rule? Come on up.

MR. PALMER: My name is John Palmer and I work over at Federal number 2 coal mine. I have been there for about 30 years.

There is, I'm a little nervous here.

MR. NICHOLS: That is okay.

MR. PALMER: But, you know, my concern is I was always taught, when I went in a coal mine, about power, from the older gentlemen. It seems like, to me, that we are going backwards instead of forwards.

So I'm talking as a working man. What I don't understand, we have 7,200 cable in the coal mine. I was always taught you never touch that 7,200 cable with power on it. But now I'm in a meeting, 30 years from now, from 1975 until now, that it is all right for people to work with high voltage cable with power on it.

I mean, you know, I don't know if you are putting dollars in front of men. But it seems like, to me, that is what we are doing. We are always, you know, when I first started in the mines, in 1975, they put us on a twin board miner.

We was all red hats, we just got them

off, we got our 90 days. We was put in solid rock. I don't know if you people know what rock is in a mine. But we had an old twin board just cutting coal, you know, it was supposed to cut coal.

But we mined in that rock, we had to change our bits and stuff. But we mined through that place. Folks, I think what we are doing, you know, this is my own opinion.

When you put another varmint up there for people to grab a hold of, or touch, you are putting something up there that is going to hurt somebody or kill somebody.

And I want this to be known, that I'm speaking for younger generations, and everybody else. You know, I don't think it is right that you put a dollar in front of people. And I think that is what is going on.

You know, I pray that it never comes to Federal 2, I'm hoping it don't. But these folks that's got it, I feel sorry for them. Because it only takes a little pinhole, or anything.

You know, in this cable we have now, it can electrocute you. And, you know, when you smell somebody that got shocked, or electrocuted, it is

ugly, it is a rotten smell.

And I'm praying, and hoping, that you folks up here on this board looks for the people, a lot of the people in this room that will have to be handling this cable, which there is people right now handling it.

You know, gloves, you know, where I work it is wet right now. We got into some bad conditions. You know, it used to be pretty dry. But when you are in water, and stuff like that, and playing with power, it is bad folks.

I don't know how many of you people have been working in the mines, you know? I'm speaking for all, you know, all workers, I hope. You know, we don't need another varmint that is going to hurt us.

And I think that is what we are getting into, people. And I just want to thank you for your time in listening to me. That is how a bunch of us feels, though. We face a lot of bad conditions.

MR. NICHOLS: I think we understand your position.

MR. PALMER: I appreciate it, sir. Thank you.

MR. NICHOLS: Anybody else?

(No response.)

MR. NICHOLS: Okay, let's close the record on the high voltage continuous miners.

(Whereupon, at 12:11 p.m., the above-entitled matter was concluded.)