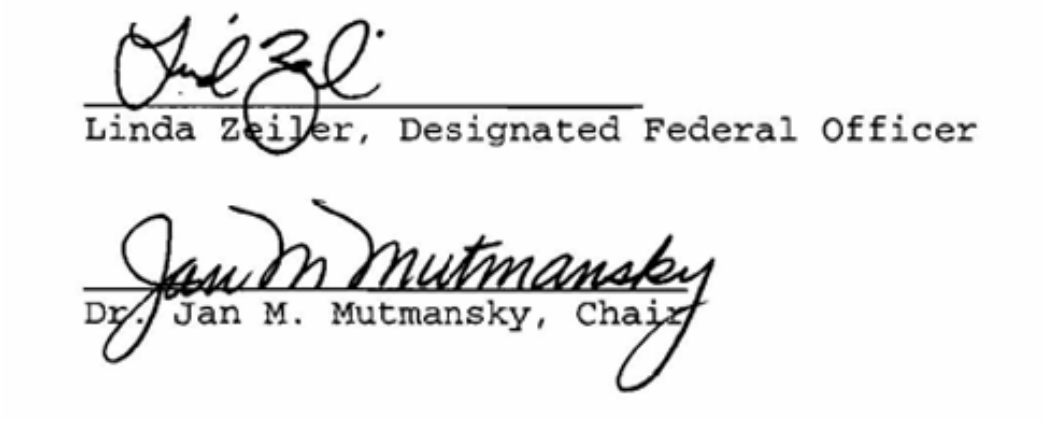
Certification Form

I certify that I have read the transcript for the September 17, 2007, meeting of the Panel, and that, to the best of my knowledge, this transcript is accurate and complete.



Linda Zeiler, Designated Federal Officer

Dr. Jan M. Mutmansky, Chair

TRANSCRIPT OF PROCEEDINGS

IN THE MATTER OF:)
)
TECHNICAL STUDY PANEL ON THE)
UTILIZATION OF BELT AIR AND THE)
COMPOSITION AND FIRE RETARDANT)
PROPERTIES OF BELT MATERIALS IN)
UNDERGROUND COAL MINING)

Pages: 1 through 235/380

Place: Reston, Virginia

Date: September 17, 2007

HERITAGE REPORTING CORPORATION
Official Reporters
1220 L Street, N.W., Suite 600
Washington, D.C. 20005-4018
(202) 628-4888
hrc@concentric.net

UNITED STATES DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

IN THE MATTER OF:)
)
TECHNICAL STUDY PANEL ON THE)
UTILIZATION OF BELT AIR AND THE)
COMPOSITION AND FIRE RETARDANT)
PROPERTIES OF BELT MATERIALS IN)
UNDERGROUND COAL MINING)

Conference Room 5
Sheraton Reston
11810 Sunrise Valley Drive
Reston, Virginia

Monday,
September 17, 2007

The parties met, pursuant to the notice, at 9:10 a.m.

BEFORE: LINDA ZEILER
Designated Federal Officer

APPEARANCES:

Panel Members:

JIM WEEKS, Ph.D

FELIPE CALIZAYA, Ph.D.
Associate Professor
Mining Engineering
The University of Utah
135 S 1460 E, #318
Salt Lake City, Utah 84112
(801) 581-5422

APPEARANCES: (Cont'd.)

Panel Members:

JERRY C. TIEN, Ph.D., P.E.
Associate Professor
Mining Engineering
University of Missouri-Rolla
280 McNutt Hall
1870 Miner Circle
Rolla, Missouri 65409-0450
(573) 341-4757

Dr. JÜRGEN F. BRUNE, Director
National Institute for Occupational Safety and Health
Spokane Research Laboratory
315 East Montgomery Avenue
Spokane, Washington 99207
(509) 354-8001

JAN M. MUTMANSKY, PH.D.
Professor Emeritus of Mining Engineering
Department of Energy and Geo-Environmental Engineering
The Pennsylvania State University
156 Hosler Building
University Park, Pennsylvania 16802-5000
(814) 863-1642

Mr. TOM MUCHO

Speaker:

MICHAEL G. KALICH, Mining Engineer
Division of Safety
U.S. Department of Labor
Mine Safety and Health Administration
Coal Mine Safety and Health
1100 Wilson Boulevard, Room 2411
Arlington, Virginia 22209
(202) 693-9714

P R O C E E D I N G S

(9:10 a.m.)

MS. ZEILER: Good morning. I'd like to welcome everyone to the fifth meeting of the Technical Study Panel on the Utilization of Belt Air and the Composition and Fire Retardant Properties of Belt Materials in Underground Coal Mining.

I'd also like to remind everyone to please sign in in the back of the room next to the water. We would sure appreciate it.

I'll turn the meeting over now to the chairman, Jan Mutmansky.

DR. MUTMANSKY: Thank you, Linda.

At the beginning of this meeting I thought it would be appropriate that I read the objectives of the panel and the directions we were given by Department of Labor personnel.

First, the committee's objectives come from Ms. Elaine Chao, U.S. Secretary of Labor, and this document from Ms. Chao says that the purpose of the committee is to provide independent scientific and engineering review and recommendations with respect to the utilization of belt air and the composition and fire retardant properties of belt materials in underground coal mining.

When we first met in Washington on January 9 of this year, we were given some more specific instructions by Mr. Richard Stickler, Assistant Secretary of Labor for Mine Safety and Health. Mr. Stickler said the following, and I quote from his comments:

"We are interested to know how technological advances during the last 15 years can be applied to reduce the risk of belt conveyors in underground coal mines. We are also interested in your thoughts and recommendations on limiting the belt air velocity, including revisiting the velocity cap.

"We are also interested in your thoughts on the use of atmospheric monitoring systems instead of point type heat sensors. We also seek your advice on the current state of fire resistant belt materials as opposed to fireproof materials and their practical use in underground coal mines.

"The question of whether the effectiveness of belt fire suppression systems are adversely impacted by the use of larger conveyor belts and higher belt air velocities is also an issue we hope you will address."

So to begin our work I'd also like to remind the members of the panel, and those in the audience as

well, of the nature of the underground coal mining task. If you take a look at the Bureau of Labor statistics on the mining industry you will find that the mining industry generally has a pretty fair safety record. In fact, the mining industry as a whole does not come in the top 10 list of hazardous jobs.

But, if you take the underground coal mining statistics and break them out of the mining industry as a whole you will basically find that for say the year 2006 underground coal mining was the fourth most dangerous or most hazardous job in the United States, following such things as loggers, pilots and fishermen. So even though we've made great progress in the mining industry, underground coal mining is still a very dangerous job, and it's part of our job I think to try to do our best to improve those statistics.

After discussions with panel members and Linda, we have decided to go with a panel procedure that will more or less move as follows. First, to set this off I'd like to say that we have 21 recommendations that we will be considering.

We have somewhat of a limited amount of time here. One of our panel members, Dr. Brune, will be leaving for China Wednesday around noon, so he will

have to leave our presence here sometime in mid or late morning on Wednesday, so we would like to cover all 21 recommendations, if possible, before he leaves.

Our solicitors have told us that, if necessary, he can give his proxy vote to somebody else on the panel to vote on his behalf if he is not here, but we hope to finish all 21 recommendations before he leaves, and after he leaves we will have discussions about specifics of what will go into the discussion sections for each of the recommendations. So we will still be in session through Wednesday afternoon, but we will try to get through the recommendations and vote on the recommendations before Dr. Brune leaves for China.

Accordingly, we will allow each of the recommendations to have a 10 minute period of supporting comments, and members of the panel will present those supporting comments. We will then have 10 minutes where panel members can ask questions or raise some rebuttal statements if they wish, and then after that we will have a 15 or 20 minute discussion in which we will discuss such topics as whether rewording of the recommendations is necessary, and once we have the recommendations reworded we'll try to put them in final form and we'll take a vote of the

panel.

So today we'll have a lot of help from our MSHA supporting staff, and we will have all the recommendations placed on the screen one-by-one, and then each recommendation will be taken up by the person who will provide the supporting comments.

So, Bill Francart, if you would go ahead and put the first one up there?

The first recommendation is on lifelines. You will note that in the recommendation here we are basically supporting the concepts of the lifeline regulations outlined by MSHA last year, and we are making some comments and recommendations that pertain to, number one, use of these lifelines and, number two, standardization.

As you probably recognize, as we traveled around the country to visit mines most of you probably saw the lifelines in place in the mines. I saw quite a number of them, and I was very happy to say boy, that is a good idea. It's a useful concept, and it's something that coal miners can use in an emergency.

If there was any one thing that I noticed about them was that for the greatest part they were very logical. The miner, whether he has a gloved hand or whether he has an ungloved hand, could follow the

lifeline to safety even though vision was almost totally impaired. As long as he could get to the lifeline, I think he basically had a pretty strong method of getting led out of the mine and out of danger's way.

One of the problems is the lifelines are not standardized from company to company, and we thought that maybe this is one recommendation that we could possibly make. It seems as though most of the lifelines are pretty much standardized from mine to mine, but there's no set standard, and individual mines could use their own -- what should you say -- standard if they wanted to.

Second, our subcommittee recommended that maybe we should have more standardized tactile signals attached to the lifelines, one for some sort of impediment, one for an SCSR cache and one for a personnel door.

As you probably recognize, the SCSR cache is a standard procedure now and so that is nothing new. A person moving along the lifeline traditionally can find the SCSR cache directly from the current lifelines, but we felt that there would be more potential for information on the lifelines regarding other issues in the mine. In particular, the one we

thought about was a personnel door into an adjacent escapeway.

So in this particular case we feel the MSHA movements toward lifelines are very useful. We'd like to work toward enhancing the lifeline usage, and we would like to recommend that standardized signals would be extremely valuable, and in particular one of the advantages is we could use the inside of the hard hat as a place for a miner to be reminded of what the signals mean.

At times in the past it's been a standard practice for miners to be given reflective stickers to put inside their hat, and those reflective stickers are just there for information. If the miner needed to gain information he just takes his hat off and looks at the stickers and that provides the information he needs.

In the case of lifelines we see the possibility that that might be a valuable addition. That might be something that calms a person who's trying to escape from the mine and becomes confused and he wants to reassure himself he knows what he's doing in his escape attempt. So this represents just an extension to the current regulations, and we believe that lifelines are a very valuable tool and

we'd like to see them enhanced just slightly in the future.

Okay. Members of the panel, are there questions or are there any comments that should be brought up at this time?

DR. WEEKS: I've got one. The relevance of this recommendation to the belt air issue, as I understand it anyway -- I was not on this subcommittee so I may say something that is as awkward as I'm saying it now, whatever that is.

In any event, the relevance of this recommendation to the belt air issue is that with the use of belt air for ventilation it often results in the reduction of the number of entries. That's not always true, of course. If it reduces the number of entries it reduces the number of escapeways.

That being the case, something needs to be done to improve the functionality of escapeways, and that's what this recommendation does. I mean, I think it's a good practice in general with or without the belt air, but the link to the belt air, as I understand it, is in that way.

DR. BRUNE: I was not on the subcommittee either, but did your subcommittee think about any more clarification as to what tactile signals should be

applied to these lifelines in order to characterize the impediments or the availability of SCSRs in the adjacent crosscut and so on?

DR. MUTMANSKY: Jürgen, we discussed that just generally. We thought about the possibility of just simply putting cones back-to-back to mean different things. We thought about changing the tactile signal from a cone to round spheres of some sort.

What we were concerned about is we didn't know enough about how well the tactile signals would be interpreted by a miner with a gloved hand, so we thought that perhaps we should allow that to be taken up by somebody who can research that further. The standard signals in some of the mines right now are to have double cones to mean an SCSR cache.

DR. BRUNE: Yes.

DR. MUTMANSKY: Maybe that's okay and maybe you just need to extend that, but we don't feel like we're knowledgeable enough to make that recommendation.

DR. BRUNE: Okay.

DR. CALIZAYA: If I may?

DR. MUTMANSKY: Felipe? Yes?

DR. CALIZAYA: When we were discussing this

issue, Jim Olson mentioned about conducting members also see the visibility of implementing different types of tactile signs. The cones seem to be the easiest ones to implement.

DR. MUTMANSKY: Yes. Any other comments?

(No response.)

DR. MUTMANSKY: Linda and I felt that this would not be a very controversial recommendation, so unless there's additional comments and discussion I will call for the vote on this.

DR. WEEKS: Just one minor comment, and it's a first impression. I think three is too many, and it's a lot to remember particularly in an emergency. That is subject to some real experimentation.

DR. MUTMANSKY: I think it's true. One of the reasons why -- I actually thought of the hat sticker as a possibility. I guess the real problem is can you read a hat sticker in the smoke? I don't know the answer to that. We need to know the answer to that. The second thing is how much confusion you might create.

One of the things I think you need to have, for example, most of the mines who have an SCSR cache have a couple cone signals and a line leading directly to the box containing the SCSR. You can do the same

thing for the doors.

The impediment in the travel ahead, again now that's something I think that needs some research before you decide how to do that and the best way of doing that. There's still some unanswered questions here.

Jerry?

DR. TIEN: Jan, I just want to re-endorse the concept of standardization so when miners move from place to place, region to region, they would have the same thing to deal with. That's the important point. I just want to make that point.

DR. MUTMANSKY: That does help somewhat, yes.

Other comments?

(No response.)

DR. MUTMANSKY: All right. I'm going to take the vote. We'll take the votes individually, if you don't mind.

MS. ZEILER: Yes. Could I recommend just for clarity that you read the actual text of the recommendation before you take the vote?

DR. MUTMANSKY: You want me to read it aloud?

MS. ZEILER: Yes.

DR. MUTMANSKY: All right. Linda wants me to read this to you just so we've reviewed the wording totally. Just in case we want wording changes, it's important that we actually listen to the words.

The words for this recommendation state: "The Technical Study Panel endorses the lifeline regulations outlined by MSHA in the *Federal Register*, 2006, but is recommending two additional methods of strengthening the rules.

"First, the Panel recommended that all coal mine lifelines be standardized across the country with regard to the tactile signals attached to the lifeline. Second, the Panel recommends that three standardized tactile signals be designed to indicate 1) Impediment to travel ahead, such as a door, regulator, overcast, pool of water, et cetera; 2) SCSR cache in the adjacent crosscut; and 3) Personnel door to an alternate escapeway in the adjacent in the crosscut."

Are there any word changes that are being proposed by the panel at this point in time?

MR. MUCHO: Yes.

DR. MUTMANSKY: Yes?

MR. MUCHO: I just really thought of one as I look at that, the personnel door to an alternate

escapeway. I wasn't thinking of limiting it to an alternate escapeway when I read this thing a number of times.

I think just alerting to a door, because just depending on the situation, a door, and to a nonalternate escape is as important in terms of escape. I would think that what we're looking for here is some tactile signal that there's a door in the crosscut.

DR. MUTMANSKY: Is that a proposal, Tom, that we change the wording? Is that what you're asking for?

MR. MUCHO: Yes.

DR. MUTMANSKY: Thank you. All right. Tom, why don't you go to No. 3 there and propose the wording so that the people recording our words here can get it correct and we'll base it on that.

MR. MUCHO: All we have to do is scratch to an alternate escapeway.

DR. MUTMANSKY: Okay. Are there any objections to that change? Are there any objections to that change?

DR. WEEKS: I don't want to get in the task of wordsmithing here, but it would make more sense so that it would read, "Personnel door to an adjacent

crosscut..." and just drop alternate escapeway in the whatever.

DR. BRUNE: Well, the door would typically be in the crosscut.

DR. WEEKS: It would be in the crosscut, yes.

DR. BRUNE: It's not the door leading to the crosscut. It's the door in the crosscut because that's the door.

DR. MUTMANSKY: I think that opens up some other problems, but I understand Tom's logic here. I don't object to it. It would be nice if we could clarify it further. Is there any way we could clarify that further by adding a few words or something of that sort?

If we just say, "Personnel door in the adjacent crosscut," how would the person know whether it's an escapeway or not an escapeway? Does that matter? I guess that's the question. Does it matter? I don't know the answer.

DR. WEEKS: Well, presuming it's an emergency you might not know whether it's contaminated or not or accessible or not. All that this would tell you is that there's a door to go another direction.

DR. MUTMANSKY: Correct. That's correct.

MR. MUCHO: Right. Often an escape which is done, trying doors or making the route has been a common thing we've seen in these kind of emergencies.

I would think too personnel door is a good point. All doors that I know of are personnel doors. Either they're small and somebody can go through or they're equipment doors, so "personnel" seems to be limiting it in a way that we don't want to limit them.

I would say "Doors in the crosscut." Certainly it's not an adjacent crosscut, so I would just say the doors in the crosscut or in a crosscut or something like that.

DR. MUTMANSKY: I think Tom's proposal is we change the wording on No. 3 to "A door in the adjacent crosscut." Is that what you're saying, Tom?

MR. MUCHO: That's what I'm saying. Not in the adjacent crosscut.

DR. MUTMANSKY: In the crosscut.

MR. MUCHO: "A door in the crosscut." The tactile signal would be in the crosscut. It would be in the intersection as you came across. It's alerting you that in the crosscut there's a door.

DR. MUTMANSKY: Okay. Give us your final wording and we'll vote on it, Tom.

MR. MUCHO: Okay. "And to doors located in

the crosscut."

DR. MUTMANSKY: Okay Anybody object to that?

(No response.)

DR. MUTMANSKY: Okay. Thank you for that change, Tom. I do think it does clarify it, and so unless there's any objections I'll call for the vote on that.

Tom, you vote first.

MR. MUCHO: Yes. I have no problem with this.

DR. MUTMANSKY: Okay. Jürgen?

DR. BRUNE: Yes.

DR. MUTMANSKY: Jerry?

DR. TIEN: It's going to take out adjacent, right? Okay. Yes.

DR. MUTMANSKY: Jerry votes yes.

DR. TIEN: Yes.

DR. MUTMANSKY: Felipe?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: And I vote yes, so it's a unanimous vote for this particular recommendation as altered, as altered by Tom's new words.

Okay. The second recommendation is on belt maintenance, and I'm not certain who's going to do the supporting statements, but I see that Dr. Brune is raising his hand, so, Jürgen, the floor is yours.

DR. BRUNE: Is that okay if I read the recommendation also for the benefit of the audience? I'm not sure if they all can read the fine print in the back of the room.

DR. MUTMANSKY: Yes, you may.

DR. BRUNE: I'll start and read through the recommendation. It goes beyond what we have listed here on the sheet. The recommendation reads as follows:

"The Technical Study Panel strongly recommends that the Federal Mine Safety and Health Administration (MSHA) rigorously enforce existing standards on underground conveyor belt maintenance and fire protection. The Panel anticipates that rigorous enforcement by MSHA will result in more consistent compliance by all operators to these standards.

"This applies with regard to the availability and functionality of belt fire suppression systems; the availability and proper working order of firefighting equipment; the function of smoke, carbon monoxide and other sensors and alarm

systems designed to detect fires in belt entries; and the training of mine personnel for fighting mine fires such as conveyor belts. This applies to the other conveyor belt fire prevention and maintenance items noted in the discussion section.

"MSHA inspectors should also pay particular attention to the required regular examinations of the belt lines by mine examiners and ensure that each belt line is kept in good working order at all times to prevent belts from rubbing standards, to ensure that damaged rollers are replaced immediately and that belt lines are adequately rock dusted and that flammable materials such as fine coal, coal dust, oil and grease are not permitted to accumulate along belt lines."

This was the wording of the recommendation. I'm not sure. This first page does not reflect the paragraph that I read.

As far as discussion, the subcommittee believes that MSHA currently has all the enforcement tools that they need, but they need to use these tools and apply these tools towards improving belt line safety.

The Aracoma fire in 2006 was an example where belt maintenance had not been kept up to existing and prescribed standards, and that certainly

led to the inability of the belt crews to fight this fire effectively and ultimately may have caused the death of two miners. It says in the investigation report that, among other things, mine examiners did not identify existing hazardous conditions on these belt lines.

The Panel stresses that adequate visual inspection by examining all belt lines as required in 30 CFR § 75.362 has to be done during each shift that coal is produced by a certified person who will examine for hazardous conditions along the belt conveyor where a belt conveyor is operated.

Aracoma also had examples of mismatched hose connections and valves that were turned off, and both conditions impeded the ability to fight the fire effectively. Those things are housekeeping or examination items that should normally be detected when a belt line is properly examined.

Therefore, we feel it is important to stress that these examinations have been done both by the fire bosses and the certified examiners, as well as by the regular inspectors who inspect the mines.

DR. MUTMANSKY: Jürgen, some of MSHA personnel have recommended that we sort of itemize some of these issues in this belt maintenance

recommendation.

I'll read some of the words here. Let's see if he's going to put the exact words up or not. Are you going to put those exact words up? Yes. Put that second paragraph up in particular. You may wish to do that, Bill.

I think the basic idea is just by itemizing some of these issues we may clarify our recommendation to a greater extent. You do not have to accept these changes if you don't wish to, Jürgen, if you feel that the belt maintenance recommendation is okay as is.

DR. BRUNE: Yes. I think in the first paragraph we have itemized a number of things, for instance, with regard to availability and functionality of the belt fire suppression systems, the availability and proper working order of firefighting equipment, function of smoke, carbon monoxide and other sensors and alarm systems and so on.

I think we have a fairly complete itemized list. I'm not sure if we need to go any further. I think this recommendation fundamentally goes towards applying the existing laws and regulations towards making sure that the belt lines are safe for the miners.

DR. MUTMANSKY: Okay. I'm having Bill put up the paragraph where he enumerates.

DR. BRUNE: Yes.

DR. MUTMANSKY: You can accept or reject it. You're perfectly okay to say that you don't wish to have it stated that way. That's no problem.

I think our biggest point here is to evaluate the alternative words and see whether or not you like the alternative words.

Jim?

DR. WEEKS: The only thing that I think might be added to the itemized list, and you covered it later, is control of combustible materials, the ones that you mentioned later, I think, plus trash.

I think trash is a very commonly cited violation. I don't know how much it contributes to fires, but common sense would seem that it does.

DR. MUTMANSKY: Take a look at the words that are up there now and see whether or not you like the way that they're enumerated, whether they're just repeating what you have said or whether you think we should --

DR. BRUNE: I thought this was the second paragraph that I read from our recommendation. Other than the numbers in there, which I believe help

identify those items, I think in my opinion we're good with that.

DR. WEEKS: I would just add and trash in the last sentence somewhere.

DR. BRUNE: Oil, grease and trash, yes.

DR. MUTMANSKY: Oil, grease and trash?

DR. BRUNE: Oil, grease and trash, yes.

DR. MUTMANSKY: Okay. Yes. Okay. Personally I like them enumerated myself, but that's beside the point. It's not a major issue I don't think.

Would you recommend that we accept these. Felipe?

DR. CALIZAYA: Well, I have other comments.

DR. MUTMANSKY: All right. Go ahead, please. Go ahead with your comments.

DR. CALIZAYA: The first comment is about the belt maintenance. It's not really belt maintenance. It's belt line. I don't know if that's the word. Conveyor belt and belt entry maintenance. I think we need to stress both issues.

One is the conveyor belt where we are talking about rollers and other items, and the other is the belt entry where we have accumulation of dust, trash and other things. I would recommend to expand

the title to Belt Entry and Conveyor Belt Maintenance.

Now, I have also another comment that's not very specific here. It deals with the scheduling. I work in a mine where we have to stop the mine for a shift to do the maintenance, especially when it comes to belt entry. We have an accumulation of dust, and we saw in several reports that this is one of the sources of starting the fires, especially when we talk about friction type fires, so cleanup.

I don't know if we can add that scheduling. I don't know if that's very arduous or not.

DR. BRUNE: Well, the law already prescribes, as I cited earlier, that every belt line, if coal is loaded on the belt, has to be examined once by a certified examiner during each shift.

Also, if repairs cannot be made immediately the belt needs to be stopped and shut down until such repairs can be made.

DR. CALIZAYA: Okay.

DR. BRUNE: Which is also contained in our discussion items along with this recommendation.

DR. CALIZAYA: Okay. So the scheduling part is already included, but I would call for that title change.

DR. MUTMANSKY: Jürgen, I think at this

point in time we've made some changes here. Can you accept those changes?

DR. BRUNE: Yes. From my perspective, I don't think there's any substantial changes that have changed the character of the recommendation.

DR. MUTMANSKY: No. I agree. I agree.

DR. BRUNE: Right. So, yes, from my perspective I'm perfectly fine with it. Yes.

DR. MUTMANSKY: All right. Now let's open it up for additional questions, additional thoughts about whether or not this is an appropriate recommendation and whether the wording is correct.

DR. WEEKS: Just a couple things. We had a presentation in Pittsburgh that really stressed the importance of belt maintenance and belt entry maintenance as a means of preventing fires. I think we should just take note of that and basically agree that belt maintenance is a key factor in preventing fires, and it's important to strengthen it along these lines.

The second issue, and we'll discuss it later on. This is a recommendation that really goes to the issue of fire prevention. The existing rule on belt air ventilation really doesn't address the fire prevention issue very well at all. Essentially it's

oriented towards fire protection and suppression.

We felt that was a weakness of the current rule, and this is one of a couple of entries that attempts to address the issue of fire prevention.

DR. MUTMANSKY: Tom?

MR. MUCHO: Yes. Really kind of following up on what Jim just said, that was the one aspect that I don't see in that listing there, and that is fire prevention and the ability to fight fires.

I have to say that I didn't do my homework and look at the law and I'm not totally up to speed, but things such as the Aracoma incident where the mismatched couplers didn't allow the fire. I think the Mine 58 fire in 1988 where someone had shut the valve on the lateral going to the fire suppression system.

I'm just not sure in terms of the law what's required in examinations and to what detail and some of the specificity that there might be there, but in my days in industry we picked up those things in mainly safety audit inspections that were done periodically rather than daily inspections and shift-by-shift inspections.

I almost wonder about some of those things. First of all, I don't know what's specified in the

law, but what maybe should be or thought about.

DR. MUTMANSKY: Tom, we are going to take up a recommendation later on inspections.

MR. MUCHO: Okay.

DR. MUTMANSKY: I think we should revisit your comments at that time because the words you said made me think that indeed that's something that can be addressed in that recommendation.

Jürgen, were you going to speak with Tom?

MR. MUCHO: That's good. Now give me a chance to look at the law and know what I'm talking about.

DR. MUTMANSKY: Okay. Other comments? Any other thoughts that we should bring up before we accept these as our final words?

(No response.)

DR. MUTMANSKY: Linda, are you going to make me read the whole thing?

MS. ZEILER: No, but I would suggest you read the second paragraph.

DR. MUTMANSKY: All right.

MS. ZEILER: The first paragraph has not changed, but the second paragraph did.

DR. MUTMANSKY: Okay. The second paragraph stated here is:

"MSHA should pay particular attention to required examinations of the belt lines by mine examiners and ensure 1) Each belt line is kept in good working order at all times to prevent belts from rubbing standards; 2) Damaged rollers are replaced immediately; 3) Belt lines are adequately rock dusted; and 4) Flammable materials such as fine coal, coal dust, oil, grease and trash are not permitted to accumulate along belt lines."

Does everyone accept that final wording? Are there any final comments before we take the vote?

(No response.)

DR. MUTMANSKY: There being no more, let's go ahead and vote. We'll start with Felipe this time.

DR. CALIZAYA: I agree.

DR. MUTMANSKY: Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: I vote yes.

Jerry?

DR. WEEKS: Yes. I like the wording, the modifications. I vote yes.

DR. MUTMANSKY: Jürgen?

DR. BRUNE: Yes.

DR. TIEN: Yes.

DR. MUTMANSKY: Okay. That's a six to zero

vote, so it's a unanimous vote for the second recommendation.

Let's go to No. 3. We're making good progress. Thank you for keeping your comments short and to the point.

We will now take the belt flammability recommendation. Who is going to be the supporting -- Jim, you're up.

DR. WEEKS: First I want to give a little background to this recommendation. It's discussed a little bit more thoroughly in the discussion section. I'll just hit a couple of highlights.

First of all, every belt fire since 1969 has occurred on an approved belt, which suggests that the approval process was not giving us belts that were capable of preventing fires or controlling fires.

Secondly, the current testing protocol has been identified as limited in a number of ways, the most visible of which is that it's a very small scale test, and it doesn't replicate the conditions of the mine in terms of the size of the belt, the entry, the ventilation and the like.

The current test actually traces its roots if anyone is interested in the history to a recommendation in 1955. It's been changed since then,

but not to a great extent. Belts, the use of belts and so on have changed obviously a great deal since 1955.

The Bureau began the process of developing a new test around 1967. The aim was to create a test that was more indicative of actual mining conditions in terms of size and ventilation and so on, and the testing that was done then went through many revisions, tests, evaluations and scaling down and evolved to what's called the B-E-L-T, the BELT test.

That's an acronym which I forgot exactly what it stands for, but that's the test that was developed by the Bureau of Mines and by NIOSH and was published in the 1980s, the late 1980s. So that's some historical background that the existing rule on belt testing for flammability is weak in some specific respects so that in general belts are a problem when it comes to fire control.

Now moving on to the belt air rules, I suggested a few minutes ago, and it's true here as well, that the current belt ventilation rules basically aim at fire protection and suppression and are relatively weak in the area of fire prevention. One way to get to the issue of fire prevention is to improve the flammability standards on standards for

testing and certification for belts, so in large part that's where the recommendation comes from.

Now, MSHA's regulatory history on this, there was I don't remember whether it was a proposal or an advance notice of proposal in 1992 I believe, and then in 2002 or 2004 it was withdrawn, the reason being that the frequency of belt fires had been reduced over that time period.

It's true. The number of fires has been reduced, but if we look at the number of fires per mine it's been basically constant over that period of time. If you look at it in terms of per tons of coal reflecting the actual use of fires, there has been a decline in the frequency of belt fires. It's a relatively weak decline and so on.

So that's the rationale behind recommending an improved belt flammability test, and that's the support for this recommendation here; that it's aimed at fire prevention. I guess I should read it, okay? All right?

"The Technical Study Panel strongly recommends that MSHA move post haste to revise (as suggested elsewhere) and repropose and implement the proposed rule, Requirements for Approval of Flame-Resistant Conveyor Belts, that was withdrawn in 2002,

to significantly reduce the frequency and hazard of conveyor belt fires in mines that elect to course belt air to the working face.

"The Panel believes the current requirements for testing and approval of flame-resistant conveyor belts have proven to be outdated and inadequate to provide an acceptable level of flame resistance and, therefore, safety for the U.S. miners based on both the historical record of conveyor belt fires in the U.S. and in comparison to general standards of the global mining community."

Now, I have a question for clarification here. The proposal in 1992, that was the BELT test. Is that correct?

DR. MUTMANSKY: Yes.

DR. WEEKS: Okay. I just wanted to clarify that.

DR. MUTMANSKY: Okay. Jim, you prepared a very long discussion on this. I appreciate that because there's a lot in there.

I would like to mention the fact that one of the things that greatly affects my thinking on this is the fact that there are quite a few countries around the world that have implemented more stringent standards on belt conveyors than we have in the United

States.

I believe that that is important evidence to consider, and I think that if we assess that adequately this would speak in favor of moving in this general direction or in the direction of this particular recommendation.

Are there comments? Are there comments now or questions from the committee? I might mention to you that the court reporter has asked that you speak up a bit with a bit more volume because there's been some problem of hearing your voice come across, so if you would as you give your comments or as you vote would you speak up and make certain your voice is getting into the microphone?

All right. Comments or questions? Jürgen?

DR. BRUNE: Yes, perhaps one comment to add to your last comment from the comparison that we found in one of the presentations -- I believe Mr. Küsel from Phoenix in the meeting in Pittsburgh -- that showed that the United States as far as belt flammability and material specifications lags behind pretty much every other country in the world with the number of kind of tests that are required for belts.

Europe I believe had the most stringent tests, but most other countries had some kind of a

large scale laboratory test that was required in addition to the small scale test that is currently required in the United States.

We'll probably get into that discussion about the drum friction test later on as well, so I just want to point out that there seems to be an obvious lack of regulation in the United States as far as belt flammability is concerned.

DR. WEEKS: Yes. Just to emphasize that point, there's a graphic in the discussion section that dramatically illustrates the comparison between the U.S. standards and other standards.

DR. MUTMANSKY: Jim, just a question. I paid very careful attention to that graphic, and when you study it over it's a convincing argument.

Was this the graphic that was put together by the gentleman from Phoenix?

DR. BRUNE: I believe so, yes.

DR. WEEKS: Yes, it was.

DR. MUTMANSKY: It was? Okay. I just wanted that for clarification.

DR. WEEKS: Yes. We didn't generate that. We just adopted it.

DR. MUTMANSKY: My understanding was that Harry Verakis gave some additional information to the

subcommittee that was working on the belt flammability issue. Is there anything significantly different from Harry's presentation to you, Tom?

MR. MUCHO: No. In fact, that particular document that Harry produced was an excellent document and a good summary of the issue of belt testing, belt approval, belt flammability and so forth, really up to date, of course, and very beneficial with those comments, and it was incorporated into the writing of this recommendation.

DR. WEEKS: It's not clear to me what the final wording of the discussion is at this point, but I guess we can work on that later. We don't need to finalize that now, do we?

DR. MUTMANSKY: Finalize what?

DR. WEEKS: The discussion of this whole thing.

DR. MUTMANSKY: No. At this point in time, Jim, we will work on the discussion sections after we complete all of the votes on the recommendations with the idea being that we'd like to have Jürgen here for most of the votes, and we will then work on refining the discussion sections that go with each of the recommendations.

For those in the audience, just for your

information the report will normally be written with a recommendation that reads with about that many words and then a discussion section. The discussion section is basically supporting the recommendation.

In addition, anybody who wants to vote against the recommendation has the opportunity in the discussion section to present a minority report. In other words, if I happen to be against this recommendation and I felt strongly that I had some valid arguments I could write a page of arguments that would say I'm not in favor because and then list my logic there.

So as we move forward we may have some minority reports that will be issued as part of the process, and it's perfectly okay for a person who votes against something to present a valid argument in words in the report.

DR. WEEKS: I just want to make one other comment. A number of people commented on the discussion section. I think comments were exceptionally useful and to the point, particularly the comments that Henry made. I just want to express my thanks for that.

DR. MUTMANSKY: Jerry?

DR. TIEN: Jim, you indicated there are a

couple comparison numbers and fire incidence per mine and per tons produced. It's quite useful as a reference point.

I'm just wondering. Do you have any other numbers for other countries in the world like in Australia and Europe as a reference point?

DR. WEEKS: No. No, I don't.

DR. TIEN: Okay. I'm just curious because obviously the Europeans have more stringent standards, and other statistics show that.

DR. WEEKS: Right.

DR. MUTMANSKY: Jürgen, do you have any thoughts about how it goes in your view since with your background maybe you have some thoughts?

DR. BRUNE: No. Unfortunately, I don't have any of those statistics either.

Typically my experience has been that the comparison basis for such statistics is extremely difficult to understand so that if you compare statistics you need to compare apples to apples, and that's not always possible because the underlying denominators are particularly different.

DR. WEEKS: And so are the numerators.

DR. BRUNE: Yes.

DR. WEEKS: Because fires in the past,

reported fires are ones that last 30 minutes or more.

DR. BRUNE: Yes.

DR. WEEKS: A lot of fires that are less, are shorter --

DR. BRUNE: That's one of the differences.

DR. MUTMANSKY: Felipe, do you have something?

DR. CALIZAYA: Yes, I have a couple of comments. I'm not sure about this title.

Are we talking about the belt, which is belt evaluation and laboratory tests? Is that what this belt flammability --

DR. BRUNE: No.

DR. CALIZAYA: It's not? It's the conveyor belt?

DR. BRUNE: This is generally conveyor belt flammability. That's the title, yes.

DR. CALIZAYA: Okay. That's one question. The other question is toxicity. Is this implicit in the test? Is that another section, or it's not a requirement?

DR. BRUNE: Jim, you may want to comment on that.

DR. WEEKS: Toxicity is not addressed in any of our recommendations as of right now.

DR. MUTMANSKY: Is this recommendation properly called belt flammability, or should we call it belt conveyor materials flammability?

DR. WEEKS: I mean, what it recommends is an improvement in the testing and certification of belts, and maybe it just should be Belt Testing Certification.

Just by way of clarification, but toxicity you were talking about the toxicity of smoke from belt fires?

DR. CALIZAYA: Yes.

DR. WEEKS: No. We didn't address that.

DR. CALIZAYA: Well, regarding this point I think at least to me based on the hearings we had before we should address that point of toxicity.

We know that it's the fumes that will cause any accidental death that we may have in mines. If we have toxic fumes then definitely we are allowing that to take place.

DR. MUTMANSKY: Go ahead, Tom.

MR. MUCHO: In terms of toxicity there was some talk about it during our meetings and so forth, but certainly from my opinion we didn't get into the detail that one would need to get into I think to make a firm recommendation to that.

Quite frankly, at least it's certainly my opinion that belt toxicity, while it would be some concern, is really not a major concern. In most of our fire situations, as I think Dr. Kissell talked about this, the first whiffs of smoke and so forth, people are moving and out of it.

Really the exposure, as he pointed out quite well, to toxicity, I can't think of anywhere where that's been an issue. The main issue has been escape or other things because of smoke.

Given our look at it, which is so brief, I don't think we can really make a recommendation. Quite frankly, I don't think it's that major of an issue in terms of these kinds of emergencies. That's at least my opinion.

DR. WEEKS: The principal toxic agent that's of most concern is carbon monoxide. I mean, there are a lot of irritants in smoke, but it's carbon monoxide that's the issue. That to some extent or to a great extent is addressed with the self-contained self-rescuers and the W-65 rescuer as well.

You were thinking of irritant smoke, gases, hydrochloric acid and the like?

MR. MUCHO: Yes.

DR. WEEKS: Yes. I think the CO would

probably get you before those would; at least that was the information that we received in Pittsburgh.

MR. MUCHO: There's been research done. I can think of a few Bureau of Mines studies on the toxicity, and basically while there's some of these toxics like HCL and so forth, really with the dilution and so on if a person is exposed to it to the point where it's going to be hazardous to them they've got a bigger problem than that toxicity. That's the most minor of their issues.

DR. MUTMANSKY: Okay. I'd like you to look at the title that you see on the recommendation here, Belt Conveyor Testing and Certification. Is that a better title for this recommendation?

Tom, what do you think?

MR. MUCHO: Well, the certification. I think it's testing and approval. I think from a technical standpoint that should be the title.

DR. MUTMANSKY: Testing and Approval.

DR. BRUNE: Yes.

DR. MUTMANSKY: So the recommendation then, Tom, is that we change this to Conveyor Belt Testing and Approval? Is that it?

MR. MUCHO: Yes.

DR. MUTMANSKY: I like that. It's a little

bit more appropriate title for the recommendation. I think that's a good idea. I think it's a good word change.

Does anybody have any objection to that word change?

DR. BRUNE: Should we make it Flammability Testing and Approval because, I mean, we have other tests like the drum friction test that is going to be discussed later. This is fundamentally flammability testing.

DR. MUTMANSKY: I think that's even better yet. Perhaps we're approaching a good title here.

DR. BRUNE: Okay.

DR. MUTMANSKY: I like it better. It's a more appropriate title.

Anybody object to it?

DR. TIEN: Yes. I'm just thinking out loud. Would that address or kind of negate his point of toxicity?

DR. MUTMANSKY: Well, it doesn't address it, but we're not attempting to address it.

DR. TIEN: Or should we mention that as a reflection of the discussion we had since it's not a concern so people don't think we left it out?

DR. WEEKS: Well, we don't want to say it's

not important.

DR. TIEN: Yes. Some people might come in and look at it and say oh, you forgot about it.

DR. WEEKS: That's right. Well, they did. Felipe did.

DR. MUTMANSKY: All right. I want to move forward if there are no objections to that.

Are there any final comments? Are there any final word changes that we should execute at this point in time?

Keep in mind while we can change the discussion paragraphs that support this once this has been approved here in public by a vote of the panel it has to stay that way so we can't change this later. On Wednesday morning or Wednesday afternoon we can't say gee, we need a little bit of a change here. We have to make our changes now.

Let's read that through. I'll read it through again before we get to the voting.

"The Technical Study Panel strongly recommends that MSHA move post haste to revise (as suggested elsewhere in this report) and repropose and implement the proposed rule, Requirements for Approval of Flame-Resistant Conveyor Belts, that was withdrawn in 2002, to significantly reduce the frequency and

hazard of conveyor belt fires in mines that elect to course belt air to the working face.

"The Panel believes that current requirements for testing and approval of flame-resistant conveyor belts have proven to be outdated and inadequate to provide an acceptable level of flame resistance and, therefore, safety for U.S. miners based on both the historical record of conveyor belt fires in the U.S. and in comparison to general standards of the global mining community."

Now that I read it I see one thing missing. Are we recommending this for all belt conveyors throughout U.S. coal mines?

DR. BRUNE: I think the next one will address that.

DR. MUTMANSKY: The next one will address that? Okay.

DR. BRUNE: The next recommendation will address that.

DR. WEEKS: The short answer is yes. I don't know that it's in --

DR. BRUNE: Right. And I don't think it should be in there because we decided to make that a separate point.

DR. MUTMANSKY: All right. I have no

problem with that. Okay. I'm glad that's taken care of.

MR. MUCHO: Actually in the discussion section on this we include that, and then we put in a second one just because we felt it should be discussed separately and not a point that's missed.

DR. MUTMANSKY: All right. I have no problem.

Jerry?

DR. TIEN: Yes. I was reading that, and I just wonder if I'm reading it wrong.

If you read the last part of the fourth line, that was withdrawn in 2002 to significantly reduce the frequency of fire hazards.

DR. BRUNE: No.

DR. MUTMANSKY: You're reading the sequences of words as if they're sentences. You have to read the whole sentence I think, Jerry.

DR. BRUNE: You could maybe put a semicolon there.

DR. MUTMANSKY: If it's unclear let's pursue it.

DR. TIEN: Can you add a colon or semi-colon or something?

DR. BRUNE: Yes. You may want to put a

semi-colon after the parenthesis after 135 to clarify that.

DR. TIEN: Yes.

DR. BRUNE: That's a good point.

DR. WEEKS: Well, then you need to make it a complete sentence, which it isn't once you put the semi-colon.

DR. MUTMANSKY: That's correct.

DR. WEEKS: The aim is to significantly reduce, et cetera.

DR. BRUNE: Yes, you could do that. Make a full stop there and then start a new sentence.

DR. TIEN: That's better.

DR. MUTMANSKY: The aim or the objective. Which is a better word? Objective?

DR. BRUNE: Yes.

DR. MUTMANSKY: Is to significantly reduce.

DR. BRUNE: Yes. I think that clarifies it.

DR. MUTMANSKY: I think that is a better way of expressing it, Jerry. "The objective is to significantly reduce the frequency and hazard of conveyor belt fires."

All right. Any other word changes?

DR. WEEKS: Well, no other word changes, but, Jerry, did you have some more to say about the

toxicity of smoke? I don't want to let this issue just get shoved under the rug.

DR. TIEN: Yes, but obviously we are.

DR. WEEKS: Well, we don't have to though.

DR. TIEN: Yes. How are we going to address that -- I'm just curious -- to reflect our concern? We recognize that. We did not forget about it, but because of the situation Tom described you weren't able to address that properly or something.

DR. WEEKS: I don't have an answer for that.

DR. TIEN: Does that make sense to you, Tom?

DR. BRUNE: Are we addressing it in the discussion somewhere?

DR. MUTMANSKY: Toxicity? No.

DR. WEEKS: No. No, it's not in there at all.

DR. TIEN: I don't think we did.

DR. WEEKS: Maybe we could discuss this at the break or something and figure out some way. I mean, conceivably we could come up with another recommendation. I don't know. How do we do this, Jerry?

DR. MUTMANSKY: That's a very good question, Jim.

First of all, I don't recall. We had some

discussions on toxicity in our meeting in Pittsburgh.

DR. WEEKS: Right. Right.

DR. MUTMANSKY: And I don't remember the details of that discussion. I believe when they talked about chlorides in the belt there was some discission about toxicity.

DR. BRUNE: Yes. There's that, and there's also the potential presence of arsenic and other heavy metals that are used in flame resistant rubber compositions, so that may also be a toxicity concern.

DR. WEEKS: As I recall, the summary that Tom gave a couple minutes ago I think accurately reflects what we received in Pittsburgh, and that is that there are a lot of toxic materials in smoke.

The one of principal concern is carbon monoxide. I don't know exactly how Tom put it, but that's the way I recall it was presented to us in Pittsburgh.

Based on that, I guess we decided to not discuss it. I don't know. Perhaps we could talk about that some more not in this setting, but at the break.

DR. MUTMANSKY: Well, I think we may have gotten the basic idea early on that the CO is really what the real culprit is.

DR. BRUNE: Yes.

DR. MUTMANSKY: It's the one that's going to show itself earliest in human beings, and maybe that was perhaps part of the thinking as you went through this.

DR. TIEN: Yes, and it stayed somewhat to --

DR. MUTMANSKY: Jim, we can perhaps look at some of those materials again.

One of the things we can do is look at the materials from the Pittsburgh meeting again this evening and peruse them for possible additional discussion points where we may propose another recommendation. What are you doing this evening, Jim?

DR. WEEKS: You tell me.

DR. MUTMANSKY: If you're concerned about it, I would recommend that you review those and we can either discuss it in subcommittee as we've done all the other recommendations, or you could bring it to the panel at some time tomorrow during our deliberations tomorrow.

DR. WEEKS: In the interest of domestic tranquility, I may need to go home to do this research.

DR. MUTMANSKY: That's fine.

DR. WEEKS: Okay.

DR. MUTMANSKY: We'll permit that much leeway. Thank you. Perhaps we can also do it here as well just simply to assure ourselves that we're not overlooking an important issue in this matter.

Are we close enough yet that we can take a vote on this recommendation? I think the rewording helps the recommendation. I like that. Are there any other final comments before we take the vote on this particular No. 3 recommendation?

DR. TIEN: Is this recommendation complete without addressing that? I just don't know.

DR. BRUNE: I would say yes for this recommendation with the title. I mean, it addresses flammability and testing and approval. If you want to address toxicity, I believe that should go into a separate recommendation.

DR. TIEN: Okay.

MR. MUCHO: Yes. Just to follow up on that, we have another recommendation regarding other tests which test for other things.

DR. BRUNE: Yes.

MR. MUCHO: We at least briefly address them, like static electricity and so forth. That would be where we belong anyway.

DR. BRUNE: Yes.

DR. MUTMANSKY: That comes up in two recommendations.

MR. MUCHO: Yes. That's the next one.

DR. MUTMANSKY: So we will be discussing that sometime today I would guess.

Okay. Are we ready for the vote, gentlemen? Tom, you're to vote loudly and distinctly so the court reporter --

MR. MUCHO: Yes.

DR. MUTMANSKY: Thank you, Tom.

THE REPORTER: Thank you.

DR. MUTMANSKY: Jürgen?

DR. BRUNE: I vote yes.

DR. TIEN: Yes. Jerry Tien.

DR. MUTMANSKY: I vote yes.

DR. WEEKS: Yes.

DR. CALIZAYA: Yes.

DR. MUTMANSKY: All six members of the panel have voted yes on this particular issue.

We will go to the next recommendation, Improved Fire Resistance Standards For All Mines. Jürgen will be the person who will make the proposal to us.

DR. BRUNE: Yes. This recommendation is an outgrowth of the previous recommendation, and we have

discussed it in the discussion section for that recommendation, but we wanted to make it a specific point that the improved fire resistance for belts is so important that it should not only apply to those belts that are ventilated towards the face, but to all belts for coal mines.

The only reason we restricted it to coal mines is that the charge of this committee is restricted to coal mines, so we cannot go beyond that. This is essentially to make a specific point to make the flammability requirements valid and binding for all mines, for all coal mines, all underground coal mines.

I'll read this. "Like previous committees dealing with belt air topics, this Panel feels strongly that the conveyor belt flame resistance testing and standards recommendation in this report for mine," and that should be mines, "that course belt air to the working section should also be extended by MSHA to all underground U.S. coal mines."

DR. MUTMANSKY: I'm worried about the word should in there. Let's see. Should also be extended.

DR. BRUNE: I think at some point we said shall also be extended. That may be a grammar thing. I thought it was shall.

DR. MUTMANSKY: Should the word must be substituted, or should it be shall?

DR. BRUNE: No. I think it should be shall.

DR. MUTMANSKY: It should be shall. Okay.

DR. BRUNE: It was mentioned in one of the reviewer's comments.

DR. MUTMANSKY: Yes.

DR. WEEKS: I think the reasoning behind this recommendation is sort of very straightforward. I think there are two reasons. One is belt fires occur in all belt entries. The Aracoma belt fire was not in a ventilating belt entry, for example, first of all.

Second of all, it would be, quite frankly, a regulatory nightmare to have one set of approval for the 40 mines that used belt air for ventilation and another set of approvals for everybody else. In order to avoid that, this should just cover it across the board.

DR. MUTMANSKY: Jerry, do you have a comment?

DR. TIEN: Yes. Just curious. Like Jürgen, obviously English is not our first language. I'm just curious. I've also been at the university too long.

The last sentence. Which one is better,

MSHA to all underground U.S. coal mines or to all U.S. underground coal mines, or do they mean the same? Probably.

DR. MUTMANSKY: What are the two alternatives, Jerry?

DR. TIEN: Switch the U.S. and underground around.

DR. WEEKS: Tweedle Dee or Tweedle Dum? I mean, I think they're the same.

DR. BRUNE: I think that's pretty much the same.

DR. TIEN: Yes.

DR. WEEKS: That's from a nursery rhyme used in English.

DR. MUTMANSKY: Okay. I think it is important to consider the wording. I know that you corrected some of my recommendations for wording and they were better after you corrected them, so if you have those kinds of thoughts let's make certain that we get them into the recommendations at this time before we do any voting.

DR. TIEN: It's fine either way.

DR. MUTMANSKY: One thing. One point of clarification. You say, "Like previous committees dealing with the belt air topic..." Are you referring

to the 1992 committee? Is that what you're saying?

DR. WEEKS: That's what you wanted, right? Wasn't that the Belt Air Advisory Committee, or was that the CEDR?

DR. BRUNE: Yes. I'm not sure if that first half of the sentence is really necessary for the recommendation. We could start it with, "This Panel feels strongly that the..."

DR. WEEKS: Yes.

DR. MUTMANSKY: I think you're right.

DR. BRUNE: This Panel recommends it. It's irrelevant to some extent what previous committees discussed. Yes.

DR. MUTMANSKY: Okay. I think it's helpful to do it that way.

DR. BRUNE: Yes.

DR. CALIZAYA: One comment.

DR. MUTMANSKY: A comment, Felipe? Speak into the mic.

DR. CALIZAYA: It has to do with the title. It says standards for all mines.

DR. BRUNE: All underground coal mines.

DR. CALIZAYA: All underground coal mines. Maybe that would help.

DR. BRUNE: Yes.

DR. CALIZAYA: And how about overland conveyors? Do we have any tests?

Jim mentioned a few minutes ago generalizing from the belt to all underground mines. The same conveyors are used for overland conveyor belts. Are we going to have another set of rules for overland conveyors?

MR. MUCHO: First of all, the thing of it is if we have a fire in an overland conveyor it's not the safety issue that a conveyor belt underground is.

It kind of gets like some fires in metal mines where it's let it burn. The biggest hazard would probably be firefighting type hazards maybe.

So from a safety standpoint, I don't think it's something we want to get into as the Panel to recommend it. I think MSHA would exercise some discretion into what all they might additionally include in their recommendation, but I don't think that we as the Panel need to get into that.

DR. WEEKS: Yes. I think our charter is limited to underground mines anyway.

MR. MUCHO: Right.

DR. WEEKS: I mean, you still have over ground --

MR. MUCHO: Well, the overland conveyors.

DR. WEEKS: Yes.

MR. MUCHO: You can argue that's part of the underground mine.

DR. WEEKS: Right.

MR. MUCHO: I don't think we need to make that distinction or as fine a point at this point for us.

DR. MUTMANSKY: Okay. Other questions now? Other thoughts before we vote on this?

(No response.)

DR. MUTMANSKY: We've made some changes. We're now calling this Improved Fire Resistance Standards For All Underground Coal Mines.

"This Panel feels strongly that the conveyor belt flame resistance testing and standards recommendation in this report for mines that course belt air to the working section shall also be extended by MSHA to all underground U.S. coal mines."

Should there be a hyphen between flame and resistance there?

DR. BRUNE: No.

DR. MUTMANSKY: No? Okay.

Anybody else? Any other thoughts?

(No response.)

DR. MUTMANSKY: Gentlemen, are we ready for

voting on this?

Felipe, you vote first this time.

DR. CALIZAYA: I vote for it, yes.

DR. MUTMANSKY: Yes.

Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: I vote yes.

Jerry?

DR. TIEN: Yes.

DR. BRUNE: Yes.

MR. MUCHO: I'll make it unanimous with a yes.

DR. MUTMANSKY: Thank you, Tom. Thank you.

We've gotten through four of our recommendations now. We'll take a break this morning, but I think we're rolling forward, and I don't want to stop the momentum here so let's try to take a couple more of our recommendations before we break for this morning.

The No. 5 recommendation is on Other Belt Tests. Who is going to present this one? Jim?

DR. WEEKS: First a little background. About a quarter of belt fires in underground coal mines are started by frictional ignition, which suggests that some way of preventing that type of

ignition would be useful.

Secondly, addressing specifically the drum friction test this test evaluates belts for whether or not a fire will ignite due to friction. The BELT test basically tests flame propagation and assumes the belt is already ignited. In fact, it's ignited by a bunsen burner or something like that.

So given those two factors and the fact that most other coal mining countries employ a drum friction test already, to bring us up to speed we're recommending that MSHA adopt a drum friction test as well.

Now, there's a problem with this recommendation. Initially I think on the subcommittee we said well, we should just recommend that MSHA adopt the drum friction test, but then the obvious fact was well, what exactly does that mean? There's nothing off the shelf like the BELT test about the size of the drum, speed of rotation, how long it runs, et cetera, et cetera, and all the sort of experimental details that are needed to make a test valid.

So after a fair amount of discussion in the subcommittee we came to the conclusion, sort of a compromise conclusion, that we should recommend that MSHA adopt a drum friction test, basically taking it

from some of the international coal mining countries, some other coal mining country that already uses it, do it for a couple of years, do whatever laboratory experimentation is necessary to evaluate and validate a test and then after two years determine whether to persist or modify or whatever with the drum friction test.

So that's basically the thinking behind this particular recommendation and why it's recommended in terms of two years, evaluate and decide what to do after that point. The need is there, given the frequency of frictional ignition, and it's important to try and address that and develop belts that will not ignite in that particular way or cause an ignition in that particular way.

MR. MUCHO: One thing I want to point out on this. In this evaluation and so forth I think at least the Panel has in mind here -- maybe all the Panel doesn't, but at least the subcommittee has in mind -- that NIOSH would probably be involved in some of the research and so on to assist MSHA with this evaluation, so in essence I think the panel is recommending that NIOSH do some work here too.

I don't know where that gets to in terms of the scope of our charge, but I guess we can recommend

that NIOSH do some things too and do it quickly for our timeframe.

DR. WEEKS: Did you want to change the words to reflect that?

MR. MUCHO: I don't think we need to change the words. I just wanted to point that out on the record.

DR. WEEKS: Yes. I was certainly assuming that.

DR. BRUNE: I would also like to point out that based on the statements that we heard from the manufacturers that pretty much all manufacturers are able to produce belt materials that pass this drum friction test in one or another shape.

I'm personally of the opinion that any drum friction test is initially suitable to provide this frictional resistance that Jim correctly pointed out as the cause for many of the belt fires, and I think the subcommittee at least felt that any friction test is better than requiring none.

So let the research and let the experience show in the next two years how that leads to a hopefully reduction in friction-related belt fires and then we'll evaluate it after two years ago.

DR. WEEKS: Just one historical thing that I

neglected to mention.

Originally there was a drum friction test. By originally I mean going back to the 1950s. There was a drum friction test, but as I understand the historical development what happened there was that any test that passed the flame propagation test would also pass the drum friction test so it was considered somewhat redundant.

But since that time many, many things have changed, belt materials, if the BELT test is adopted the testing, the testing method is adopted and so on, so it's appropriate to revisit the issue. It wasn't discarded in the past. It wasn't neglected in the past. There was a reason for it.

MR. MUCHO: Yes. Just to add on, the title is Other Belt Tests. The Panel did consider the other belt tests. As Jürgen especially has pointed out, there are a number of belt tests out there, a number of them required by other countries. We looked at those, basically some types of gallery tests. I mentioned the static electricity test.

Bottom line is the Panel didn't consider that any of these other tests ought to be recommended. We just didn't see that there was any evidence that those types of issues needed to be evaluated. For

example, static electricity in U.S. coal mines, as noted in Harry Verakis' August 2007 document, has not been an issue in U.S. coal mines.

Testing for the sake of testing is hard to recommend, so we didn't recommend any of the other tests. As we previously discussed and addressed, there's certainly nothing in the toxicity area.

DR. MUTMANSKY: Okay. Tom, originally this recommendation had a three-year period in it. Now it's written as two years. Can you just bring us up to date? Why was that done?

MR. MUCHO: Yes. In a comment by Harry Verakis, Harry felt that you could get it done in two years. We were just trying to put forth a realistic timeline, and so if MSHA and NIOSH can get that accomplished in two years I think that's great.

DR. MUTMANSKY: Okay. All right.

DR. WEEKS: Although we have to note that it took 10 years for the proposal to withdraw that.

DR. MUTMANSKY: Well, that's an interesting comment, but I suspect it was not a research issue. There may have been other issues there. It's hard to say.

DR. WEEKS: That's all right. It's a good job.

DR. MUTMANSKY: So at this point in time are we satisfied with the title Other Belt Tests? Is that okay?

DR. CALIZAYA: I have one comment.

DR. MUTMANSKY: Yes?

DR. CALIZAYA: I think this issue is really about drum tests and we don't have any other issue, so the title should reflect that, Drum Friction Test.

DR. BRUNE: We discussed that, Felipe, but we also, like Tom pointed out, did discuss and have included in our discussion comments and have acknowledged that other belt tests do exist and other countries require those, but out of those other tests we only focus on and see value and merit in the drum friction test, so that's why we labeled it Other Belt Tests.

MR. MUCHO: Felipe, just to add a point, really what we're looking at there is other belt tests or other things we need to measure tests for and so forth and so from the Panel's viewpoint, quite frankly, the testimony the Panel had from a lot of the experts in the field tended to indicate that belt fire resistance could be well tested with just the gallery test, the BELT test.

From a materials science standpoint maybe

that's true and maybe that's not true. We certainly, as Jim pointed out for reasons he gave, looked at the drum friction test, but we were looking at the world of what else do we need to look at regarding the approval of conveyor belts.

DR. MUTMANSKY: Okay. So we're okay with the title unless Felipe has an objection.

Felipe, I think the logic is we're considering a number of other belt tests, but only recommend that the drum friction test be implemented on a research basis. Is that correct?

MR. MUCHO: As another test to the flame propagation test.

DR. MUTMANSKY: Is that okay with you now?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: All right. Any other word changes?

(No response.)

DR. MUTMANSKY: Any other words changes? Let's read this. Let me read it.

"Other Belt Tests. The Technical Study Panel recommends that MSHA adopt a drum friction test to be utilized for a period of two years to evaluate and assess the contribution requiring such a test for flame-resistance approval might make to conveyor belt

fire safety. Continuance of this test would be based on the MSHA evaluation at the end of this time period."

Excuse me for stumbling on the words there, but that's okay. I want to mention that flame-resistance here, flame-resistance approval, has a hyphen in it here. In the last recommendation it did not.

We would make it uniform, I guess. I assume we should. I sort of like it in there myself.

MR. MUCHO: Our reviewers didn't catch that.

DR. MUTMANSKY: All right. So do we take the hyphen out? Let's take the hyphen out. We'll go with that.

DR. TIEN: What does it mean, might make to conveyor belt fire safety?

DR. BRUNE: The contribution.

DR. MUTMANSKY: The contribution.

DR. BRUNE: It's a correct sentence.

DR. MUTMANSKY: The contribution is the subject that might make to conveyor belt fire safety. Such a test might make to conveyor belt safety. The test. I don't know.

DR. WEEKS: It's two sentences.

DR. MUTMANSKY: We could reword that, Jerry.

Give me a better wording. We'll be quick. Are you okay with the wording?

DR. TIEN: Requires or require? Either you drop that or make it requires.

DR. BRUNE: You could also say assess the contribution to fire belt safety that requiring such a test might make. Assess the contribution to conveyor belt safety that requiring such a test for flame resistance approval might make.

DR. MUTMANSKY: It brings the conveyor belt fire safety right to the contribution there.

DR. BRUNE: Right.

DR. MUTMANSKY: So that may make it better. Let's try that. Let's try that and see if everybody is okay with that.

DR. BRUNE: Yes.

DR. TIEN: Requiring or requires?

DR. MUTMANSKY: Why not say and assess the contribution to conveyor belt fire safety of such a test. Of such a test.

DR. WEEKS: Yes, you could do that too.

DR. MUTMANSKY: Does everybody like that? Let's try that one, Bill.

DR. BRUNE: Now we're getting to the minor changes.

DR. MUTMANSKY: Let's read it one more time and see if we're okay with the wording.

"The Technical Study Panel recommends that MSHA adopt a drum friction test to be utilized for a period of two years to evaluate and assess the contribution requiring the conveyor belt fire safety of such a test. Continuance of this test would be based on the MSHA evaluation at the end of this time period."

Are we okay with that? Everybody like the wording?

(No response.)

DR. MUTMANSKY: Any final comments here? Do we have final comments that we want to make at this point in time?

(No response.)

DR. MUTMANSKY: Anybody have any other wording changes?

(No response.)

DR. MUTMANSKY: Are we ready to vote on this? Okay. I'm going to vote on this, and we'll go to Jim next.

DR. WEEKS: Yes.

DR. MUTMANSKY: Felipe?

DR. CALIZAYA: Yes. Yes, I agree.

DR. MUTMANSKY: Tom?

MR. MUCHO: Yes.

DR. MUTMANSKY: Jürgen?

DR. BRUNE: Yes.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: Okay. The vote is unanimous. This recommendation passes as worded here.

Let's take one more recommendation before our break. Recommendation No. 6 is in many ways not a very controversial one, Coordinating Belt Testing With Other Countries.

Who is going to propose this one? Tom?

MR. MUCHO: No.

DR. MUTMANSKY: Jim? Jim, you're up. Okay.

DR. WEEKS: Okay. The rationale behind this is quite straightforward. The coal industry, the mining industry, is a global industry. Commodities are sold in a global marketplace, machinery is sold in a global marketplace, et cetera, so it makes sense to have a certain level of consistency amongst machinery and products and so on.

Originally we had a tighter recommendation and that is that the MSHA rule for testing and approval should be essentially the same as used in

other countries. Well, the same as essentially doesn't exist. I mean, there's a great deal of diversity internationally. The European Union, for example, does not have a consistent set of standards.

Consequently, it was loosened up a bit and basically recommended that MSHA pay attention to what's going on in the international marketplace and coordinate the development of testing approval with that kind of consideration in mind, so that's the rationale behind it.

DR. MUTMANSKY: Jim, in reading the discussion points I note that it's mentioned here, "However, noting that the European community has not been able to accomplish this, given the impetus to do so that they have, the Panel did not believe a meaningful, practical recommendation could be made."

Are you basically saying that the European community has tried to bring about this international cooperation?

DR. WEEKS: Yes, on that and a number of issues. Yes, that's something that's a major concern. International standards are everything.

DR. MUTMANSKY: Yes.

DR. WEEKS: I don't know how far they've gotten on that.

DR. MUTMANSKY: Nowhere.

DR. WEEKS: Nowhere?

DR. MUTMANSKY: Nowhere.

DR. WEEKS: I mean, the recommendation is that MSHA simply pay attention to what's going on internationally. I mean, if you want to put it in plain English, that's the recommendation.

DR. MUTMANSKY: I would like even a stronger statement actually, but I can see that MSHA is not in a position to command anybody to do anything.

That is, MSHA can suggest to people in other parts of the world that there's a need for such a standard, but what else can they do other than suggest?

DR. BRUNE: MSHA works in other areas and so do other U.S. organizations work with international standard organizations so there is certainly a possibility for cooperation.

But I agree with Jim. Looking at the struggle that the European community has not only in this particular area but with other regulations too, it's going to be difficult to recommend specific regulations to be adopted in this country like they are used in other countries.

The question is which one do you pick and

why do you pick it, but at least by paying attention to developments, especially to new scientific breakthroughs and research results in other countries, I think we can make a contribution to improving the safety of U.S. belt installations as well.

I think this is where this recommendation goes. I mean, I mentioned earlier that based on the comparison that one of the manufacturers showed we currently are at the very low end of requiring standards for belt flammability and belt fire safety compared to other countries, and I think we ought to be up there at least in the middle, if not on the high end.

DR. MUTMANSKY: Okay.

DR. TIEN: Yes. I would just try to endorse what he was saying. I think this will be a learning process for everybody here in this country in the course of doing that.

DR. MUTMANSKY: Sure. Okay.

DR. WEEKS: I think it's being done to a great extent now.

DR. MUTMANSKY: Okay. Should those commas be in that recommendation?

DR. WEEKS: They're not necessary.

DR. BRUNE: The one in front of who should

not be there.

DR. WEEKS: No. The first one does not belong.

DR. BRUNE: No.

DR. TIEN: MSHA and NIOSH?

DR. MUTMANSKY: I think the second one should come out too, but I'm not certain of that.

DR. BRUNE: Yes.

DR. MUTMANSKY: I think it's kind of optional.

Okay. Are we okay with the wording of the title first? Are we okay with the wording of the recommendation second?

DR. TIEN: Would it be appropriate to also incorporate NIOSH in there?

DR. BRUNE: No. No, I don't think we should do that. I mean, there are paths to incorporate NIOSH in that, but that's on MSHA's end.

In the first sentence or the first half sentence I would say, "The Panel recommends...", not would like to recommend. I think that can be simplified and clarified. "The Panel recommends..."

DR. MUTMANSKY: I think recommends is better, yes. I like it. It's more direct.

DR. BRUNE: Yes. And then actually you

could take this out and say that MSHA establish contacts and maintain dialogue. I mean, who it is in MSHA, that's up to MSHA to decide. It's obviously those who perform and build fire resistance testing. I think that's redundant.

DR. MUTMANSKY: Good point. Do you propose we take the words out?

DR. BRUNE: I would propose that, "The Panel recommends that MSHA establish contacts..." and so on.

DR. MUTMANSKY: All right. Anybody object to that shortening?

MR. MUCHO: Yes. I put those words in there.

No. The point of that wording was that I think it is specific as to who in MSHA ought to be in tune with what's going on in that area.

DR. BRUNE: Yes.

MR. MUCHO: There was a reason why I put those words in there.

DR. WEEKS: These are recommendations.

MR. MUCHO: Right.

DR. WEEKS: They're not mandates anyway.

DR. MUTMANSKY: Yes. I think it's okay to leave it in, Jürgen. At this point in time I guess it's okay. I don't see any problem with it.

DR. BRUNE: Okay. No, I don't see any problem. I'm just trying to simplify it, but I see Tom's point as well. Yes.

DR. MUTMANSKY: Yes. All right. Gentlemen, are we ready for a vote on this?

DR. BRUNE: Yes.

DR. CALIZAYA: Just one comment --

DR. MUTMANSKY: One comment, Felipe.

DR. CALIZAYA: -- about these key mining countries, other key mining countries. Where are they? Who are they?

DR. BRUNE: Or major?

DR. CALIZAYA: Major? What is it? I would like to include names. Which mines are we talking about? Australia? I think we have a number of mines there. Europe? Maybe Canada? That's it.

DR. MUTMANSKY: South Africa.

DR. BRUNE: I would certainly include those. I would include Europe, the Germans. The Polish have a fairly established mining industry.

DR. TIEN: Well, we may be even learning some from Russia and China.

DR. BRUNE: Yes, and Russia as well. I mean, Russia has more stringent standards for belt flammability than the United States currently.

DR. MUTMANSKY: Yes. Do we need the word key in there? Maybe we can take the word key out. In other mining countries.

MR. MUCHO: I think we were headed towards that graphic that was referred to earlier where we were looking at the Chinas, the Russias, the Australias, the Canadas. That was the intent anyway.

DR. MUTMANSKY: Felipe, are you comfortable with leaving it as stated?

DR. CALIZAYA: Well, yes.

DR. WEEKS: I mean, key is totally a matter of judgment. We're not saying big, small, anything. Just whatever they consider to be key.

I mean, you could argue that the British are key not because they have a lot of mines, but because they have a lot of experience.

DR. BRUNE: Yes.

DR. MUTMANSKY: Okay, Felipe. Are you comfortable?

DR. CALIZAYA: I have no problem.

DR. MUTMANSKY: You have no problem? Okay.

DR. BRUNE: I think the character of the recommendation is that we leave it to MSHA to be the judge and so I think it's their responsibility to determine what the key mining countries are.

DR. MUTMANSKY: Sure. Okay. It seems like we're getting ready for a vote.

Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: You get to vote first.

DR. TIEN: Yes.

DR. MUTMANSKY: Jürgen?

DR. BRUNE: Yes.

MR. MUCHO: Yes.

DR. MUTMANSKY: Felipe?

DR. CALIZAYA: Yes.

DR. WEEKS: Yes.

DR. MUTMANSKY: Yes. We have a unanimous vote, and we've completed six of 21 recommendations.

It's time for a break. Let us take 10 minutes where we can get up and stretch our legs and do whatever else is necessary.

(Whereupon, a short recess was taken.)

DR. MUTMANSKY: I'd like to continue on now.

DR. TIEN: The use of belt air has been around for quite a while, essentially since the passing of the 1969 Coal Mine Health and Safety Act. There have been many, many discussions and studies, especially the two famous studies that address this issue, technical studies. Number one is the Belt

Entry Ventilation Review done by MSHA in 1989, and the second one is the Belt Air Advisory Committee that was conducted in 1992.

Now, both study reports concluded that, number one, the system is sound in some conditions, in some situations, not all. Number two, when the belt air is used extra measures are required to protect miners in case of a fire in the belt entry. Number three, if you want to use the belt air an AMS system must be applied to detect a fire or other carbon monoxide producing conditions.

Later on the conditions for using the belt air evolved into, number one, a petition has to be submitted and approved by MSHA once MSHA decides that use of the belt air provided no less protection or existing practice presents a diminution of safety for miners. Further, in 2004 the rules permitted the mines with three or more entries to use the best air without petition.

Now, between 1980 and 2006, the records show that there were 65 belt entry fires. A primary reason, if one looks at it closely, for these fires are frictional heating, frame cutting and welding, electrical malfunctions, et cetera.

There were three death that were associated

with these accidents, one in the Florence Mine in 1986 where one miner died during the firefighting of a heart attack, and of course the other two died in Alma No. 1 Mine in 2006.

From that information the Panel's conclusions is the use of the belt air at the working face requires, number one, a ventilation system be properly designed and, number two, the belts be carefully monitored.

Now the Panel looked at all the information and felt a list of two specific conditions that justify the use of belt air. Number one, in the gassy longwall operations in the western U.S. where there are deep covers and about prone conditions.

Number one, the gas at working faces requires more fresh air for dilution because of the gas situation. Number two, there are difficult mining conditions because of their depth that require the number of growth be limited to less than three to minimize the exposure because of the rock mechanics and ground control concerns.

And from the above conditions, obviously those two conditions present more hazards to miners on the section than the possible hazards of the use of the belt air at the face.

Now, the second justifiable condition where a mine might benefit from using the belt air is the deep, highly gassy, longwall operations in the eastern United States where high methane emission rates, despite systematic and a long-time methane drainage, and there is still a concern of high methane concentration so they're required to have added fresh air and as a result are using the belt air to reduce the overall hazards in mining.

Of course, to use the belt air the operation must be held to a higher standard of safety if the use of the belt air at the face is to be safer than not using the belt air.

Based on the above, The Technical Study Panel, Recommendation No. 7, has come to the conclusion that the use of belt air to assist in ventilating working faces where mechanical equipment is being utilized is safer in some, but not all, mines than not using the belt air at the face.

However, the Panel also believes that the miners at the mines using the belt air at the face must be held to a higher standard that involves the use of, 1) An AMS and suitable monitoring instruments; 2) Belt materials that meet BELT standards; 3) A fire suppression system; and, 4) More vigorous inspection

procedures by MSHA. In addition, it is recommended that the BELT standards be applied to all belt conveyors used in underground coal mines.

Since the use of the belt air, the Panel recognized that would enable the combustion products produced by the belt fire or explosions to reach the working faces, so strong justification must be required.

The Panel recommends that a petition process for granting permission be reinstated and applied to all mining systems, room and pillar and longwall alike. The Panel also recommends that the MSHA district manager be charged with the responsibility of granting or denying a particular petition, and the Panel recommends that this decision be processed within six months.

To summarize that, the Panel recognized the use of the belt air must be associated only with mines where using the belt air is safer than not using the belt air at the face. Number two, higher standards of safety must be applied when using the belt air at the face.

That's my presentation, and I guess we'll go for the discussion and the recommendation, observation and comments from the Panel.

DR. MUTMANSKY: Thank you, Jerry.

First of all, are there questions from the other Panel members concerning this recommendation? Jürgen?

DR. BRUNE: In the second part of the recommendation this subcommittee on this recommendation contains basically elements that duplicate some of the other recommendations that we already talked about. That's more a procedural or legal question.

Is that a problem if we repeat let's say the requirement for the BELT standards and more vigorous inspection procedures, if you repeat that in this recommendation? Is that a problem?

DR. MUTMANSKY: Okay. Do other Panel members want to make comments concerning Jürgen's query here? Is that a problem or is it not?

DR. BRUNE: I guess we're not contradicting other recommendations.

MR. MUCHO: We are reinforcing them.

DR. BRUNE: We're reinforcing them. We're duplicating them.

DR. MUTMANSKY: Reinforcing, yes. Well, we certainly don't want to contradict them certainly.

DR. BRUNE: Right.

DR. MUTMANSKY: That's a good point.

DR. WEEKS: I don't think it's a problem.

DR. BRUNE: Okay.

DR. WEEKS: That's my view.

DR. BRUNE: It was just my observation.

DR. MUTMANSKY: Any other comments about that?

MR. MUCHO: Yes, a comment on the but not all. Safer in some, but not all, mines.

It's going to come up in some other recommendations, but certainly it's my opinion certainly in view of the recommendation we made in terms of conveyor belt fire resistance testing that use of belt air generically is safer, a safer system.

I say generically because it is tough to address the variability in the world out there, and I think that's what those words are getting at, but when we state it like that what we're stating is that in some cases it is not safer in some situations that we're aware of or believe exist. That's problematic to me.

I'm certainly going to contend that use of belt air is a safer system generically. I say that principally because it provides an additional intake airway as an escapeway, and again with the belt

standards and the approvals that we're talking about I believe it to be a safer system than ventilating the air outby in the belt entry.

DR. TIEN: Tom, I was I think during the course of our subcommittee discussion struggling with those words as well. How can we better describe the situation? Generic? I don't know what would be the better choice of words.

They are safer if done properly, do those properly, proper things. Any suggestions from the Panel?

DR. BRUNE: Let me maybe make a quick example here if I may.

DR. MUTMANSKY: Jürgen, go ahead.

DR. BRUNE: I'm not sure if we can say it's safer or it's not safer because you use belt air and you have additional air quantity to dilute methane and dust at the face, which is something that will happen especially if with respect to the dust you maintain the standard of one milligram per cubic meter on the belt. That I would contend makes things safer.

On the other hand, you have the obvious problem where the smoke from a belt fire entering the face area may cause unsafe or hazardous conditions to those employees working on the face, so I'm not sure

if we can or we should make any statements about what's safe and what's not safe.

You can argue I think until you're blue in the face. Safe in one respect may mean less safe in another respect and vice versa. I think Jim has some strong arguments in that direction as well, but I'm not sure if we want to make a statement saying which is safer and which is not safer. Perhaps we can just avoid making that statement at all.

DR. WEEKS: Yes. I think it's very problematic to say that generically one way of mining is safer than another, particularly unless you establish a frame of reference. Safer compared to what is one problem.

DR. BRUNE: Exactly.

DR. WEEKS: The other problem is that certainly in the mines out west where ground control is obviously a big problem there are tradeoffs between using belt air and not, tradeoffs on other safety issues, namely ground control, which don't quite exist elsewhere.

I mean, they exist in relation to gas control problems like other places in the U.S. We're not talking about a uniform thing when we talk about belt air. It's highly variable, and it's unclear.

What are you comparing it to?

DR. TIEN: I guess comparing it to this reference point it would be the mines without using belt air, wouldn't it? Would that be a reference point to try to compare with?

DR. WEEKS: They're both highly variable, both those that use it and those that don't use it. There's a lot of variation between the mines in terms of the mining conditions and gas and ground control and all that other sort of stuff, so I don't know what the comparison means.

DR. MUTMANSKY: Well, that's a good question. My basic feeling here is that we need to argue this out.

I'd like to see what Felipe has to say and then I'll give my comments as to what I have to say, and we'll see if we can't come to a conclusion. Felipe?

DR. CALIZAYA: Thank you. We have to struggle with this. Based on comments from other people, we see that maybe this is the heart of this Panel.

I should say that here the key point is we are recommending to repeal the 2004 belt rule. I think this recommendation should be based on that. We

are trying to or we are recommending to repeal the 2004 rule. Instead, we are reinstating the petition for modification for every mine that wishes to use belt air.

I think that the title itself and the recommendation should state that, repealing the 2004 rule.

DR. MUTMANSKY: That's a very good point.

MR. MUCHO: Can I jump in for just a second?

DR. MUTMANSKY: Sure, Tom. Go ahead.

MR. MUCHO: Felipe raises that, which is something that's on the next couple pages here, but in terms of that, for instance, my view, I'm going to be strongly opposed to that, Felipe, and so trying to incorporate it here I'm not going to agree to that when I'm not going to agree to the repealing of the 2004 regulations.

DR. MUTMANSKY: Okay. Tom, we do not have to vote on the recommendation on belt air yes or no at this point in time. It is perfectly acceptable for us as a Panel to postpone the vote on that until we take up the topic of belt air petition.

DR. BRUNE: Yes. I think that's useful.

DR. MUTMANSKY: At this point in time it seems to make sense that we take that up first, so I

would ask the Panel their opinions as to whether we should take up the belt air petition first before we take up the use of belt air.

Questions?

DR. WEEKS: Well, I think it's useful to do that, but I wanted to make a couple of comments.

The Mine Act originally had an outright prohibition against using belt air to ventilate the face. Why was that? It's a fairly simple reason. If you've got a fire in the belt entry and it's going to the face the smoke is going to go to the face. They dealt with that problem by saying okay, you make the belt entry a neutral entry. You have other entries give you the intake air.

Allowing the belt air to go to the face, as the 2004 rule did, at no time does it deal with the issue of smoke going to the face as a hazard in and of itself. In fact, it depends upon smoke coming down the entry. It's activated by smoke coming down the entry in order to activate the AMS system so it never even addresses the issue of smoke going to the face. It permits it.

So I don't see how that can be said that that is safer than an outright prohibition. It's partly -- in fact largely -- because of that problem

that some of the recommendations are there in terms of fire prevention, use of the BELT test, the drum friction test and the maintenance on belt entries as a means of preventing fires. If you prevent fires, you prevent smoke from going to the face if it's in the belt entry, so I mean that's my thinking about it.

I've got some things to say about the petition process, and maybe I'll just hold them until we get to that, but that's the way I see it. I think the recommendations that we made certainly take the edge off that problem. They don't solve it. A fire prevention method is not foolproof, but we can certainly address that issue.

DR. TIEN: Jim, that was a good point. We're talking about safe or safer compared to what? If you look at the statistics, 1980 and 2006, there are 65 fires, belt entry fires, and those are reported fires.

DR. WEEKS: They're belt fires?

DR. TIEN: Belt entry fires, yes. Belt fires.

DR. WEEKS: Yes.

DR. TIEN: And three fatalities.

DR. WEEKS: Right.

DR. TIEN: One is that of a heart attack

fighting the fire. You can say that's due to the belt fire or related to. The other two we all recognize as not relating directly to the belt fire as the cause of death.

The numbers in the petition, and I don't know how many have been approved.

DR. WEEKS: Forty.

DR. TIEN: At least 100?

DR. WEEKS: Well, they are 40 mines that use belt air.

DR. TIEN: Forty-three mines are using that, yes.

DR. WEEKS: I don't know how many have been approved.

MR. MUCHO: There's been over 100 petitions.

DR. TIEN: Yes, 100, because in 2004 you said 90 had been approved and several revoked. I would imagine since then a few more have been approved. You can argue it's not absolutely safe, but it is safer. It is a safe method done properly.

DR. WEEKS: Not compared to an outright prohibition.

DR. TIEN: I mean just on the face of it.

DR. MUTMANSKY: We obviously need to reconcile our thoughts here.

DR. TIEN: Yes.

DR. MUTMANSKY: It may be that the best thing we can do at this point in time is go to the petition process and argue that very problem out on the petition process itself and then come back to this one after we've argued that first.

DR. TIEN: Jan, can I make a comment?

DR. MUTMANSKY: Yes.

DR. TIEN: Jim, you made a good point just to ban the use of belt air. Of course, the chance of an accident caused by a belt fire is not there. This is like saying if we don't drive cars nobody gets killed on the highway.

DR. WEEKS: No, no.

DR. MUTMANSKY: No, no, no.

DR. WEEKS: I didn't say that.

DR. MUTMANSKY: He didn't say that.

DR. WEEKS: As a matter of fact, I did not say that.

DR. TIEN: Uh-huh.

DR. WEEKS: I'm just going through the logic of comparing, using belt entries for ventilation compared to an outright prohibition. I was just going through the logic. I wasn't saying do one thing or the other.

DR. TIEN: Uh-huh.

DR. WEEKS: You could say I was headed in that direction, but I'm not as a matter of fact.

DR. MUTMANSKY: Okay. Gentlemen on the Panel, is everyone in agreement that we should discuss the petition process first? I see a lot of heads going up and down.

Felipe?

DR. CALIZAYA: Yes.

DR. WEEKS: Yes.

DR. MUTMANSKY: All right. We will defer our decision making on this particular No. 7 recommendation, and we'll go to No. 8. I think it's No. 8.

MALE VOICE: Yes. It's No. 8, the next one.

DR. MUTMANSKY: No. 8 is the belt air petition process, and, Jerry, I believe you are to lead the discussion on this one if I'm not mistaken.

DR. TIEN: Yes. No. 7 and No. 8 are pretty much twin brothers or twin sisters, so they're closely related. We have already had a discussion on the background of this, so what I will do, I will just simply read from the screen our recommendation and then we can have a discussion from there on.

Now, it simply reads "Recommendation: The

Technical Study Panel recommends that 1) The petition process for the granting of permission to use the belt entry air to ventilate working sections be reinstated and applied to all mining systems where they used two or more entries for room and pillar or longwall mining methods.

"2) The Panel also recommends that the MSHA district manager be charged with the responsibility of critically examining each petition for use of belt entry air at a working section and denying those that do not have the concrete statistical or engineering evidence of a safer (or equally safe) mining environment than for the same mine not using the belt entry air in the working section.

"In addition, 3) The Technical Panel recommends that the district manager be charged with the delivery of a decision to the mining petitioners within six months."

So that's the recommendation.

DR. MUTMANSKY: Okay. I think the wording in this one gives a better comparison of what we're comparing.

We are comparing the use of belt entry air at the working section with mines that do not use belt air at the working section. In other words, mines

that have an outby flow of air through the belt conveyor.

Jürgen?

DR. BRUNE: Could the subcommittee members perhaps address the reason why you recommend a petition process rather than writing that into rulemaking?

What is the advantage of having the petition process over writing this in the rulemaking and saying if you want to use belt air at the face then you require the district manager to specifically examine the application?

Why are we using this, in my opinion, somewhat of a crutch of an exemption process or exception process using a petition when we fundamentally say there ought to be a process for allowing belt air at the face?

DR. MUTMANSKY: I'd like to go to the easel and address that problem. I think we need to get to the crux of the problem right here.

DR. BRUNE: Okay.

DR. MUTMANSKY: I think I can get to the crux of the problem if I go to the easel. Let me do that.

Can you hear me now?

DR. BRUNE: Yes.

DR. MUTMANSKY: Okay. I think basically we have two possibilities here for a mine using air at the face or a mine that -- I'm sorry. Let me state it correctly. A mine that uses belt air ventilating air at the face versus a mine that uses a flow of air through the belt conveyor in the outby direction.

Those are the comparison points. Those are the two comparisons we want to make, and no matter how we do that here we have to remember those are what we're comparing.

We have to assume we're going to mine coal underground. We have to assume we're going to use a belt conveyor to mine the coal, and we're basically only considering that possibility. The safest situation is to not mine coal, so we're not going to consider that as a possibility.

If we take a look at this situation and we say we're going to use belt air at the face, I would like to say that there is one clear hazard that is introduced by the use of belt air at the face, and that is the hazard of combustibles plus smoke moving to the face.

Okay. So this is an increased hazard. The law also states you must have an AMS system to

mitigate that hazard, okay, so we add an AMS system. The basic result is that we mitigate the standard or we mitigate the hazard and we reduce the hazard to the workers in the working section from that possibility.

Do we eliminate the hazard? The answer is no, we do not eliminate it. We mitigate it. So this represents an increased hazard. Over here, the use of belt air may result in decreased hazards, and I'll allow this as several hazards because I do believe the possibility that there can be more than one decreased hazard.

One would be let's call it roof control and let's call it ground control. It would probably be better to call it ground control. Let me call it ground control. That's probably a more accurate term.

The second hazard would be methane control, and I believe somebody early on mentioned a reduced hazard in firefighting because in some cases firefighters are able to approach the fire better.

DR. BRUNE: From all sides, yes.

DR. MUTMANSKY: Yes. Now the question is if we're going to use belt air at the face my understanding is that we have to have some sort of evidence that it's going to be a safer mining atmosphere than not using it at the face.

I would basically argue that the increased hazard of combustibles and smoke at the face is an important hazard. Even though the statistics are not very ominous in terms of what has actually happened, we've been very fortunate that in most cases there has not been a lot of deaths due to belt conveyor fires, but there are decreased hazards here -- ground control hazards in some of the western mines, methane in some of the eastern mines -- and there's a certain amount of hazard with regard to firefighting.

So basically what I think we have to do is we have to weigh what is the importance of this hazard over here versus this hazard over here, and the only difference is one of these two rectangles here is bigger than the other. That's the only difference. The question is which is the most weighty of these two hazards in this particular case.

I think one thing we have is we don't know the size of these two things here. These are important and these are important, and the question is how do we reconcile the fact we really don't know these things on a numerical basis very well? We can only make judgments, and that's why I think it's important for us to argue this point back and forth.

So from my perspective I can see some mines

where this right here is a bigger hazard than this over here, and I think we should allow belt air in those mines. I can see other mines where this hazard right here is bigger than this over here on a probablistic or on a statistical basis. Therefore, in those cases I think we should not allow belt air at the face. That's the gist of my argument.

Now, I would be happy to have you guys present your thinking.

DR. WEEKS: Well, it's a useful way to frame it. One way to accommodate the way you've described it is to use the petition process rather than rulemaking because with the petition process you can actually deal with those differences in mining conditions much easier than you can through rulemaking, I think.

DR. MUTMANSKY: Tom, I know you want to get up here, and I invite you to make your comments. I think it's important for you to do so.

MR. MUCHO: Okay. I'll address the whole issue and the petition process.

Back at one of the meetings we had an MSHA panel, and I asked a series of questions and comments to them. From those questions and comments it should have been obvious that I was alluding to the fact that

at least in my mind I thought that the process really belonged within the ventilation plan because ventilation plans and roof control plans are aimed at the individualities of the mine and that's where I thought belt air belonged.

The things that are in the current regulations as criteria I felt were very good, well thought out, quite comprehensive, et cetera, and the other aspect of the ventilation plan is that it is approved by the district manager.

District managers are people who have an extensive background in mining. They have staffs and resources and maybe even the resources of all of MSHA to assess and look at things and I think are in a very good position to make the kind of decisions that you're talking about up here, the weighting I think is the word that you used.

I agree that the district manager is in that position, so I think that would be a better system, an improvement I think over the regulations because current regulations and kind of what's that addressing is that when you have a generic one-size-fits all regulation obviously by definition it's not taking into account variations that you might see, so I thought that would be an improvement.

When we talk about the petition process, the issue is that that decision is made by an Administrative Law Judge, ALJs, and ALJs are not like district managers. They're not experienced with a large background in mining, don't have resources, all the resources that an MSHA district manager would have, staff to investigate issues, so they listen and make adjustments.

Nothing against the ALJs. They do a great job for what they've got to do, but in many cases they really are counting on the hearing to give them the kind of background to make that kind of a decision, and depending on what happens in that hearing might impact and so forth.

So my point being that back more on the petition process, the other thing I don't think this Panel has done to make this kind of a recommendation is to me, we're a scientific technical panel. The words from Secretary Chao were read at the beginning. Engineering and scientific kinds of decisions.

I don't think we have discussed or shown where the current regulations are problematic. I mean, we just haven't done that at all as a process. Secondly, I think we would recommend a petition process would have to show how that petition process

addressed those problems. Since, A, I don't know what the problems are it's hard for me to understand how the petition process addresses those problems.

So of the three I would like to see this in the ventilation plan, the district manager approving it. I certainly have no problem with the current regulations that are so major that I would talk about repealing them. Last on the list is the petition process.

One comment to go back to a couple others that have been made. One is the Mine Act. Jim was talking about the history and so forth. One of the things I think we need to keep in mind is mining has changed.

Mining has changed a lot since the early part of the century and so forth and so on, and a lot of the historical facts and figures and background and the state of coal mining and how it was done in its practices at a point in time are possibly not applicable today and in all probability not applicable today.

We have to deal with things in the current situation, and even the writing of the 1969 law in 1968. Things have changed a lot in the industry, certainly changed a lot in my experience in the

industry in terms of conveyor belt, conveyor belt entries and so forth.

So the history is fine, but we're here to talk about science and technology and those kind of things and whether we are up to date. Incorporating that kind of stuff means change so that history is important, but it doesn't reflect the state, as I made the point earlier, of what we're recommending here. For all those reasons, I think that we should not be recommending the petition process.

One other point I'd like to make is the hazard of smoke reaching the face. I kind of touched on this a little earlier. That is not a major hazard in my book. I've been involved in situations at the face where smoke came to the face. That was not my problem. My problem was the fire outby. That was the main hazard and the main problem I had to deal with.

The smoke to the face mostly reflects issues on my escapability, but my real hazard is that fire outby. Unless we want to contend that the way the air is going over the beltline somehow impacts the potential for a fire, which I don't think is a very logical argument, then that is not a major hazard. It's not that big of a deal.

In fact, I can argue, depending on

velocities, heights of coal beds and so on and my ability to travel outby, that in some cases I don't want to be outrunning that smoke, trying to outrun that smoke in certain conditions.

When you look at all that, I don't think we should be making this recommendation. I don't think we have the basis or the justification to make that kind of recommendation.

DR. MUTMANSKY: Jim?

DR. WEEKS: Just a couple comments. You make a compelling case for district managers making these kind of decisions versus ALJs. I've seen ALJs try to wrestle with these technical matters, and it's often not a pretty sight so I think that's a pretty compelling point.

Your comment that we have not shown the current regs to be problematic I just don't agree with. I mean, if that's the case then we wouldn't have 21 recommendations here.

To be specific, I mean, where I think they're problematic is that they don't address the question of fire prevention anywhere. I think that's a problem, and I think we try to address that with some of these recommendations.

There are others that we might get to

concerning say velocity caps or point-feed or things of that sort where the existing rules may be defective as well, so those are issues that I think we should address.

DR. MUTMANSKY: Okay. We have gotten opinions from several people. Jerry, Jürgen and Felipe, give us your thoughts.

DR. TIEN: I'm just curious. Tom, I agree with Jim. It's pretty compelling, the petition process you talk about. The Judge made a decision. It sounds to me you're not disagreeing with the district manager making the decision.

MR. MUCHO: By ranking, I think that the best process would be for it to be in the ventilation plan, the current regulations to be criteria that the district manager and his staff would consider in approving.

As part of that process I envision the mine would go through a kind of risk assessment process and understand what they're looking for. Yes, that would be my number one choice, and I think that would be an improvement over the regulations.

Second, I would rank the regulations, and, third, the petition process. I don't see the benefit. I think it's problematic. I think it's problematic

when people who aren't well versed in the esoteric mining industry are making decisions, so I put it third.

DR. BRUNE: I would clearly stress the need for a special evaluation by the district manager of belt air use at the face. I would fully agree to that, but, as I said earlier, I agree with Tom that the petition process is not the right process.

If we as a committee or as a panel determine that the current rules are not sufficient I would certainly go along with that, and we did some of that in requiring more stringent flammability tests. We can think about that, but I'm fundamentally opposed to using the petition process in order to get a more thorough investigation of whether the belt use that the mine operator applies for can be done safely.

I think there are other established ways to do that, particularly in the process of evaluating the mine ventilation plan.

DR. MUTMANSKY: Felipe, you haven't yet given us your thoughts.

DR. CALIZAYA: I think Jim made a nice presentation here of pros and cons, and to me it looks like the rule by itself, based on the requirements, we are talking about the need for AMS. We are regulating

dust concentration to one percent near the face and so on.

All those regulations, all those caps and so on, they are telling us something. Those are improvements, and I think our goal is really to improve, not to reinstate this petition process. I'm in favor of improvements, and I think that's what we are doing.

DR. MUTMANSKY: Okay. Felipe, I would also hope that that rectangle under Increased Hazards would get smaller because we're using improved methods of monitoring and, most important, we're using belts that have better flammability standards. That would probably be the biggest improvement we could make. If we do that, there are some arguments along that line.

You were going to say something, Jerry?

DR. TIEN: Yes. I was just making a comment obviously that nobody disagrees and in fact everybody agrees with what you're talking about. It's a process. How we address those rectangles, that is the debate.

DR. MUTMANSKY: Yes.

DR. TIEN: So if we can somehow, and I don't know the procedure or manner of how we're going to address these.

DR. MUTMANSKY: We can address it in a number of different ways.

If Tom would like to replace this petition process recommendation with a different recommendation that's one way of doing it. If the panel agrees with Tom that may be the right procedure to move forward.

If there is some other way of doing it, if there is some other way of addressing the problems, one other way would be to just drop this petition altogether and try to deal with the belt air recommendation without this petition process recommendation.

We are open to a recommendation from the Panel. Tom, what is your recommendation?

MR. MUCHO: I'll work on a different recommendation if that's what the Panel is --

DR. TIEN: Yes. Sure.

MR. MUCHO: It basically would be just as I outlined it.

DR. TIEN: Yes.

MR. MUCHO: The process being in a ventilation plan, the district manager approving it, et cetera.

DR. TIEN: Just reword it.

DR. WEEKS: Tom, could you put your computer

screen down a bit?

Actually, I would like to drive another nail into the coffin here on the petition process, and that is that in the course of our deliberations we got a number of petitions for modification, copies of them.

I read most of them, and frankly it was pretty discouraging, the reason being that it was boilerplate and it looked like somebody had said these are the magic words that you need to put in your petition in order to get it approved and put it on the internet and everybody downloaded it and sent it in. I mean, that's what it looked like.

It left the impression on me that the people that were filing those petitions were not making a serious evaluation of the hazards at their mine and how belt air would improve it. It just didn't impress me.

The question is I assume that mine ventilation plans are more thorough documents because I guess they have to submit a mine map and say this is what we're going to do, so that probably is a better means of getting a careful evaluation and balance of hazards and using it one way or the other.

DR. BRUNE: I would agree.

DR. TIEN: Jim, you are exactly right. In

fact, that's one of the reasons driving this particular petition process recommendation.

In fact, one of the things we wrote as a subcommittee is a close examination of some of the belt air petitions provided by the Panel indicates that the petition has become a routine application providing only general statements and requests without specific comments and justification for using the belt air.

So I totally agree you. It's the process and how we can address that. It looks like everybody agrees. Instead of going through that, going through what Tom is going to reword might be a better approach to address this problem.

DR. MUTMANSKY: Jerry, I do agree with you. I think my own inclination toward this particular petition process recommendation is based upon the fact that in reading the petitions that I saw there was no logic of this is a safer mining environment because.

DR. TIEN: It uses the belt air.

DR. MUTMANSKY: That sentence did not appear there. I think it needs to be addressed.

Tom, I'd like you to formulate a recommendation that we as a panel could unanimously approve. I don't know if it's possible, but I think

it would be worthwhile for you to work on that.

Would you like to suggest a procedure by which we delay this vote and you get back to us with your recommendation sometime today or early tomorrow morning?

MR. MUCHO: Let's make it tomorrow morning, and then I could bounce it off other people.

DR. WEEKS: I want to make sure I understand.

MR. MUCHO: I can write a draft and let you guys --

DR. WEEKS: Yes.

DR. MUTMANSKY: Tom, since it was my subcommittee that put that together what is your recommendation as to which subcommittee should handle it?

MR. MUCHO: I'd really like to see you guys handle it. I don't need to do that work tonight. Monday night football. There are lots of reasons.

DR. TIEN: At least you'd like to go home.

DR. MUTMANSKY: You're overruled, but I think we need the advice of our solicitors as to how we should proceed on that because again we have the three person rule. Matt and Jennifer and you can consider this and maybe after lunch give us some

thoughts.

The original petition process recommendation was put together by my subcommittee, which consisted of Jerry, myself and Felipe, and because Tom is raising objection to it is it okay for his subcommittee to take that, or do we need a new subcommittee? Those are the questions before you.

After lunch we will try to get a response from Matt and Jennifer as to how to proceed in a proper manner on this particular process.

Yes, Jim?

DR. WEEKS: It would seem to me the suggestion that we form kind of an ad hoc subcommittee to deal with this. I don't see any problem with that myself.

DR. MUTMANSKY: You don't see any problem, Jim?

JENNIFER: I don't see any problem with that either.

DR. MUTMANSKY: Jennifer and Matt don't seem to see a problem with it.

Jim, would you like to suggest two people to work with Tom on this?

DR. BRUNE: I'll volunteer.

MR. MUCHO: With Jürgen volunteering, why

doesn't our subcommittee pick it up?

DR. BRUNE: We'll work it out over the lunch hour.

DR. MUTMANSKY: I have no problem with that.

Jim, is that okay with you?

DR. WEEKS: Yes. Yes.

DR. MUTMANSKY: All right.

DR. WEEKS: Apparently it is.

DR. MUTMANSKY: Are there any objections to that procedure? Yes?

DR. CALIZAYA: I'm not very clear on what Tom is going to do, and the thing is I don't know what petition we are talking about.

Is this for two mine entries, which needs really a good petition procedure? Is that what we are talking about, or are we talking about a petition for modification or three entry mines and so on?

If we are going to uphold the rule then there's no petition, right? The belt air is part of the ventilation plan.

DR. WEEKS: Before you answer, I'm in the same place as Felipe. I mean, from listening to what you're saying it seems to me the way you would deal with this recommendation is to delete it. There's no wording to add.

MR. MUCHO: No. No. What I'm talking about would be that rulemaking be instituted and changed that would take what's in the present regulations and criteria and make the approval of the belt air ventilation system all incorporated into the ventilation plan, which therefore means the district manager approves ventilation plans. He approves the roof control plans. The approval process would then go under the district manager.

DR. WEEKS: I see. Okay.

DR. MUTMANSKY: Okay. All right. I think we're in agreement then. Yes?

DR. CALIZAYA: We didn't say anything about the two entry systems.

DR. MUTMANSKY: Right.

DR. CALIZAYA: Is that not part of it?

MR. MUCHO: That's not addressed in what I'm talking about. It would stay status quo as far as what I'm talking about.

DR. MUTMANSKY: Okay. Okay, Tom. Then you will take on the responsibility of producing an alternative. Is that correct?

MR. MUCHO: Yes.

DR. MUTMANSKY: And you will use Jürgen and Jim as your subcommittee, and you will report back to

us in the morning. Is that correct?

DR. WEEKS: Correct.

DR. MUTMANSKY: Okay. I have no problem there. Any other comments at this point in time?

DR. TIEN: I guess you are going to be dealing with No. 7? No. 7 is still sitting there.

DR. MUTMANSKY: No. 7 is postponed until we get No. 8 reconstituted.

DR. TIEN: Okay.

DR. MUTMANSKY: I'm trying to think what we have going here.

We have several additional recommendations that can be taken I believe at this point in time, which will not interfere with the processing of No. 8 or No. 7 and which can be I think, if I look at it properly, we can take No. 9 as our next one, and we could perhaps even vote on that before we go to lunch at 12:30.

I thought we would go to lunch at 12:30, and I think we could take No. 9. We can take No. 9 as our next recommendation. Tom, who is going to present the argument for No. 9?

MR. MUCHO: I am.

DR. WEEKS: I'd just like to point out to Tom that modern technology allows us to record things

like Monday night football.

MR. MUCHO: So do we want to do this now?

DR. MUTMANSKY: Yes, sir, we do.

MR. MUCHO: We're not going to take a lunch break?

DR. MUTMANSKY: We're going to take a lunch break at 12:30 if we get through this one, yes, by 12:30.

MR. MUCHO: Okay. Discontinuing Point-Type Heat Sensors, which is what that stands for.

DR. BRUNE: You should spell that out.

MR. MUCHO: Yes. "The Panel strongly recommends that MSHA initiate rulemaking that would discontinue the use of point-type heat sensors currently required under 30 CFR § 75.1103-4(a)(1) for conveyor belt detection in U.S. underground coal mines and replace them with AMS type detectors."

Okay. First of all, what we were addressing was a request at our opening session by Richard Stickler, Assistant Secretary at MSHA, to address this particular issue of point-type heat sensors and whether they ought to be discontinued.

Basically the Panel, I think our opinion is even a cursory technical review of point type heat sensors leads one to the conclusion that the other

sensors are much better and basically because, of course, these sensors are activated by heat.

They need a certain amount of heat to be activated by definition so that you're talking about a pretty good combustion process already in the process to activate them. Also their proximity to that combustion process. For early detection certainly they need to be close by, and if they're further away that detection level gets pretty drawn out so that's pretty obvious.

Also, the body of research that has been done, certainly a couple of U.S. Bureau of Mines RIs, 9412 and 9572, have consistently shown that in a ranking of sensors for fire detection being smoke, CO and point-type that point-type comes in third place and even not a very good third place.

Also, the experience in the U.S. coal industry with point-type heat sensors as opposed to AMS systems, certainly some points that have been made in a paper or two by Bill Francart point out the value of the AMS and using principally CO sensors as opposed to point-type, so we kind of think that's pretty obvious that technology has moved on and we really should discontinue the use of point-type heat sensors.

We recognize that they are used to activate

fire suppression systems located over the terminal units, principally the belt drive and so forth, and there because they would be located in a location close to the fire source presumably when you have a need for the fire suppression system.

We don't see that as a problem in that use, but used for all out fire detection we would recommend the AMS type sensors.

DR. MUTMANSKY: Tom, should the statement here be modified to allow for the point-type heat sensors at a conveyor, at a conveyor drive, say for example?

MR. MUCHO: Yes. We have that in the discussion, but we can put it into the recommendation to make it clear.

DR. MUTMANSKY: I would guess we probably should.

DR. WEEKS: Well, I think the aim here is the principal sensor is the AMS for CO and that we wouldn't want the point-type heat sensor to replace that in any fashion, but rather to supplement it, like putting it at the drive head or wherever.

MR. MUCHO: And that's used to activate the fire suppression system. That's how the fire suppression system is activated in a lot of cases.

DR. MUTMANSKY: Okay. Bill is putting up some words for us on the screen now that will hopefully be able to cover that other application of point-type heat sensors.

Comments or discussion by Panel members? Are there any questions or any comments of rebuttal here on this particular recommendation? My guess is that the Panel probably will not have strong opposition to this, but if there is any please comment now.

DR. TIEN: Yes. Just to try to clarify what I'm reading there, in the first sentence they said to try to discontinue, and in the second one they do not recommend to discontinue the use.

DR. BRUNE: Only for activation.

MR. MUCHO: Okay.

DR. BRUNE: That's only in those situations.

DR. TIEN: Only for those. Okay. Would the word only help? It doesn't?

DR. BRUNE: No.

DR. TIEN: It's doesn't? It's redundant?

MR. MUCHO: The difference is we're recommending discontinuance for belt fire detection.

DR. TIEN: Okay.

MR. MUCHO: Belt fire detection and early

warning we're saying point sensors don't do a good job.

For activation of fire suppression systems, because they're located close and so on and so forth --

DR. TIEN: Yes.

MR. MUCHO: -- that wouldn't be as problematic.

DR. TIEN: Okay.

MR. MUCHO: I don't really think it's problematic.

DR. MUTMANSKY: Still, it's not stated very clearly. I agree that we're saying that it would discontinue the use of point-type heat sensors. I think we need better wording in that case.

If somebody could propose a wording that would be more in keeping with that meaning, I think that would be useful.

DR. TIEN: Especially when we put discontinue and do not discontinue next to each other.

DR. MUTMANSKY: Yes.

DR. TIEN: We can work on the wordsmithing.

DR. BRUNE: We could say discontinue the use of point-type heat sensors except as stated below. That would make it clear.

Essentially all sprinkler systems are by nature point-type heat systems. These things up in the ceiling, those are point-type heat sensors.

DR. MUTMANSKY: Yes.

DR. BRUNE: A lot of mines have sprinkler systems installed that just function that way.

DR. MUTMANSKY: Yes. I guess all we need to do is make the wording as useful and understandable as possible.

DR. BRUNE: Yes. On the other hand, I think the discussion makes clear what we mean.

In the discussion it's very clearly outlined why the panel recommends that the point-type heat sensors should be discontinued because as an early warning system they don't do the job of providing that early warning; at least not with as much deftness and efficiency as do smoke sensors and CO sensors.

DR. MUTMANSKY: Maybe we should change that wording then.

I can propose a wording that we discontinue the use of point-type heat sensors currently required under 30 CFR and so forth for early warning of conveyor belt fires in underground coal mines and replace them with AMS type sensors and then just simply say the Panel does not recommend discontinuing

the use of point-type heat sensors for activation of belt fire suppression systems.

Does that help? I don't know whether it helps or not if you evaluate that for early warning of conveyor belt fires.

DR. BRUNE: I would say early detection of.

DR. MUTMANSKY: Early detection. Okay.

DR. BRUNE: Yes, early detection rather than warning.

DR. MUTMANSKY: Okay.

DR. BRUNE: Because the warning is a separate process.

DR. MUTMANSKY: Good point.

MR. MUCHO: Well, except that I would say warning isn't a bad word. The point with hot rollers and so forth, I mean, is one of the real pluses of AMS type sensors that often gives us an edge even into the act of detecting a fire.

DR. BRUNE: I'll go with warning and detection then, yes.

DR. MUTMANSKY: Warning and detection.

DR. BRUNE: Look out, Bill.

DR. MUTMANSKY: Okay. Everybody, let's read it one more time, okay. We have now called this Discontinuing Point-Type Heat Sensors, and we've

written out PTHS in words. The recommendation now states the panel strongly recommends that MSHA initiate rulemaking that would discontinue the use of point-type heat sensors currently required under 30 CFR § 75.1103 and so forth for early warning and detection of conveyor belt fires in U.S. underground coal mines and replace them with AMS type sensors.

The panel does not recommend discontinuing the use of point-type heat sensors for activation of belt fire suppression systems. Now, that brings up a question. What do you mean by AMS type sensors? You mean a CO sensor?

DR. BRUNE: Yes. CO and smoke, yes, or combined.

MR. MUCHO: Yes. I guess what we meant was the sensors currently traditionally used by AMS systems.

DR. MUTMANSKY: Okay. How do we state that? I mean, obviously you could hook a heat-type sensor to an AMS system,

MR. MUCHO: Yes, you could.

DR. MUTMANSKY: You could do that. Yes. I guess we need better wording there.

MR. MUCHO: This is a little bit of an issue here. We're really recommending an AMS system, but

there are CO standalone detection systems out there and being utilized in coal mines. I would think that we're not recommending AMS systems at all mines in order to comply with this, that we might be accepting standalone CO systems. I don't know. That's something the panel needs to talk about I think as to what we are recommending here.

DR. MUTMANSKY: Good thinking, Tom. Okay. Let's try to replace those words with I guess more specific words I guess is what we need here.

Jürgen, what's your thinking? What do we want to say there?

DR. BRUNE: There should be just specifically say smoke and CO sensors or smoke and/or CO sensors with appropriate or you could simply say with better sensors. With sensors that provide an early warning. How about that?

MR. MUCHO: Yes. That's the criteria.

DR. MUTMANSKY: And replace them with better sensors of the smoke and/or CO type.

MR. MUCHO: In a way that's probably some good language because it leaves open any type of sensor that somebody might invent tomorrow or 10 years from now.

DR. MUTMANSKY: Better sensors of the smoke

and/or CO type.

MR. MUCHO: Well, we don't want to limit it to that. Now, quite frankly, research we did at the Bureau of Mines with multiple sensors, we used four sensors, two of which were metal oxide sensors, and so the world of sensors is not limited to smoke and CO and to what role they could have and so forth.

MALE VOICE: Well, I mean, what you're after is to discontinue the use of point-type heat sensors. Probably should state that. The use of other types of CO sensors is addressed elsewhere. Recommend that you just continue using point-type heat sensors.

MR. MUCHO: Again, the question to me is are we recommending that all mines have to have an AMS system or not?

MALE VOICE: This recommendation doesn't address it. It's addressed elsewhere.

DR. BRUNE: Can we strike the sentence after and?

MALE VOICE: After the and, yes.

DR. BRUNE: Yes. Or including the word and, you know? We're just saying just leave it at that. Strike the second part of the sentence and say that's it.

MR. MUCHO: For the other problem, to

discontinue or not --

DR. BRUNE: That's a separate issue.

MR. MUCHO: I know it's a separate issue. You could start this out by saying with the exception noted below the panel strongly recommends, et cetera.

DR. BRUNE: Yes. And my last comment is the word strongly is in my opinion superfluous. I think the panel recommends is what we ought to say there. Whether it's strongly or not is meaningless. Like the word very, you know? You might as well strike it.

DR. MUTMANSKY: I guess if it's unanimous it's strongly. Maybe you're right. I think we should take it out.

DR. BRUNE: Yes. Doesn't mean anything. But I like Jim's lead in, except as stated below.

DR. MUTMANSKY: Except as stated below. Yes. Okay. All right. Now, I'll read it to everybody one more time. Discontinuing Point-Type Heat Sensors. Except as stated below the Panel recommends that MSHA initiate rulemaking that would discontinue the use of point-type heat sensors currently required under 30 CFR § 75 for early warning and detection of conveyor belt fires in U.S. underground coal mines.

The panel does not recommend discontinuing

the use of point-type heat sensors for activation of belt fire suppression systems. I think it's much clearer now. Anybody want any additional comments or alterations in this recommendation?

(No response.)

DR. MUTMANSKY: Do we want to vote on it? Okay. Tom, you lead off the voting.

MR. MUCHO: Yes.

DR. MUTMANSKY: Jürgen?

DR. BRUNE: Yes.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: Felipe?

DR. CALIZAYA: Yes.

DR. WEEKS: Yes.

DR. MUTMANSKY: Jim, yes, and I'm yes. We have a unanimous vote six to zero. It is just the exact time that I wanted to break for lunch, so I think at this point in time we'll break for lunch for one hour and meet back here at about 1:30.

(Whereupon, at 12:30 p.m., the meeting in the above-entitled matter was recessed, to reconvene at 1:30 p.m. this same day, Monday, September 17, 2007.)

//

A F T E R N O O N S E S S I O N

(1:39 p.m.)

DR. MUTMANSKY: Ladies and gentlemen, I'd like to proceed with the afternoon session. Linda has asked me to remind everyone that there is a sign in sheet back by the water and anybody who is in attendance who hasn't already done so would you please sign in so that we have a complete roster of people who have attended? Tom, Jürgen and Jim have spent some time over lunch hour preparing a new Recommendation No. 8.

Tom, are you the person who will read the proposal and give the initial arguments? Jürgen?

MR. MUCHO: Jürgen. Jürgen actually drafted the language.

DR. MUTMANSKY: Okay. Jürgen, go ahead.

DR. BRUNE: Yes. I think from the consensus that I had sensed earlier I just tried this and we discussed in our subcommittee the wording of this. I'll read it. Belt Air Approval Recommendation. The panel recommends that MSHA evaluate the safety of belt air use to the working face as part of the approval of the mine ventilation plan.

The district manager must take special care to evaluate whether the belt air can be routed to the

working face in a manner that is safe for all miners involved.

Now, our key points of discussion were that leaving this approval process to the Administrative Law Judge that would ultimately have the decisionmaking in the petition process would leave it to somebody who may not be as fully aware and would possibly not have the right expertise to decide this but rather decide this on legal and technical grounds, where if it is evaluated as part of the ventilation plan that the mine owner submits every six months to the MSHA district office the plan will be evaluated by ventilation specialists who do the examination of ventilation plans and approval of ventilation plans as part of their regular duties and who also visit the mine on a regular basis to conduct their ventilation system inspections so that they are intimately familiar with the mine and with the circumstances under which this approval can be granted.

The other simplification that stems from including the belt air approval in the mine ventilation plan is if you had it in a petition then you would have to change your ventilation plan as a consequence of however the petition goes or if the petition is denied that would require a complete

change of the mine ventilation plan which would only complicate the situation for the mine operator.

Those were some of the main discussion points that we had, and maybe, Jim and Tom, you could chime in and add some more to that?

DR. MUTMANSKY: Okay. Tom, do you have any comments on that?

MR. MUCHO: I think that hit the basics of it. Again, we, at least I would envision that the current regulations would become criteria that the district manager would use in assisting him in making this decision for the areas that he would think about and address as needed.

DR. MUTMANSKY: Jim?

DR. WEEKS: I think the key issue here is that it would put the whole belt air oversight process as part of the mine ventilation plan process which is reviewed, what, every six months or something like that, so it gets much more technical oversight than it would through other means.

DR. MUTMANSKY: Okay.

DR. BRUNE: I think one important point is also that if the mine is represented by a union that the union would also have some insight in the ventilation plan and would have an opportunity to

comment on the details.

DR. MUTMANSKY: Okay. Before we move on, Jerry, do you or Felipe have any thoughts about this recommendation?

DR. TIEN: Well, that sounds quite good, and I presume it's enticing enough. It has to be safe in order to be approved, and it's implied because it's a ventilation plan, so every six months you have to go through the process. You also mentioned the district manager. Yes. I'm pretty satisfied with that.

DR. MUTMANSKY: Felipe?

DR. CALIZAYA: I agree with it.

DR. MUTMANSKY: Okay. Well, I think that the fact that our group has worked through this and arrived at this point deserves a lot of consideration. I still wonder what is safe. In a manner that is safe for all miners involved. I'm not certain that defines anything. That's my one reluctance here. What do you mean by that?

DR. BRUNE: Yes. We had that discussion at the table. I think that is the ultimate responsibility of the district manager, to ensure the safety of the miners, and you have to start there, what is safety of the miners? Obviously that's not something that can be defined in easy terms, but at

least explicitly in this recommendation by voting it that way we lay that responsibility into the hands of the district manager.

He's the one that ultimately has the call, and obviously he can use other resources in the MSHA technical departments to help him, and he may also use consulting help to do that. But I think he has the ultimate responsibility for the safety of the miners in this case, and like with everything else in the mine ventilation plan he needs to make the call whether a certain quantity of air on the face can be considered safe for the miners.

I think by putting it in that it's certainly not an ultimate definition, but I don't think anybody in this room can give that ultimate definition. We need to leave it to a judgment call of somebody who has the experience and can approve that.

DR. MUTMANSKY: Okay. I'm in agreement. It does have the problem that you haven't really defined what you mean by safe, but it's almost impossible to accomplish that in words that we can easily locate in our minds, so it's very difficult.

Jim?

DR. WEEKS: Well, just to fill out a little bit more of what Jürgen was saying, whatever criteria

the district manager uses to evaluate the mine ventilation plan -- and those are spelled out in 30 CFR. I don't know offhand exactly where they are, but they're listed in 30 CFR or I guess 75.300. Is that where? Those are the same criteria that he would apply to the ventilation plan including the belt air plan.

DR. MUTMANSKY: Okay. Jerry?

DR. TIEN: Yes. I'm just thinking out loud. Should we go ahead an extra step to making more detail that they ought to be convincing or some terms? Instead of become another routine, they do that every six month, every six month, and after a little while it becomes boilerplate again.

DR. MUTMANSKY: Well, that's one of the reluctances I have is that it would be another rubber stamping process and the district manager will have a difficult time making certain that he's paying attention every six months to the process and where does he draw the line? Where does the line get drawn?

I'm afraid that any mine that starts this way they'll just keep rubber stamping it. That's somewhat of a problem, and I don't know how to overcome the problem. I wish I could make a suggestion as to how to overcome it, but it's a

difficult process.

MR. MUCHO: Just a comment on it -- sorry. You take the petition process, that was exactly what it was, it was a once and done deal, you take the regulation process that currently exists, your mine operator merely decides its going to use belt air, submits any changes that might be relative to that ventilation plan and invokes the regulations and goes about his merry way.

At least in mine ventilation plan it is reviewed by people in mine management, it is reviewed by MSHA people every six months, so certainly is a major step up in that regard than the other options that have been considered.

DR. TIEN: Yes. In the same token, it does not stop from other things become routine, maintenance, and their training and everything else.

MR. MUCHO: Yes. Another thing is some things come up or issues, take some of the events and the impacts they've had like Aracoma, Sago and so forth, the district manager might shed different light on things. I mean, the district manager has that opportunity during that review to say now we want to take a better look at this aspect or that aspect because we understand it now. So I think the process

is there, and it's a much better process where we're at.

DR. WEEKS: I think your concern, Jan, is realistic, but, I mean, our mine ventilation plans now treat it in a rough manner. I mean, I hope not.

DR. MUTMANSKY: Well, I would say this. I would guess that of all the things that are reviewed by the district manager the ventilation plan is one that probably is most closely scrutinized and analyzed by the district manager. I would agree with that part. Both roof control and ventilation would obviously be important, but maybe ventilation being the most important.

Jürgen?

DR. BRUNE: Not only that, the ventilation plan is not only scrutinized in the approval process, but in subsequent inspections the ventilation specialists go through the mine and take measurements to verify that those conditions that are elements of the ventilation plan are in fact found in the mine, and the inspectors have the ability to revoke and have basically all the whole pallet of writing violations up to the closure order to step in if the ventilation plan is not followed or if it's obvious that provisions of this plan are not safe.

MR. MUCHO: The other thing about it is the ventilation plan approval process is usually an inertial process going back and forth between MSHA and the operator, so this rubber stamp image is I think an incorrect image based on that process.

DR. MUTMANSKY: I guess one other question I would have is how much freedom the district manager would have to demand upgrades in the AMS system. For example, would that be part of it?

MALE VOICE: Sure.

DR. MUTMANSKY: If it is that certainly is a powerful tool to make it safe.

MR. MUCHO: There will be a couple of points later on that I'll raise that are going to come back to that, and we'll see that if we adopt the process like this with the district manager approving it facilitates that.

DR. MUTMANSKY: Okay. We've had a lot of discussion.

Felipe, do you have anything else you'd like to say?

DR. CALIZAYA: Seems that it's clear. If we are going to check every six months that give us some assurance that the quality is there. We talk about ventilation, the quantity is also there. Yes, I

support this the way how it's written.

DR. MUTMANSKY: Okay. Jim, do you have any other comments?

DR. WEEKS: No, I do not.

DR. MUTMANSKY: Anybody? Jerry? Jürgen? Tom?

(No response.)

DR. MUTMANSKY: Okay. Let's call for the vote.

Felipe, would you go first?

DR. CALIZAYA: I agree with the proposal.

DR. MUTMANSKY: Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: I vote yes. Jerry?

DR. TIEN: Jerry, yes.

DR. BRUNE: I vote yes.

MR. MUCHO: I vote yes.

DR. MUTMANSKY: Thank you. We have a unanimous vote. We have approved the Belt Air Approval Recommendation as rewritten, and at this point in time we can now go back to look at the Recommendation No. 7. The Recommendation No. 7 is the Use of Belt Air, yes or no. At this point in time we now have a job. I think we have to reconsider and perhaps rewrite the belt air recommendation at this

point in time.

We can do that immediately, we can do it right now if you'd like, or we can postpone it again for some rewriting, but why don't we as a panel reread it and see how much rewording is necessary at this point in time? If it's simple rewording we can do it right away. If not, maybe we will want to have some reworking of that recommendation. Okay.

The technical study panel has come to the conclusion that the use of belt air to assist in ventilating working faces where mechanical equipment is being utilized is safer in some, but not all, mines that are not using belt air at the face.

However, the panel also believes that the mines using belt air at the face must be held to a higher standard that involves use of an atmospheric monitoring system and suitable monitoring instruments, belt materials that meet the BELT standards, fire suppression systems and more vigorous inspection procedures by MSHA and state inspectors.

In addition, we recommend that the BELT standards be applied to all belt conveyors used in underground coal mines. Okay. Now, we're going to have to reword this I'm afraid, right? First of all, I would like to mention that one of the comments I

received from some of the MSHA personnel was that whenever we're talking about use of belt air in ventilating working faces one of the comments was it would be better to say use of belt air in working sections as opposed to faces.

That was one of the comments that I did receive from MSHA personnel, so we may want to look at those because that appears several times in this recommendation. So if we were to say instead of using the word faces there we use the word sections, would everybody agree with that change immediately?

DR. TIEN: Is there a difference between the two so it would be consistent throughout?

DR. MUTMANSKY: I think we should be consistent. Matt, was it you or Jennifer who had mentioned that? I'm sorry, it was Bill. Okay.

Bill, just for clarification purposes would you explain why the word section is better than face?

MR. FRANCART: It was basically an enforcement issue because it's easier to enforce based on the definition of a section being in by the loading point versus trying to trace air from the loading point to the face, and trying to do tracer gas tests and trying to find the 12 pattern. So you can find it going past the loading points then used on the

section, and we don't care if it goes to the face or not.

DR. MUTMANSKY: Okay. So as a panel there are comments on that change in wording?

DR. BRUNE: Yes. I mean, I think we can get around this and potentially to a palpable solution here if we strike the first sentence and the word however out of the second sentence and perhaps the word also and say the panel believes that mines using belt air for face must be held to a higher standard but not discuss the fact whether it's safer or not because like you said yourself earlier, what's safe or not may not be an absolute definition.

If we strike that first sentence and modify the second sentence accordingly I think we can come to something that's agreeable to everybody.

DR. TIEN: You want to keep the word face? You want to change that to section?

DR. BRUNE: Yes, belt air to the section.

DR. MUTMANSKY: Belt air to the section.

DR. BRUNE: I think the section I agree with is BELT's definition that becomes --

DR. MUTMANSKY: Okay.

DR. BRUNE: From a legal perspective, section is better defined than face.

DR. MUTMANSKY: Anybody have any reluctance to support that word changing? We'd take out the first sentence and start the second sentence with the panel believes.

DR. BRUNE: Panel believes. Right.

DR. MUTMANSKY: Yes. The panel recommends --

DR. BRUNE: Yes, recommends.

DR. MUTMANSKY: -- that mines using belt air in a working section must be held to a higher standard that involves the use of -- okay. Now, are there more word changes that are necessary here?

MR. MUCHO: The colon after of is not necessary. Fire suppression systems. I think we're looking for an operative verb there, right?

DR. BRUNE: Use.

MALE VOICE: Well, I mean, direct object.

MR. MUCHO: Fire suppression systems are required. I thought what we were alluding to there is that some issues have come up with fire suppression systems, especially as belts have become wider and air velocities can be high, and that we were really alluding to fire suppression systems that were capable of getting the job done. Is that right or what are we saying?

DR. MUTMANSKY: Yes. As it turns out I think that was our intent, but it doesn't say that specifically.

Are we going to address that, Tom, in one of your recommendations that come up?

DR. WEEKS: How do you want to change this, Tom?

MR. MUCHO: Well, I think we need to specify what we're saying about fire suppression systems. Involves the use of. All conveyor belts currently have to have a fire suppression system of some type, so that's not saying anything. I think we're saying is we want adequate capable fire suppression systems or whatever the right word is there. Properly sized.

MALE VOICE: Improved.

MR. MUCHO: Something. Yes. I don't know.

DR. MUTMANSKY: You want to see improved.

DR. TIEN: Or effective or improved?

MR. MUCHO: Well, I mean, really the issue is some fire suppression systems might be very capable right now of doing the job. To my knowledge in this area, and now we're in a thin area, my background, but I don't know how specified fire suppression systems are to criteria such as belt width and velocity.

My suspicion is that doesn't exist and that

maybe manufacturer ought to have Type A that's good for up to 48 inches and air velocities up to 500 feet per minute, and he has Type B that's good up to 72 inch belt at 1,000 feet per minute or whatever, but I don't think that's part of the approval and certification and so forth process right now.

DR. MUTMANSKY: Okay. I had some words with Jürgen earlier concerning some of the problems that were observed on these fire suppression systems. One of the problems was the fact that the air velocities were carrying the fire suppression chemicals away from the point where they were needed and were not effective.

At this point in time is it tradition for companies to use their shroud at the location of the fire suppression sprays or dispensing points or are they unshrouded?

DR. BRUNE: Typically I think they're unshrouded.

MR. MUCHO: That's right. Typically unshrouded.

DR. MUTMANSKY: They're unshrouded. Okay.

DR. BRUNE: But I think the key point here that Tom is making is that fire suppression systems are required for every belt regardless of which

direction the air flows. If we talk about the key point of this recommendation being holding the mines that want a route belt to the face to a higher standard I do not know what the higher standard means with regard to fire suppression systems.

I mean, either it works or it doesn't. For any fire suppression system the operator should hopefully use one that works.

MR. MUCHO: I would agree, and I would think by the fire suppression issue really I would hope we wouldn't think that applies to belt air lines only. I mean, they ought to be properly sized and capable putting out a fire in event one happens irregards whether a belt air mine or not.

DR. WEEKS: If a belt entry is used to ventilate a section would it need anything extraordinary in the way of fire suppression?

MR, BRUNE: No. It's the same requirement.

DR. WEEKS: Well, then we should suppress the next sentence or that section.

DR. BRUNE: Take No. Fire Suppression 24.

MR. MUCHO: The only thing about it is that I'm confused, Jan, and with the recommendations we touch on it somewhere else. I'm not sure where.

MALE VOICE: In velocity.

DR. BRUNE: Yes, in the velocity.

MR. MUCHO: Is it in velocity?

DR. BRUNE: In velocity because that's current language research.

MR. MUCHO: Okay. Yes.

DR. MUTMANSKY: Well, we can certainly add it to the velocity recommendation if it's not there with sufficient words.

DR. BRUNE: Yes, I think we should discuss it again there.

MR. MUCHO: We did it in the comment section where we comment to Richard Stickler's charge to us. One of Richard's charges to us was to look at fire suppression systems. That's where it's at. It's not in any recommendation, but a comment for completeness.

DR. WEEKS: What's on his mind about this? Do you know?

MR. MUCHO: Well, on his mind I would guess would be that some of the issues that were raised, principally the VP8 fire and dry powder systems at higher velocities not being capable of doing that, so he wanted us to take a look at it. For us without NIOSH having completed the research, we're just not in a position to comment.

But we would hope that as I stated a little

earlier that fire suppression systems would be sized by criteria such as belt width, criteria such as velocity to be capable of suppressing the fire. I would hope that some manufacturer would stand behind that or however they come up with the system, but I think that would be kind of up to MSHA.

DR. MUTMANSKY: Well, do you feel we should have to put that into one of our recommendations as wording in the recommendations as opposed to the discussion section?

DR. BRUNE: I think one thing we could do is add the word engineered fire suppression systems to it because then that would require that somebody conducts an engineering study that would size and design the fire suppression system specific to the conditions for which it is meant to work.

DR. MUTMANSKY: But isn't that done anyway?

DR. BRUNE: I would contend not in all cases.

DR. MUTMANSKY: Yes. I would guess that in many situations the need for an engineered system was not apparent and that nobody has ever questioned in many cases. Now, it's being questioned. So my question to you, the panel, is do we wish to just eliminate No. 3 here and address it elsewhere?

DR. BRUNE: Yes.

DR. MUTMANSKY: So your conclusion at least as you're expressing it, Jürgen, is let's eliminate No. 3 here and address that issue in another recommendation even if we have to write a new one?

DR. BRUNE: Yes.

DR. MUTMANSKY: Is that it?

DR. BRUNE: You're correct. Yes.

DR. MUTMANSKY: How about you, Jim?

DR. WEEKS: I don't know. I mean, we need to address it one way or another. What's the advantage of doing it somewhere else as opposed to doing it here?

MR. MUCHO: Well, I would contend that we should not address it in the recommendations. As I said, I think it's premature for us to do anymore than comment on it until NIOSH commissions the research and the results of that are known. We can put in language and a discussion that we would anticipate, MSHA would then react to that research and take appropriate action and so forth and so on.

I don't really think it belongs in a recommendation. It's just premature. We're not exactly sure what we're talking about. Until their research is completed we won't be.

DR. MUTMANSKY: But we can give a general objective of that by saying fire suppression systems properly engineered for the --

MALE VOICE: Application.

DR. MUTMANSKY: -- application. Perhaps that's one way of doing it.

Jerry, your comments?

DR. TIEN: Well, can I comment on a different point or you want to stay on this one?

DR. MUTMANSKY: Yes, I would think so.

DR. TIEN: Well, No. 4. We're saying, well, actually this, our group, we subcommittee through track member, more vigorous inspection procedures. Now are we implying they're not vigorous enough? What else they can do?

DR. MUTMANSKY: I won't say what we're implying. I'll just simply say we will discuss that as part of our inspection recommendation, and at that point in time we can discuss what we really feel there. If you have a recommendation regarding that feel free to express it. I have no problem with that.

DR. BRUNE: I think the key point in this recommendation is that we are by allowing belt air to go to the working section introducing another hazard, that being the smoke that would be a hazard to those

people working at the face over the section. Therefore, the point is we need to pay special attention to that fact, and by asking for more vigorous inspection that's one way.

I would still suggest to strike the fire suppression systems at this point because there is no difference that I can imagine in fire suppression systems. They ought to be all well-engineered and well-designed. I cannot envision how to make a fire suppression system better only for this case where you guide belt air to the face.

I mean, if there's a way to make it better everybody ought to make it better and do it, but that's kind of out of place in this recommendation because here we're trying to address that there's a need for more precautions when we send belt air to the face.

DR. TIEN: So fire suppression system is a given? In other words, ought to be working anyway to start with?

DR. BRUNE: Exactly, and that's required for any belt and every belt.

DR. MUTMANSKY: Now, are you therefore recommending that we take a recommendation?

MALE VOICE: No. Strike it out.

DR. BRUNE: No. Take out No. 3 like we had discussed earlier and just leave it with No. 1, No. 2 and No. 4, which then becomes three.

DR. MUTMANSKY: Okay. Felipe, go ahead.

DR. CALIZAYA: I have two comments. Regarding Point 3 I agree with Jürgen. I think it's not needed here. The other point is about the title. I don't think that we are saying much with that yes or no.

MALE VOICE: Yes, you're right.

DR. CALIZAYA: Use of belt air for ventilating working sections, I don't know if that's a good title. But I think at one point we need to address this 2004 belt rule, and I would suggest to add at the very beginning a new sentence that would read something like this: Panel endorses the 2004 belt rule, or something like that.

Because in the rule most of these things, they are included. Those are improvements to that.

DR. BRUNE: Except why do we have to go to that? If we simply say I agree with the title change, if we simply say special requirements for use of belt air, that would be --

DR. CALIZAYA: I agree with the title. Okay. Yes.

DR. BRUNE: -- an acceptable title rather than saying --

DR. CALIZAYA: But we are not saying anything about the 2004 rule.

DR. BRUNE: I don't think we need to.

DR. MUTMANSKY: Felipe, their argument is that every six months when the district manager reviews ventilation he in essence has the authority to say that the ventilation plan is unacceptable under certain conditions.

I guess the real problem is are we as a panel accepting of the fact that he will be able to review and eliminate unnecessary use of belt air in the working section when it's apparent to him there are better ways of doing it? That's the question. And are we doing anything to ensure that I guess? That's another question.

I see we don't all agree on that part, but if we can come to a suitable set of words here that we all feel comfortable with it maybe that's okay. So the question is do we have to discuss the 2004 belt air rule? I think Tom, and Jürgen and maybe others are suggesting we don't have to discuss it at all. Is that your conclusion?

DR. BRUNE: That's my point because if we

wanted to get into the ins and outs of the 2004 rule I don't think this is what this committee is being charged with. We're not charged to rehash existing rules.

DR. MUTMANSKY: Okay.

DR. BRUNE: We're giving recommendations based on what we find is prudent.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes, agree.

DR. MUTMANSKY: You agree. Okay.

Now, Felipe, you can agree or not agree, but you've heard their argument.

DR. CALIZAYA: I would like to see the word improvements. That's what we are suggesting, improvements to 2004 rule.

DR. MUTMANSKY: Okay. You'd like to see improvements. Question is how would you do that? What is your proposal? I think that's what we have to ask. What is your proposal?

MR. MUCHO: Jim made the point earlier on that really our recommendations are in fact recommendations to improvements, so de facto the recommendations are recommendations to improve things. Here's the problem. I mean, if you say yes, the 2004 rule is fine, then we don't have anything to do. If

we say no, it's not, it just seems like, I don't know, superfluous in meddling with something that we don't have any business meddling in.

So I don't see there's anything to be gained by the issue at all.

DR. MUTMANSKY: Okay.

DR. WEEKS: Understand the instinct.

DR. MUTMANSKY: Felipe? I would like to mention one argument that I have here, that the No. 2 requirement here, belt materials that meet the BELT standards, Linda and I were discussing that particular one in particular, and if we look at this diagram over here and we want to shrink that risk over there that is probably the one thing that will shrink that risk significantly.

Now, again, it's hard to measure. It would be hard for us to even estimate how much it would, but it would clearly make a big difference. Okay. So I'm not opposed to accepting the changes at all if you agree and if you can accept the fact that we're going to make these changes and hope that the BELT standards make a big difference in the risks involved.

DR. BRUNE: Perhaps we ought to add to that BELT and other standards recommended by this panel because in addition to BELT we just approved the belt

friction test and the drum friction test, so we probably ought to throw those words in there as well.

DR. MUTMANSKY: We didn't approve any belt friction test, though. All we did was say we're going to try it out.

MALE VOICE: Yes. We approved trying it out.

DR. MUTMANSKY: We approved trying it out.

DR. BRUNE: Yes.

DR. MUTMANSKY: All right. Would that be helpful to you, Felipe?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: Okay. Bill, why don't you go ahead with that change, and we'll look at it one more time.

DR. BRUNE: And then the fire suppressions needs to come out I think.

DR. WEEKS: This recommendation or statement or whatever it is might serve as a useful introduction because then lots of other things follow from that in terms of the BELT standards, inspection procedures and so on. They're all left out in more detail in later recommendations.

DR. MUTMANSKY: Okay. I changed the word discuss to recommended.

DR. BRUNE: And then three comes out, and then No. 4 becomes three. Okay.

MR. MUCHO: The comment I have is getting a little bit on a slippery slope here. We're saying that we want this higher standard and that's assuming that the recommendations that this panel recommends are part of that.

Of course there's no obligation to follow any recommendations that come out of this panel, so whether it be some mishmash of recommendations that are followed through on and some that are not, so it kind of leaves you out there as to well, what's that mean now if you're saying it's only if all the recommendations are approved, enacted and so on? Is that what you're saying?

DR. WEEKS: That's not our problem.

DR. MUTMANSKY: That's not our problem. I agree, Tom. That's not our problem. I believe our problem is to do the best possible job we can in providing MSHA and Congress with our recommendations based as best as we can on our analysis, and what they do with it is their problem. Okay?

Okay. I think with that I'll go back. Are you okay now, Felipe, with what we see here?

DR. CALIZAYA: (Nonverbal response.)

DR. MUTMANSKY: Are there any other comments about wording? It's now called special requirements for the use of belt air.

DR. WEEKS: Is it appropriate for us to recommend what state inspectors do?

DR. MUTMANSKY: Perhaps not. I put those words in. I take it back.

DR. WEEKS: Well, I'm not opposed to it. I just wonder if it's within something that's appropriate for us to comment on.

DR. MUTMANSKY: I don't think we have any particular invitation. I don't remember any.

DR. BRUNE: I think it's a good point. I don't think we can extend our recommendation to other states since we're a federal panel.

DR. MUTMANSKY: I would be okay with taking out the words and state in there. Anybody have any reluctance about that?

(No response.)

DR. MUTMANSKY: Should we read everything over one more time? Okay. This recommendation is called Special Requirements for the Use of Belt Air.

It goes as follows: The panel recommends that the mines using belt air on a working section must be held to a higher standard that involves use

of: 1) an atmospheric monitoring system (AMS) and suitable monitoring instruments, 2) belt materials that meet the BELT standards and other test methods recommended by this panel, and 3) more vigorous inspection procedures by MSHA inspectors.

In addition, we recommend that the BELT standards be applied to all belt conveyors used in underground coal mines.

DR. BRUNE: I would change test methods to standards even though we're repeating it, but you can't meet a method, you can only meet a standard.

DR. MUTMANSKY: Okay. Good thinking. I think that's better wording, yes. And other belt.

DR. BRUNE: Actually, BELT standards --

DR. MUTMANSKY: We could take out the first standards, the meet the BELT standards, and we'd take the first word out.

DR. BRUNE: Yes. And other test standards. Yes, okay. That's fine.

DR. MUTMANSKY: Okay. We keep getting a little bit better in our wording. Do we want to read it one more time?

DR. BRUNE: In the last sentence it should be the BELT standard, not standards, because it's only one. I wonder if we should use the other test methods

there as well.

DR. MUTMANSKY: Okay. The BELT and other test standards recommended by this panel, I guess. Okay. Let's have one more read.

MR. MUCHO: One comment. Bill, are you saving that file on a regular basis?

DR. MUTMANSKY: Bill is doing a great job here. Thanks, Bill, for helping us out this week. It's a big help. Okay. Special Requirements for the Use of Belt Air.

The panel recommends that the mines using belt air on a working section must be held to a higher standard that involves use of: 1) an atmospheric monitoring system (AMS) and suitable monitoring instruments, 2) belt materials that meet the BELT and other test standards recommended by this panel, and 3) more vigorous inspection procedures by MSHA inspectors.

In addition, we recommend that the BELT and other test standards recommended by this panel be applied to all belt conveyors used in underground coal mines. Are there any final comments?

(No response.)

DR. MUTMANSKY: I will call for the vote. Jerry, you go first.

DR. TIEN: Yes.

DR. MUTMANSKY: Jürgen?

DR. BRUNE: Yes.

DR. MUTMANSKY: Yes.

MR. MUCHO: Yes.

DR. MUTMANSKY: Felipe?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: And I vote yes, and I thank the panel for working this one out. This is a very important recommendation. I thank them for all their input on this one and on No. 8 as well.

Okay, good. If I can figure out which one is next, I believe the next recommendation in our order is smoke sensors, No. 10.

MALE VOICE: (Away from microphone.)

DR. MUTMANSKY: Yes, I would guess so. Bill, I think you can delete that one. I think Tom will okay that.

DR. WEEKS: It's been deleted, Tom. The one on the petition.

MR. MUCHO: Yes. I have no problem with that.

DR. MUTMANSKY: Okay. We'll go to No. 10,

Smoke Sensors. Who is going to read that one or support that one?

MR. MUCHO: I'll talk.

DR. MUTMANSKY: Okay, Tom.

MR. MUCHO: Smoke Sensors. Okay. Reading the recommendation. The panel recommends that MSHA thoroughly consider rulemaking that would require the use of smoke sensors in addition to CO sensors in belt air mines to provide for earlier warning and possibly more reliable detection of conveyor belt fires in these mines.

MSHA should also strongly consider rulemaking to revise 75.1100-1103, Fire Protection, which was first put forth in 1972. I know that I can't pronounce some of these words. In order to take advantage that have occurred in fire detection and fire prevention technology.

All right. What we're looking at here is that we heard presentations regarding fire detection and early warning, quite a bit of discussion about that. Basically, there's a considerable body of research which says that of sensors such as point-type sensors, CO sensors and smoke sensors we already talked about the point-type and where they rank.

In terms of early warning the smoke sensors

would provide the earliest warning or earliest detection depending on whether you're talking about an incipient fire. So what this is really aimed at is trying to encourage the use of smoke sensors in coal mines, the further development of them, really trying to get even though a limited market, some market so that this kind of technology could be applied to fire detection.

Basically, smoke sensors, the problem has been limited in mining applications to issues related to the environment, things like rock dusting, temperature, humidity, and as a result maintenance has been a problem with these.

There's been some movement for instituting or trying out at least some of the industrial ready type sensors in mines, that's ongoing, and development of some new sensors which appear to address some of the issues related to the initial sensors. Part of what the panel's thinking here is that we would be looking at a phased implementation date to let some of this process take place and utilize these at least on a limited basis in belt air mines.

In this case in our discussion session we talked about maybe three on a belt flight, one downwind of the terminal group, that's the drive take

up area transfer point, one about midway and one near the tail of the section, just to utilize their earlier warning capabilities and the fact that with multiple sensors obviously chances of picking up potential fires at different origin would be greater if you're using multiple sensors.

Contrary to Dr. Litton's comments I believe at Birmingham, I personally don't believe that simpler is always better. So that's the whole concept behind smoke sensors and our thoughts there.

DR. MUTMANSKY: Tom, I guess my only question is I don't know much about smoke sensors myself, but do we have enough commercially available smoke sensors at present to move forward here?

MR. MUCHO: There's not an assurance that we have that, no. That's one of the reasons why we looked at a phased-in approach. I mean, it's analogous to what we're looking at in the Miner Act in terms of communication and tracking and so on where we pass rules and laws by states and the federal government to enact stuff that didn't exist at the time and was good at concept.

So I think we're a little further along on that in terms of smoke sensors, but, yes, this is not something you can buy off the shelf, maybe not. We

don't know that for sure either, though, by the way. We don't know that for sure that you can't go buy an industrial ready smoke sensor that will do the job. We just don't know yes or no on that.

DR. MUTMANSKY: This certainly fits the category that Mr. Stickler talked about, that is newer technology that should possibly be used. I certainly support it in that sense. Are there comments from members of the panel?

Jürgen?

DR. BRUNE: Yes. One of the arguments against use of smoke sensors is that often the smoke sensors apparently become obstructed by dust and float dust, work dust, that is used in the belt entry and that may affect the function of it.

I think it's a good thing to at least for this Committee to initiate discussion about using smoke sensors because we learned, I believe it was Dr. Kissell's presentation that clearly said that even if you have smoke that is thick enough to the point where you cannot see the hand in front of your eyes you only have very low CO or you may only have very low CO, if you have an open burning fire that is oxygen rich then you may have very low CO and the smoke is ultimately what becomes the hazard and what constitutes the

hazard for the miners.

In other fires you may have higher COs but having two sensors in combination I think is an improvement to having only one of each type.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes. I agree with what's on the screen.

I'm just wondering, Tom, is there a better way to express the second line, the last sentence, in the belt air mines, using belt air or something like that?

DR. BRUNE: Mines that use belt air in the working sections.

MR. MUCHO: Yes. I noticed that as I was reading that. I think that can be improved.

DR. MUTMANSKY: In mines, yes, that use belt air in the working section. Yes.

MR. MUCHO: The last sentence, didn't talk about that. What that goes to is as is pointed out there that the time that subpart L was proposed it was 1972 and a lot has happened since that time. Near as I could check here quickly looking at the law on the issue where I talked about the inspections on conveyor belt lines, for example, in 75.1100, and I used that for that whole group to 1103, I see where a weekly

inspection of the water sprinkler system is required, but I could find no like provision for deluge systems, foam generators and so forth.

So that whole section I think there is some room to bring it up to speed and add in some of the things that we've become aware of, like I mentioned the issue with Aracoma with the mismatched couplers. Somebody ought to be looking at that on some periodic basis. That's pretty obvious. Somebody ought to see, verify, that there's water in the line at some point on some period.

I mean, so there's a number of things that we've learned over the years, and they're just not there right now and it needs to be looked at.

DR. MUTMANSKY: Okay. Are there wording changes, Jerry?

DR. TIEN: Yes. I know this is Felipe's job. Look at the title. Should we add a word more like smoke sensor requirements, or required, or something?

DR. BRUNE: I don't think we can require it.

DR. TIEN: Or recommend.

DR. BRUNE: The wording is consider rulemaking which in real terms means you have to go through the process and MSHA will have to determine is

it something that they can ask the industry to do and require the industry to do, but that's MSHA's job to require.

DR. TIEN: Okay.

DR. CALIZAYA: Jim, a couple of questions. Location and number we have not mentioned in anything about that. Are we talking about smoke sensors next to a CO sensor or are we talking about just the number of the smoke sensors, one at the beginning, one in the middle and one near the face? Can we clarify that?

DR. BRUNE: I would also leave that to MSHA's expertise to clarify that because smoke has different characteristics than CO. Smoke typically rises up to the roof very quickly, and so you wouldn't locate a smoke sensor where you may locate a CO sensor in the middle of the entry but you rather go to the top. So I would leave those details. I'm not sure if this panel can concern or should concern itself.

I mean, we made some recommendations in the discussion, and I think that should give MSHA a start to work with.

MR. MUCHO: And there is research that looks at those kinds of issues.

DR. MUTMANSKY: Okay. Are there any other wording changes here?

(No response.)

DR. MUTMANSKY: I did notice that Bill Francart's putting these little squiggles in, and at this time he put in 30 CFR squiggle, squiggle 75.1100. Bill, does the double squiggle mean something?

MR. FRANCART: More than one.

DR. BRUNE: Several paragraphs.

MALE VOICE: Squiggle squared.

MR. FRANCART: It's like the triple dollar sign.

DR. MUTMANSKY: That's all I wanted to know. Thank you. Okay. That was just clarification there. Are we ready to approve those words or do we want to read them? We're going to retain the recommendation and call it Smoke Sensors. Is that okay with everybody? All right. Let me read the words to you.

The panel recommends that MSHA thoroughly consider rulemaking that would require the use of smoke sensors in addition to CO sensors in mines that use belt air on the working section to provide for earlier warning and possibly more reliable detection of conveyor belt fires in these mines.

MSHA should also strongly consider rulemaking to revise 30 CFR § 75.1100-1103, Fire Protection, which was promulgated in 1972, in order to

take advantage of advances that have occurred in fire detection and fire prevention technology.

DR. BRUNE: I would just again strike the word strongly because it's pretty meaningless.

DR. MUTMANSKY: Okay. In line 5 there, Bill, the word strongly, I believe that's the one he's referring to.

DR. TIEN: So is that the same with thoroughly consider?

DR. BRUNE: It's the same thing. Yes.

DR. TIEN: Can I have consider?

DR. BRUNE: Just consider is fine.

DR. MUTMANSKY: Okay. The panel recommends that MSHA consider rulemaking that would require the use of smoke sensors in addition to CO sensors in mines that use belt air on the working section to provide for earlier warning and possibly more reliable detection of conveyor belt fires in these mines.

MSHA should also consider rulemaking to revise 30 CFR § 75.1100-1103, Fire Protection, which was promulgated in 1972, in order to take advantage of advances that have occurred in fire detection and fire prevention technology. I think there are too many commas in that paragraph, but I'm not absolutely certain of that.

In line 3 is that comma after section required or is it not required? I think it's not required, but I'm not certain of that.

DR. BRUNE: No, I think it is required because it's a sub. I don't know what you call it or not.

MALE VOICE: If there is such a thing it's an adjective phrase.

DR. BRUNE: Yes. I'm not sure what it's called, but it's a grammatical construct that requires a comma.

MALE VOICE: It is. Yes.

DR. MUTMANSKY: Okay.

DR. TIEN: Or providing. To provide changes, to providing. Strike out the comma.

DR. BRUNE: No, you still would need the comma.

DR. MUTMANSKY: Whatever. It may have to stay because we don't know what we're doing in grammar here.

DR. BRUNE: We need Debra.

DR. TIEN: We'll do that Wednesday, yes.

DR. MUTMANSKY: In any case we do have the right number of squiggles, so that's important. Okay. So do we want to read it one more time?

ALL: No.

DR. MUTMANSKY: Okay. All right. We're not going to read it one more time. Are we ready to vote on this one?

Felipe, you're first.

DR. CALIZAYA: Go for it. Yes.

DR. MUTMANSKY: Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: I vote yes. Jerry?

DR. TIEN: Yes.

DR. BRUNE: Yes.

MR. MUCHO: Yes.

DR. MUTMANSKY: All right. The vote is six to none, so it's a unanimous vote on No. 10, Smoke Sensors. We are moving right along. We're doing very well. If we continue in this fashion Tom will get to watch the Monday night football game tonight, so that's very good. Our next recommendation is called Diesel Discriminating Sensors, and that's Tom's subcommittee.

Tom, will you read this one?

MR. MUCHO: I'll be taking this one, yes.

DR. MUTMANSKY: Okay.

MR. MUCHO: To read through it: The panel recommends that MSHA perform regular, periodic reviews

of AMS records required under 30 CFR § 75.351(o) at mines that use belt air. During a review what we would be looking for at mines that also use diesel equipment in this case, MSHA should evaluate the number of false alarms or nuisance alarms due to diesel exhaust, CO interfering with the AMS CO sensors installed for belt entry.

In those instances where false alarms are excessive MSHA should require the use of diesel discriminating system of sensors. What this goes to, and Jürgen's going to follow with one that's a little bit similar, this is specific to false or nuisance alarms from diesel equipment, so there might get some overlap between these two.

We have the requirement in 351(o) to have these records, and what we're looking for is MSHA to review them. What the suspicion is is one of the safety problems has historically been false alarms because then people get complacent or don't react quickly when in fact it could be a real situation. Everybody recognizes that's problematic.

So the question is at mines that also use diesel, most of us know that one of the ways that that situation is dealt with is that say diesel mantrip operators or what have you let the AMS operator know

that they're traveling such and such and such a place so that they get alarms or alerts in that area, the AMS operator says that's Bill going down that area with a diesel mantrip.

Well, the question is how much of there is that and is it problematic? Really what this is asking for is MSHA to assess those numbers, and look at that and kind of make a decision as to whether or not it is a problem, and if so, to address it by looking at diesel discriminating sensors.

One of the background things here is to our understanding there's not a lot of use of diesel discriminating sensors out there relative to number of diesel mines using belt air. So that's kind of where it's going to. I don't think this is a big requirement.

MSHA inspectors I think should regularly and periodically go through the records to look for things like this. There was a comment that someone made about well, what's excessive? I can't tell you what excessive is, but if I looked at enough sets of records I think after a while I could give you a good idea of what excessive is. I think that's a role we delegate to MSHA.

So all we're saying is pay attention to it.

If it's something that looks like it's a problem let's do something about it.

DR. MUTMANSKY: Question, Jim?

DR. WEEKS: Well, it's not a question, it's just a comment. I think false alarms are kind of the Achilles Heel of any system like this. It does breed complacency and it could become a hazard just by itself. If there's a way to prevent false alarms, we should adopt it. So what this recommendation does is saying look for the occurrence of false alarms and here's a possible solution. It would improve the system.

DR. MUTMANSKY: I have a question. Does anybody have any idea what costs are involved in a diesel discriminating CO sensor versus a traditional CO sensor?

MALE VOICE: Sure it's more expensive.

DR. BRUNE: Right, it's more expensive. Typically diesel discriminating sensors combine several types of sensors that allow a computer system to evaluate whether the CO in combination with other types of smoke particles, soot, result from a piece of diesel equipment rather than from a fire.

DR. WEEKS: Yes. I think primarily what it does is there's no separate CO sensor in it, it looks

at nitrogen oxides, and if those occur with a spike in CO it's presumed that's from a diesel powered piece of equipment.

DR. MUTMANSKY: Okay.

DR. BRUNE: I would also contend that the state of the art in manufacturing these diesel discriminating sensors is to a point where they are mineworthy and tested enough that you could buy them off the shelf today.

DR. MUTMANSKY: Okay. Felipe, you have any thoughts or remarks?

DR. CALIZAYA: I have a question in fact. Are we talking about DPM, diesel particulate matter, where we discriminate or are we talk about CO? If it's a CO it's the same thing. The harm to human is the same whether that would come from a fire or comes from diesel. I remember working in areas where the CO from diesel was above 20, and it's as harmful as that one from fires.

Now, maybe the point is about establishing the background level, okay? If that's the case we should state.

DR. BRUNE: There's two things obviously. One point is where the MSHA criteria for CO alarms are typically measured in PPM above ambient and the

ambient is determined over a certain period of time, and if the level rises to five or respectively 10 PPM above ambient then an alarm is set.

The other level from what I understand is that if a particular piece of diesel equipment runs by then for a certain point in time or a certain amount of time the CO level may be raised, but then if it goes back down again and/or if the diesel equipment operator says hey, I'm running my equipment by this point, now expect a temporary rise in CO, those things can be controlled by the system operator.

I witnessed that practice at an Australian mine that I visited recently, and the equipment operator would have to announce his presence at certain points throughout the mine when he came near CO sensors to alert the AMS operator that the CO level might rise because the diesel equipment was there. So those are things that can be taken care of in the process.

DR. MUTMANSKY: Okay. Jerry, do you have any comments or questions?

DR. TIEN: Looks good.

DR. MUTMANSKY: Anybody else have comments or questions?

(No response.)

DR. MUTMANSKY: If not, we want to look at the title and see if that one's okay. Do we want to change that Use of Diesel Discriminating Sensors? Is that okay with people?

DR. BRUNE: That would be fine.

DR. MUTMANSKY: Okay. If everybody is okay with that I'll read it and we'll again work through the process of rewording if necessary. The panel recommends that MSHA perform regular, periodic reviews of the AMS records required by 30 CFR § 75.351(o) at mines using belt air to ventilate working sections.

During these reviews at mines that also use diesel equipment MSHA should evaluate the number of occurrences of false alarms or nuisance alarms due to diesel exhaust CO interfering with the AMS CO sensors installed along the belt entry. In those instances where such false alarms are excessive MSHA should require the use of a diesel discriminating system of sensors.

I can see some wording changes I would recommend there. I would recommend that we say should require the use of a system of diesel discriminating sensors, if you're okay with that.

MR. MUCHO: There were about three or four recommendations on the wording. That was close to one

of them that was recommended.

DR. WEEKS: Well, another one is diesel exhaust CO doesn't exactly interfere with the AMS CO. What it interferes with is the interpretation of the CO. So I would delete interfering with the AMS CO sensors installed -- yes. Just delete the rest of that sentence.

DR. BRUNE: Yes. That's fine.

DR. MUTMANSKY: Yes. That sounds right. Okay. That's good rewording I think. You want to read it one more time. The panel recommends that MSHA perform regular, periodic reviews of the AMS records required by 30 CFR § 75.351(o) at mines using belt air to ventilate working sections. During these reviews at mines that also use diesel equipment MSHA should evaluate the number of occurrences of false alarms or nuisance alarms due to diesel exhaust CO.

In those instances where such false alarms are excessive MSHA should require the use of a system of diesel discriminating sensors. We haven't defined excessive. We may want to do a little bit more wording there, otherwise if you're okay with excessive we can move forward.

MR. MUCHO: Yes. I think we can do without it.

DR. BRUNE: Yes. I think MSHA can from evaluating different mines in the same district under similar circumstances when one mine has 100 false alarms a month and the other mine has five false alarms a month there's certainly a difference that would lead somebody to believe that one of them is excessive, so I think MSHA can judge that very well after going through a couple of these records.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes. The fourth line, the last couple of words. If false alarms or nuisance alarms. False alarms, we deliberately use two terms.

DR. BRUNE: I think they're both synonymous.

DR. WEEKS: Well, some people prefer the term nuisance alarms, and I'm not sure why. I think false alarms is more of the vernacular.

DR. MUTMANSKY: It actually is not a false alarm, it's a nuisance alarm. There's a little bit of difference in the meaning. I think it's a nuisance alarm not a false alarm. A false alarm would mean it's reading CO and there's none there.

DR. WEEKS: No, but you interpret the alarm as indicating that there's a fire, and it falsely indicates a fire.

DR. MUTMANSKY: That's a good point. I

wasn't thinking of it that way. It's a good point.

DR. BRUNE: In any case a false alarm, and this goes probably to the next recommendation as well, but a false alarm would also be if the CO sensor reads according to your CO that's not actually there due to bad calibration or a bad indication of being masked by another gas.

DR. MUTMANSKY: That's a good point.

DR. TIEN: So should we strike out at least or lose it somehow?

DR. BRUNE: I would argue for leaving it in.

DR. MUTMANSKY: Well, one other question is why are false alarms in parentheses and nuisance alarms are not?

DR. BRUNE: Take the quotes out.

MR. MUCHO: Well, it was because of the point Jim made. It's not a false alarm. It's reading a higher level of CO, but it's not a fire. So it's a false fire alarm. So that's the reason for the quotation mark.

DR. MUTMANSKY: You want to leave the quotation marks?

MR. MUCHO: I don't care.

DR. TIEN: I would take it out. It doesn't add anything.

DR. MUTMANSKY: We're maybe picking on too small of a problem here.

DR. BRUNE: Can discuss that Wednesday afternoon.

MR. MUCHO: Those familiar with the issue understand it, and it was really for someone who are not familiar with the issue so it would kind of scratch their head and say, well, what's a false alarm?

DR. MUTMANSKY: Yes.

MR. MUCHO: So it depends on familiarity with the topic.

DR. MUTMANSKY: Since you wrote that, Tom, do you want to leave it in?

MR. MUCHO: Can do a quick thumbs up on it. I don't care.

DR. MUTMANSKY: Is that a maybe?

MR. MUCHO: Either way is fine with me.

DR. MUTMANSKY: What do you folks prefer?

DR. WEEKS: I think when we're done with this we need to take a break.

DR. MUTMANSKY: I'm in favor of that, but we're not done yet, so let's finish it up.

DR. WEEKS: Okay. I suggest we take out the quotes, and take out nuisance and just talk about

false alarms. If people want to question the interpretation, that's fine. That's my suggestion.

DR. BRUNE: I'm fine with that, too. We're splitting hairs now.

DR. MUTMANSKY: Felipe, are you okay with that?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: If Felipe is okay with that I'm okay with it, too. I guess you want to do it again down below, just take out the quotes that is. All right, that's our new wording. I don't think I'll read it again. I think everybody is probably okay with that now. It's important to note it has the right number of squiggles in it. We're now ready to take a vote. I vote yes.

Jim?

DR. WEEKS: Yes.

DR. CALIZAYA: Yes.

MR. MUCHO: Yes.

DR. BRUNE: Yes.

DR. TIEN: Yes.

DR. MUTMANSKY: Okay. All six of our members have voted yes, so it's a unanimous vote. Now, I suspect that Jim would like a little bit of a break here.

MR. MUCHO: I'd suggest we push on.

DR. BRUNE: The next one is basically related. I think we can wrap this up in --

DR. MUTMANSKY: I don't know if I could get through that one by myself, therefore let's take a break.

MR. MUCHO: Let's push on. It should be quick.

DR. BRUNE: Yes. I mean, this one is --

DR. MUTMANSKY: Okay. No. 12 is Review of AMS System Records. Jürgen is going to discuss that one.

DR. BRUNE: I'll take that. Fundamentally, when we discussed the diesel discriminating sensors this can mask the indication of a CO sensor, hydrogen, for instance, that gets developed in battery charging stations can do that, and so there's essentially a review of false alarms gives MSHA and other authorities an indication of the quality of the system installation and also of the quality of the system maintenance.

A review of false alarms, like we discussed earlier, is important because false alarms may lead to complacency, and may lead to miners ignoring the alarm and hopefully not ignoring then the real alarm but

potentially doing that.

That's why we recommend that MSHA on a regular basis evaluates the false alarms, to get a better sense of how well the system works and then make recommendations and enforce accordingly to rectify the situation, to maintain the system better, to calibrate it better, to tune it better as to avoid those false alarms in the future.

So I'll read it, and we probably want to make the same changes with respect to false alarms and nuisance alarms that we made earlier. Panel recommends that MSHA perform regular, periodic reviews of the AMS records required by 30 CFR § 75.351(o) at mines using belt air to ventilate working sections.

During these reviews MSHA should evaluate the number of occurrences of false alarms due to sensor system malfunction and due to other gases such as hydrogen that may affect the function of carbon monoxide sensors. In those instances where such false alarms are excessive MSHA shall require appropriate steps to improve system maintenance and durability and as needed installation of sensors that are not subject to influence from other gases.

I changed that because I think we discussed earlier we should say shall.

DR. MUTMANSKY: Okay. Thanks for making those changes, Bill. This now reads in a fairly straightforward fashion. I'm a little bit concerned about the fact that you picked hydrogen as your gas there. It's also a gas with problems of some sort.

DR. BRUNE: Well, that's one gas in the discussion that I mentioned. Among others, publications by Bill Francart who points out research results to that effect. So hydrogen is certainly one of the gases. I'm not sure if that's all of them, but certainly there's cross-sensitivities to hydrogen.

DR. MUTMANSKY: I'm concerned about what the source of the hydrogen would be. Now normally it's the battery station.

DR. BRUNE: Battery-charging stations is the other thing we want in this one, yes.

MR. MUCHO: Not only are the CO sensors cross-sensitive, but you have a big multiplier, so very little hydrogen would just drive CO sensors nuts.

DR. MUTMANSKY: Yes. That's a very good point. Okay. Good. Other questions?

Felipe or Jim?

DR. CALIZAYA: No.

DR. MUTMANSKY: No questions?

MALE VOICE: No.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes. I'm looking at line number 4. To evaluate the number of occurrence of a false alarms look like too many of. Can we change that to number of false alarm occurrence? Will that be okay?

DR. BRUNE: Number of false alarms.

DR. MUTMANSKY: Number of false alarms.

DR. BRUNE: Strike of occurrence.

DR. MUTMANSKY: Yes. Number of false alarms. Yes.

MALE VOICE: Yes. That's fine.

DR. MUTMANSKY: Now, system malfunctions, I guess we should discuss that to some extent. What would be the system malfunction that would normally be operative here?

DR. BRUNE: If it's bad calibration or if the sensors malfunction due to power fluctuations or, I mean, there's power surges, there's a number of different things that can impact the function of sensors.

DR. CALIZAYA: Another factor is dust and humidity, especially with the CO sensors. If you have wet mines then condensation of water when you have that sensing element can give you wrong readings.

DR. MUTMANSKY: Okay. Other comments or

other questions?

(No response.)

DR. MUTMANSKY: Are we ready for a vote on this one? Tom, you lead off.

MR. MUCHO: Yes.

DR. MUTMANSKY: Jürgen?

DR. BRUNE: Yes.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: Felipe?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: I vote yes. We have gone through 12 of our recommendations so far. Let's take a 15 minute break.

(Whereupon, a short recess was taken.)

DR. MUTMANSKY: Ladies and gentlemen, we'd like to go back into session again. I've asked Bill Francart if he would put Recommendation No. 12 up on the screen again. It was noticed that the title of this one has a slight problem, and we want to discuss that in a second.

I might mention, also, that it is acceptable for us as a panel to go back to any of the

recommendations for changes as long as we do it here in the public hearing. In this case what we would like to do is go back to the title of Recommendation No. 12 because there's sort of a repeat here, Review of AMS System Records.

AMS stands for Atmospheric Monitoring System, so the word system here is superfluous, and we are recommending that we eliminate that from the title. Now, I suspect that this will not involve a great amount of discussion. Is there anybody who has any reluctance to do that at this point in time?

DR. TIEN: No, but I do have a question on the clarification you talked about earlier. Can we go back to revise on the voted recommendation or just the wording of it?

DR. MUTMANSKY: Yes, we can go back and revise any recommendations if there's a good reason for doing so. In this case it's just a minor point, but I think it's worthwhile making this correction and calling this Review of AMS Records. Everybody in favor of that?

ALL: Yes.

DR. MUTMANSKY: I won't call for an individual vote. It's a unanimous vote. We're in favor of that change. Okay. Thank you. The next

recommendation is called AMS Operator Training Verification. Who is going to present the supporting argument for that?

MR. MUCHO: I am.

DR. MUTMANSKY: Tom. Okay.

MR. MUCHO: Okay. I'll read it first. The panel recommends that MSHA commence rulemaking that would require the qualification and certification of miners who train to be AMS operators as defined by § 75.301.

The panel in its review of mine emergencies -- and most notably Aracoma jumped out at us, I know there have been others -- when you look at the actions or non-actions and how critical they were of AMS operators raised some flags to us, that is we really questioned whether we can be assured that AMS operators have sufficient training to unequivocally handle mine emergencies.

The panel believes it's imperative that AMS operators have background, experience, training and authority to ensure that proper actions are taken in response to all AMS signals including alerts, alarms and malfunctions, to provide the utmost assurance of safety of all affected miners.

Now, under 351 we define AMS operator

duties, 352 defines the actions and response to AMS malfunctions, alerts and signals and under 351(q), training requires that we train AMS operators annually. That's all well and good with 351 and 352 providing a lot of course of material to train operators and a training provision being to make sure they understand the operation of the AMS system.

The problem is however requiring training and being assured that the training was received and understood can sometimes be two different things. When we look at how critical an AMS operator is, and of course in some cases the AMS operator is also the responsible person under § 75.1501, it becomes very critical that those actions early on are correct, so we think that MSHA should establish a plan for training, certification and recertification.

One of the footnotes here is that when we look at mine safety one of the things as a basic building block has always been certification and qualification of people, whether it's as a miner, or a shot fire, or assistant mine foreman, mine foreman, mine examiner, what have you, that's what we've done.

There's been requirements sometimes we put in for those various positions, requirements on where that experience is, and it's basically because we feel

we had to know that these people were qualified to do the job and we need to know whether they in fact understood the things that they've been trained in during that process or educational process.

So that's a basic building block of safety. Now, AMS operators when we look at them and look at their key role in safety, and a little bit can be said the same way for the responsible person, certainly seems obvious that they should be qualified and it certainly seems obvious that somebody ought to certify that these people understand and have that knowledge.

The same might be said for the responsible person. We make a comment in our write up about that, and we got a comment back from one of the reviewers: Are we recommending the responsible person be also qualified and certified? The answer to that out of our subcommittee was well, maybe. It's something that ought to raise a flag. Might be outside of our belt air, belt flammability issue, but somebody that plays that key role in the safety system following the history of mine safety, maybe they should be certified and qualified.

One of the things we also talk about in the discussion is that we feel that the AMS operators who are normally underground, as part of the training

recommendation we said that we think that they ought to spend at least one day semiannually underground to familiarize themselves with the underground environment, the mine infrastructure, practices, those sorts of things.

So that kind of sums it up why we think somebody ought to be certifying the AMS operator, qualifying them.

DR. MUTMANSKY: Jim?

DR. WEEKS: The way it reads it pertains to qualification and certification of miners who train to be AMS operators. You mean to limit AMS operators to be miners, and if it's not then it would seem to be appropriate to talk about the qualification and certification of AMS operators because the two AMS operators that we saw in fact were not miners.

MR. MUCHO: That's correct.

DR. BRUNE: Jim, both of them were miners. In fact, they were mine foremen.

DR. BRUNE: Yes, right.

MR. MUCHO: The Aracoma case and the one case, that fellow had, what, two months of surface experience.

DR. WEEKS: So anyway, did you mean to limit it to miner?

MR. MUCHO: No. That began with some comment on wording, and that's the one I chose and put in there. It was not that intentional.

DR. WEEKS: All right. I would recommend certification of miners who train to be as just certification of AMS operators and delete, yes, all of the rest.

DR. MUTMANSKY: Everybody okay with that? Tom, in the early discussions of AMS operators, there were people who said gee, I didn't realize the AMS operator would be somebody who didn't have mining experience. Has your subcommittee discussed that problem and come to this conclusion that they do not have to be experienced miners?

MR. MUCHO: Well, that's where we talk about qualification, and the expectation here is that MSHA would take it on themselves to say what qualifies them. We had arguments pro and con, and Jim raised the argument that if someone was a good communicator, et cetera, that's more important than maybe having mining experience.

My opinion personally is the person doing that position ought to have some mining experience, at least enough to understand what's in place, what the people they might be telling things to do might be

encountering, where that's going to be encountered. So I think they ought to have a minimum of some basic background, but basically we were deferring that to MSHA to figure out what qualifications someone would need. So we didn't get that specific.

DR. WEEKS: Yes. There's no question that it's an asset, but I don't think it's an essential feature of it. The way that they dealt with that problem at one of the mines that we visited in Utah was that the AMS operator, I guess by company practice they took her underground at least once a month, and I don't know where they went or what they did, but that was their way of dealing with things, to see what it looks like.

MR. MUCHO: Yes, and that can be a way of handling it. That's why we specifically mention one day at least every six months kind of a thing. But, yes, again, probably a couple different ways to look at that.

DR. MUTMANSKY: I would hope, also, that MSHA might require that the person would periodically walk an escape-way just to know what they're like. Might be worthwhile. Just my thought.

Jerry?

DR. TIEN: Would add any basic requirement

like a year mining related jobs make any difference or they can be 15 year old and just came on job? I'm trying to make an extreme case.

MR. MUCHO: We're saying that in our recommendation or write up really that kind of what their qualifications need to be we were really deferring to MSHA. Yes.

DR. BRUNE: I think we're making a clear distinction. There's two elements. There's the element of qualification where the person has to be able to do this job by his or her very knowledge and experience and the certification is the assurance that somebody has tested this person and found that this person was indeed of sufficient knowledge and capability to render that job.

There's two elements to it. Not just qualified but also certified.

DR. MUTMANSKY: There were two other issues that came up during our mine visits, Tom. One is the fact that most of the AMS operators were working 12 hour shifts. Has your committee discussed that issue?

MR. MUCHO: Yes, we did. I'll think about where we went. I can recall some of my comments. One of the things that was proposed was well, AMS operators ought to be limited to AMS duties. Well,

where these AMS operators came from was in general whereas they did other things at the mine before they became AMS operators.

Many of them were dispatchers, for example, or the outside responsible person, and so then the mine for whatever reasons, using belt air or whatever, decided they were going to have AMS systems Jürgen became the AMS operator. So it was really a duty that was added on to in most cases a person already existing and had other duties.

So when you start to try to limit their duties gets a little tricky. I mean, there are some like, take tracking absenteeism and some things like that that you have to kind of wonder about as whether those are a good assignment of duties, and working long hours and the total job that they're doing.

Something needs looked at, but I don't think we could think of how you'd look at what's the workload, how long do they work? We just couldn't come up with anything.

DR. BRUNE: Yes. There certainly doesn't seem to be a clear evidence that somebody who is doing this job for in 12 hours shifts is less capable than somebody who is doing it in eight hour shifts. I don't know if there is any research to that effect and

if we can come up with something, but in order to form a well-reasoned opinion by this panel it would be necessary to have at least some background to point to.

I'm not sure if there's any such information out there.

DR. WEEKS: Well, there is a body of research, I can't put my finger on it at the moment, that shows that people that work long shifts are more error prone, particularly towards the end of the long shift. It doesn't pertain to mining, it's hospital work, for example, truck drivers and some others. So there is an issue there, and we might suggest that MSHA limit the work shift to eight hours or something like that. At least they take it into account and not just say you're going to work the same shift as everyone else, which is 12 hours.

DR. MUTMANSKY: I can remember reading research, also, at one time that basically said that engineers were not particularly good at this kind of a job, and it's just simply because of their personality and characteristics made them impatient and not as reliable as somebody who had a different type background. It's interesting that they would come to this kind of a conclusion, but nonetheless, that was

not a mining related issue, it was a different industry.

Felipe, were you going to say something?

DR. CALIZAYA: Yes. I have a couple of comments here. The first thing has to do with workload. I think when we were in Birmingham we had at least one guest who mentioned specifically this point. He said they were overwork, and I think that was kind of a complaint really. I think it's worth to consider that. I don't know if we can associate this job with air traffic controller, for instance, just considering the risk factor, all right?

Maybe we can emulate what they do there. Do we need one person or do we need two different people there? That one has to do with the type of goals they get. In case of emergency you have one drinking here and there, some of them are really low priority calls, and there must be some way of filtering out those. I don't know if that's also on our list.

DR. BRUNE: I would say typically in an emergency once the emergency arise and has been called to attention by the person that is the AMS monitor, at that point the operator would typically have somebody else assisting the monitor and the operator with fielding calls and things like that because I agree,

at that point it can get overwhelming.

What we might ask MSHA to do is look at how 911 operators or other people in similar situations work, whether they work 12 hour shifts and whether there's any background research. We could certainly do that and ask MSHA to look into that.

DR. MUTMANSKY: Well, one problem I think that is not addressed in your recommendation is this problem of multiple duties interfering with the emergency duties. I believe that the comment came up early in our data gathering that there had been a problem at the Jim Walter Resources Mine in the year 2001, is it? That right? The year 2001 during their emergency there.

The AMS operator was answering calls from outside the mine at the time of this emergency incident, and there were mistakes made during that process of evacuating people from the mine and that may have resulted in more deaths there than would otherwise have occurred.

The question is why was that AMS operator answering telephone calls about the accident at a time when they should have been paying all of their attention on making certain that the proper decisions were made and that people were evacuated in an orderly

manner? So I have a fairly high desire to see something more definitive put into the AMS operator training statement here that would satisfy that problem. I would just simply ask the subcommittee if that's a possibility, that they would alter this statement?

DR. WEEKS: Didn't we write a recommendation to that effect? I thought we did, basically that the AMS operator should do AMS stuff and not all this other stuff. I thought we did.

MR. MUCHO: No. We couldn't resolve it so we left it as it is here and then we had some discussion. We just avoided the issue because it's a tough issue. Come back to Jan's comment, been involved in a number of mine emergencies and part of the problem is that when you have a situation like that the workload exceeds more than one person.

It's exponential in terms of time, the way it goes up. For example, the Jim Walter thing happened as I recall on an idle day. If things happen on a day shift during the week usually there's people around that can pick up a lot of the many duties that start to need to happen.

If you recall there's been a lot of comments about the 15 minute notification duty and letting

MSHA, and the state and you all know about it within 15 minutes and so on. That's all these kinds of things that interfere. It really takes multiple people. If it happens on an idle day they're not around. That's just the reality.

I mean, there might be some way you can prioritize. I mean, first thing they should be doing is notifying the people underground and giving them directions on the actions they should take. I would think that would be the first thing. This is a hairy issue. There's no easy answer here. Believe me, one person can't possibly handle what's going on in there.

DR. WEEKS: But at the least we could say something like the AMS operator should, I mean, their first priority is operating the AMS system, it's not calling out for pizza.

MR. MUCHO: Well, it's reacting to the AMS system, right? The AMS system is going to give you a certain number of alarms and then their first duty is to react to it. That's what I'm saying. What I would interpret it as to, notify people underground as to the situation the best that they know it based on the data they're looking at.

DR. WEEKS: Well, we don't have to specify exactly what it is, but that's the person's top

priority is the AMS system itself and dealing with that.

MR. MUCHO: Yes, but, for example, there is a requirement that I will notify MSHA and so on at certain times.

DR. WEEKS: But that's not that person's responsibility.

MR. MUCHO: It might be.

MALE VOICE: Who's going to do it?

DR. WEEKS: Somebody else. I don't know.

DR. BRUNE: No. Typically it's the shift foreman or the highest ranking operator representative --

MR. MUCHO: The responsible person can be underground. You may not even be able to get a hold of him. That's been another issue in other situations.

DR. MUTMANSKY: Yes, but, Tom, when we were at Aberdeen Mine it just occurred to me as I was standing in the AMS operator's room that this person would have to have the responsible person make important decisions, and it clearly can be a serious problem for them. I asked the operator there, it was a young woman, if she would call the responsible person.

She did and got an immediate response or nearly immediate. But the truth of the matter is the AMS operator does have to deal with that responsible person unless they are the responsible person. There's a number of different problems here all coming back to how effective is the AMS operator under a variety of conditions, each one being somewhat slightly different?

Either they are or they are not the responsible person, either they do have multiple duties or they don't have multiple duties. I suspect in most cases they have multiple duties.

DR. WEEKS: Well, notifying MSHA is arguably part of the -- if the AMS operator is the only one around and she's the one that knows what's going on with the emergency then notifying MSHA arguably is part of her job, so I don't see it as distinct from. I mean, we don't care about the system. The system is merely a means to manage an emergency. It's the emergency that we're interested in covering, and the system is a tool to do that.

Part of the managing of that emergency, well, it's not only calling MSHA it's calling whatever manager or top-ranked person is not there saying you better get over here, we've got a problem. So I don't

see that as a conflict. I mean, the conflict was saying that running the AMS system is that person's top priority.

MR. MUCHO: I guess I'm not following the terminology, Jim, running the AMS system. I mean, ongoing is reacting to alarms and alerts. Maybe I acknowledge an alarm or --

DR. WEEKS: They're not passive. The whole purpose of looking at the alarms and alerts is to do something, you know?

MR. MUCHO: All right. So I get a whole series of alarms that pop up on the screen now, bang, bang, bang, bang. As the AMS operator I'm not the responsible person. I've got to try and get a hold of the responsible person who may be underground traveling around somewhere. Depending on what those alerts I might have some interpretation as to what I think the problem is.

If I get multiple CO alerts on a belt line I might suspect a fire, if I get over a large area I might suspect an explosion. So now I'm going to try and get a hold of company officials, state officials, and this person underground as well as try to get the crews underground or people underground to be alert to what the situation is and what the action should be.

I mean, this is all right now I've got to do that.

DR. WEEKS: It's a lot to do, and you've got to do it all. I mean, it seems to me the first thing is to be to call the people underground, tell them we've got to do something about this.

DR. TIEN: Well, that's what the training is all about, right? She's supposed to handle all the events happening at the same time, then prioritize which one's first, and the second and the third. So I'm with Jim that somehow I don't know if we should have some kind of a --

MR. MUCHO: I agree, and I think there are answers to this and answers which most people would say common sense, but this needs done. Somebody needs to do this and do things. I'll give you another example. When we look at these mine emergencies one of the common things you see is people not putting on their SCSRs.

Now, I think there ought to be a hard and fast rule in the mining industry that when I see smoke I put on the SCSR. But yet that rule is not there, and that's not what people have done and it's led to problems. So I think there are some things that can be said and done, but they're not sitting out there anywhere where I can pick them off the wall and say

here's *A, B, C, D, E* down the line as to what to do, okay?

DR. WEEKS: I mean, I wouldn't be in favor of a rule like that because the reason that people don't put them on is they want to conserve the air because they don't know how far they have to go.

MR. MUCHO: And that's a bad decision. That's a bad decision.

DR. WEEKS: Well, I think it depends on what's going on. I'm not saying it's a good decision, I'm saying that's I think the reason --

MR. MUCHO: Yes, that is the reason. Yes, that is the reason. I'll save it, I don't need it right now, it's just a little bit of smoke. I mean, that's the rationale.

DR. MUTMANSKY: Tom, I'm a little bit in the dark as to what authority the AMS operator really has. Let's assume you're an AMS operator at a coal mine. Some of your CO monitors or sensors are indicating CO, and there's more than one sensor going off and this is indication to you of some problem, so you call the designated person or, excuse me, the responsible person and that person is not available.

What does the operator do under those conditions? Do they have authorization to start

calling sections?

MR. MUCHO: Not any authorization, they have a requirement to start evacuating people. When two successive alarms go off on a belt line, it's my understanding by the law they need to pull those people out-by the alarms. In that kind of a case they don't need to contact the responsible person, they just need to take that action. They know what action to take, and they need to take it.

DR. MUTMANSKY: Okay.

MR. MUCHO: But there are other variables depending on what the situation is. You're talking about as you pointed out.

DR. MUTMANSKY: Sure. Okay. All of a sudden we have a little bit of what I would call uncertainty here.

MR. MUCHO: It's a tough issue. If it could be figured out easily it would have been figured out a long time ago is the problem.

DR. WEEKS: Suppose we added language in here that said something to the effect that operator's top priority is operating the system? That implies you don't take people calling in for absenteeism, or calling out for pizza, or anything that's totally unrelated to safety. We're just saying that's their

highest priority.

We don't have to interpret it, we don't have to explain it, we just have to put it there.

MR. MUCHO: I think that would work. I mean, and what we're saying by that, if an alarm or whatever comes up with the system there their sole responsibility is to react to that.

DR. WEEKS: I wouldn't limit it to when an alarm comes up. A person could be distracted, the alarm, and they miss it, you know? It needs to be their top priority period at all times.

MR. MUCHO: Alarm stays there until they acknowledge it though.

DR. WEEKS: Yes. Okay. I agree.

MR. MUCHO: Yes. I say they can't run out for a pizza.

DR. WEEKS: Yes. So I wouldn't qualify this saying only during an emergency. I think at all times it's their top priority.

MR. MUCHO: Yes, I agree.

DR. MUTMANSKY: What happens typically when a person who is the AMS operator needs to leave for a few moments for personal reasons? Is there somebody standing by who just simply takes over?

DR. BRUNE: Well, from my experience, that's

just he or she takes a break and then gets back. I'm not sure if the need is such that the person can't be away from the phone and the system for a minute or two. Typically they have bathroom facilities right there, and they have their lunch right there, so it's not like this guy has to walk across the yard to satisfy personal needs.

DR. MUTMANSKY: Yes. Okay.

MR. MUCHO: I've seen a different system. In cases where there are other people around sometimes somebody will sit in. If there's a lamp man whose job is not the AMS system then he might fill in while those kinds of things. Then of course there's the remote alarms so that if they're off somewhere they hear remote alarms.

So it's a few different variations depending what's around.

DR. BRUNE: Nowadays I've also seen them take cell phones or take wireless phones with them to go to the room next door because they would still be able to reach them by phone.

DR. WEEKS: I want to propose some language here so we can move this along. After that I suggest putting in the highest priority of the AMS operator shall be operating the AMS.

DR. BRUNE: Yes. I think that's a good one.

DR. MUTMANSKY: Jim, in this particular case if we're going to use this kind of a sentence why don't we just simply say is responding to the AMS. Would that be acceptable?

DR. BRUNE: Well, there's operating, there's also other elements of operating like record keeping and not necessarily responding to it, but after. She has to make sure that the printer has enough paper to record the alarms and things like that. Those are care and feeding of the system.

I think this last sentence also addresses something that is, and I've been meaning to throw this wrinkle into the discussion, what if you have a small mining operation that consists of eight people that work on a section underground and perhaps one person on the outside that is the lamp man, and the supply man, and the outside phone contact and --

DR. WEEKS: The owner or the bookkeeper.

DR. BRUNE: Yes, right, right. He or she does everything else. I mean, I'm not sure if you can require for a small operation like that to have a dedicated AMS operator.

DR. MUTMANSKY: Well, the small operator wouldn't have an AMS system. I think that's probably

--

DR. BRUNE: Well, if they ventilate to the face then they have to have per regulation an AMS system. But then again the AMS system in this case would not be merely as complex and contain as many sensors and system components as in a large operation.

DR. WEEKS: Yes. This says the highest, it doesn't say the only.

DR. BRUNE: Right. I'm saying that in support of your sentence there.

DR. WEEKS: Okay. All right.

DR. BRUNE: That allows for some room for judgment.

DR. WEEKS: In Utah one of the other things that the AMS operator did was as people went from one zone of the mine to the other they would --

ALL: Dispatcher.

DR. WEEKS: Is it dispatching?

MALE VOICE: Dispatching.

DR. WEEKS: It was a tracking system, and that's a safety related matter.

DR. MUTMANSKY: Yes, it is.

DR. BRUNE: And in my opinion it only makes sense for the AMS operator to do that function because that way he or she has immediate information as to

where these miners are located and where they can be called in emergency.

DR. MUTMANSKY: Correct. That makes perfect sense. Yes. And in Utah, I believe this is correct, they were also answering the mine phone and in some cases answering the outside telephone as well. There were functions all the time. In some ways if you're going to work a 12 hour shift it would be better that you're busy for 12 hours than just sitting there because you're liable to fall asleep if you're just sitting there, so it's not all bad.

I was impressed by the AMS operators at the two mines in Utah. They both were women, both knew really what they were doing and could multitask very, very well. That was very impressive I thought. I still think that doesn't mean there aren't problems, though. I think there are problems, and it would be nice if we could somehow come to the proper wording on this to make the AMS operator perhaps more effective in some situations.

First of all, let's just discuss the final sentence there: Highest priority of the AMS operator is operating the AMS. Does anybody have any reluctance to support that part of the recommendation?

(No response.)

DR. MUTMANSKY: Okay. Is that good enough, Jim, do you think? Is it good enough to say it that way? We had earlier talked about having an easy button that the person pushed, and all these outside phone calls would cease and they would just pay attention to the emergency at hand. Maybe that's not very practical or maybe that's not the best way of doing it.

DR. WEEKS: Well, in the discussion section we could go into a little bit more of a nuance discussion of what the issues are not only about this but also about the hours of work issue. I think we should. I mean, I don't think we're in a position to say they should only work eight hours.

I don't think we know enough, et cetera, to do that, but I do think we ought to raise the issue and say there's a potential problem here, we may have to deal with it in some way. I think we can do that in the discussion.

DR. MUTMANSKY: Okay. All right. Yes. Felipe, go ahead.

DR. CALIZAYA: I have a question about that. My question is about training and verification. Could ask that think at one point we mentioned maybe the training should be done by a consultant and the

certification is by MSHA or something. The main point that I want to make here is about the evaluation.

Doesn't show up here. Maybe it's in your discussion.

MR. MUCHO: Evaluation?

DR. CALIZAYA: Evaluation of training.

MR. MUCHO: That's the certification process.

DR. CALIZAYA: Well, certification is something else.

MR. MUCHO: By certifying some sort of testing procedure to see that people understood the training, understood what they need to do given whatever situations, and whatever background and given that they understand the operation of the AMS system itself.

DR. MUTMANSKY: Tom, early on I remember in our discussions somebody had suggested that the AMS system manufacturer should be the right person to test the person. Is that still our thinking or is that not our thinking?

MR. MUCHO: Well, if you recall some of that discussion in some cases that's done, in some cases it isn't. In training plans the operator submits a training plan to MSHA which MSHA then merely approves

the training plan. How that's accomplished, whether it's done by AMS manufacturers, whether it's done in-house where they bring in some consultant, I really don't think that's anything we ought to be touching.

I mean, it needs to be done, they need to know how to operate the system, they need to know what to do when they get alarms, but for us to specify or talk about how that should be done, I think we're way afield if we get there.

DR. WEEKS: I mean, I think as a matter of fact every one of these systems is custom made, and the manufacturer has to be involved in the training. I think it's just inescapable.

DR. MUTMANSKY: Jürgen, you were going to say something?

DR. BRUNE: Yes. I just to throw in, Felipe, if you think about certification of mine foremen or fire bosses those are typically certified by the state and not even by MSHA. MSHA only certifies the testing for gas. MSHA has in the past and I guess today still accepts the certification that the state issues for mine foremen and fire bosses.

So it's not up to us to recommend that one does it better than the other or so. I think that's something that MSHA and the state need to work out.

DR. MUTMANSKY: Tom, there's one other thing. Should we call this AMS Operator Training Certification instead of Verification?

MR. MUCHO: Yes. We say certification down below. Again, this is one of these cases where we've been all over the place with words, and wordsmithing and mishmashing.

DR. MUTMANSKY: Does that look good? Does that look all right to you?

MR. MUCHO: Yes. That works.

DR. MUTMANSKY: Okay. Yes. Jerry, you were hoping to say something?

DR. TIEN: Yes, yes. I'm still trying to come in. Along the conversation Jim and you are talking about you remember three of us when we visit those two Utah mines the manufacturers actually not only in the training business but they also supply. There's a financial -- in other words, they're paid. I think they're on the manufacturers' payroll. Am I right to remember that?

DR. BRUNE: I believe the way that works is when the mine operator installs a system the cost for the installation also includes the cost for training by either representatives of the manufacturer or contractors that do that for a living.

DR. MUTMANSKY: That's my understanding, also. However, they were employees of the mining company, they were not employees of the manufacturers of the AMS system. I believe that's correct. Could be wrong on that.

DR. TIEN: Jim, what do you remember?

DR. WEEKS: Well, my memory is not sharp on this, but at some point, there was someone significantly involved with the AMS system that was a contractor and in fact was not an employee of the mine operator, but I don't remember exactly how it came down. I don't have any real problem with that.

I mean, personally I think the person should be an employee of the operator so that loyalties are unambiguous, but I honestly don't remember.

DR. TIEN: Well, that's really beyond the charge of our charge.

DR. WEEKS: Yes, right.

DR. TIEN: We're going to figure out how to do that later on.

DR. BRUNE: The other thing with respect to training is that there's typically two components of that training. One is the technical training as to how to operate and how to interpret the readings, how to operate the system, how to put new paper in, how to

do those things. The other one is the operator specific procedure as to what to do in case of an alarm, and who to alert and what process to follow.

So there's two distinctly different and specific elements of that training.

DR. MUTMANSKY: That's true, that's true, and each individual company may have different procedures based upon who the responsible person is.

DR. BRUNE: Right.

DR. MUTMANSKY: That's another difference.

DR. BRUNE: Yes.

DR. MUTMANSKY: Okay. Well, this was a very simple straightforward recommendation, and we've spent a lot of time talking about it but I think it's important to clarify all aspects of the recommendation. At this point in time is everybody satisfied? Do we need more discussion at this point or are we ready to plunge into the voting process here? Do we have the right words? AMS Operator Training Certification.

The panel recommends that MSHA commence rulemaking that would require the qualification and certification of AMS operators as defined by 30 CFR § 75.301. The highest priority of the AMS operator is operating the AMS.

DR. TIEN: Do we need a comma before as?

DR. MUTMANSKY: Comma where?

DR. TIEN: After the AMS operator in the middle sentence, middle page.

MALE VOICE: You were suggesting taking it out.

DR. MUTMANSKY: I think it probably can be taken out. Does anybody have a contrary thinking about that?

MR. MUCHO: Take it out.

DR. MUTMANSKY: Okay. This is our final wording now. All right.

Felipe, you vote first.

DR. CALIZAYA: Yes, I agree.

DR. MUTMANSKY: Jim?

DR. WEEKS: Yes.

DR. MUTMANSKY: I vote yes. Tom?

MR. MUCHO: Yes.

DR. BRUNE: Yes.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: Everybody votes yes. Okay. Thanks. Thank you for working through those minor points that we had to work through.

DR. WEEKS: Just as a compulsive measure of

productivity we spent about two and a half minutes per word on that.

DR. MUTMANSKY: Thank you for that statistic, but I want you to know, Jim, that we are ahead of schedule and we're doing very well at this point in time. It's almost 4:30. At this point in time we might want to poll the group here. Let me just know how many more recommendations we want to take today.

Should we take one more and quit or should we keep working? I think as far as AMS operators' shifts are concerned we're only halfway through the shift, so we could go much further. However, it seems as though because we're very well on schedule and we're doing very well my suggestion would be we take one more today, okay, and then call it quits.

DR. TIEN: How long is it going to take?

DR. MUTMANSKY: How long is it going to take? How many words are in that one?

DR. WEEKS: Yes, I agree with that. I would be reluctant to go much farther. I mean, I've got some homework to do tonight, and seeing as we are making pretty good progress I'd like to wrap it up here soon so I get on with it.

DR. MUTMANSKY: Do you want to take this No.

14, Escapeways?

DR. WEEKS: Yes. No, I think it's fine if we can deal with this.

DR. MUTMANSKY: All right. This particular one is on escapeways. It's No. 14, and it's going to be presented by Felipe, right? Felipe?

DR. CALIZAYA: Okay. I will start with that description. I think you all have that one. What I would do before I go into details of this, I want to show you couple slides. This is pretty much the same thing, the same description, primary and alternate escapeways from working faces ventilated by -- what I'm trying to say here is escapeways should be built, designed, constructed to maximize the possibility of escape.

They should be ventilated with intake air preferably. Now, here there are a couple of terms I should say that need to be stress. One is the fact of maximizing the possibility of escape. That means really shortest path from working section, working area, to surface, to exit. The second one deals with ventilating with intake air.

Next slide, please. So that's what I'm highlighting here. Escapeways should be located to follow the most direct safe route from working section

to surface. These passageways should be effectively separated from each other and from other entries by permanent stoppings, doors and overcast.

Now, I have a couple of slides that shows this. This is a mine in the western states. You can see the length of panels in order of 10,000 to 12,000 feet. The width is 300 to 400 feet. On one side you see the mains and then the pilot mine on the other side while most of the access is through the mains, so there you can see more than five panel increase for main entries and that splits into the workings.

Now, what we are after, let's say that we are working in that long-wall section, we really need primary and alternate escapeway from the face all the way to surface, so in each case we have at least one primary escapeway and one alternate escapeway. Now, hopefully if they are both ventilated with fresh air then there is good chance to go to safety.

Now, the problem that I highlighted here is that the fact of going from the working face all the way to surface we have hundreds of stoppings. We have stoppings cross-car, we have stoppings overcasts, doors, and those stoppings, if they are not built of the right material or they're not built using the right technique they will cause leakage.

When we say this entry should be ventilated with fresh air vent we are saying that they have positive pressure, and therefore, if there is any leakage it will be from the escapeway towards other entries. Next slide, please. In this example we are showing the way how a development heading is ventilated.

In the first slide you have the intake, which is also the primary escapeway, and the belt is the secondary or alternate escapeway. That's the neutral belt system. If that's the case, if there is any fire in the belt entry then the firefighters are on the return side, and that's one of the drawbacks of that method, whereas if we change that to a system shown in the second diagram the belt air increased use for intake then we have two advantages here.

The first one is that both escapeways are ventilated with clean air, fresh air, and if there is any leakage between the primary and alternate escapeway it's not really a major problem because they have both positive pressure, so that's one advantage. In that case, if there is any fire in the belt entry then the firefighters, they have the right ventilation.

That's one point about this type of

ventilation regarding escapeways. The next slide, please. This one shows ventilation of the escapeways for the long-wall section. Now, again, you can see the same ventilation set up intake and belt. They're both ventilated with fresh air.

Now that's one issue. The other issue is to keep those entries, both escapeways, in good condition. That means good maintenance. They should be travelable and in safe conditions at all times. Then I'm suggesting there, that was one of the discussion points, to keep these ones free of dust. That means good maintenance.

Next. Now, what are the potential problems? The potential problems are that when the water cans or the sections are away from surface then we said we have hundreds of stoppings and but something else we have to mention here, the fan's main pressure sources are located on surface, whether they are exhaust systems or they are blower systems.

There will be places where we will need stoppings and doors. If the stoppings and doors are not in good shape, especially the ones that are close to the main vents they are subject to high pressure differentials. If we have high pressure differentials every time when we have doors they are safety hazards,

especially if they are in the order of two inch or above two, three, four inches.

We are talking about high pressure differentials. In this example I'm just showing one case where the door is -- you can see in that diagram the location of the doors and the location of the stoppings. Next slide, please. This is one example that shows one equipment door. This may be near the main vents, okay? If we have single doors like this they are source of leakage, and they are also sources for potential accidents.

No matter whether this is pneumatic or manual pull switch type they are subject to high pressure differentials. Now, in many cases like this we should be thinking air-lock doors, two doors that are operated in a synchronized manner. Next. This one shows personnel door. Again, if those doors are located very close to the main vent they are subject to high pressure.

Next, please. This slide shows the location of an airlock door, well, an air-lock door near the main vent. You can see on top what I meant by air lock doors. If we have equipment doors then we need to have two doors in permanent stoppings. If we have a manned door the manned door may be of the kind that

I have to the right.

The point that I want to make is that where this two inch come from. When we have two inch pressure and we have a door which is four by four feet in size then the area is 16, and that means two inches is equivalent to 166 pounds. Half of that, maybe it's 100. We can say it's 100 by the hinges, but the other half should be handled by the operator.

Now, if we're in an emergency, we're trying to go from primary escapeway or from alternate escapeway to primary escapeway then we need to go through these doors. If we don't have this air lock system then we will be struggling with the doors. If that's the case we may lose precious time by doing that, and sometimes we will get into accidents.

From that point of view I said every time when the pressure is above two inches we need to have an air-lock system. Now, this two inches is subject to discussion. In some mines they use one, in other mines they use three. It's really up to us to recommend or to come up with one number that makes sense.

Eighty-three pounds, I think nobody here can pull a door that has that much pressure. Okay. I think those are the major. This is the next one.

Those are the supporting elements for that recommendation.

DR. MUTMANSKY: Okay. We open up this recommendation for discussions.

MR. MUCHO: I'm not sure how hard we're recommending that, but that pressure should be in a pressure over area rating such as PSI than specifying doors, door sizes and what not. Get's a little difficult when you start talking about two inches of water gauge, for example, and a four by four door. A lot of doors aren't that size and I don't know what that means.

DR. WEEKS: It's certainly easier to convert when it's in PSI.

DR. MUTMANSKY: Well, the standard of ventilation pressure is in water gauge, so that's just natural to express it in that way as well. So, Jürgen, you were going to --

DR. BRUNE: I think the point that Tom is making is not all doors are four by four doors. In fact, if you have a door in a main entry escapeway I believe it has to be six feet wide because you have to be able to go through with a person on a structure where typical doors in at least the eastern United States coal mines are only two by two foot.

And you can open a door that's two by two foot fairly easily even if it has probably up to five, five and a half inches of water gauge. That's when you start having trouble opening those. Typically those high pressures you only encounter near shaft bottoms.

So if you make the door smaller, which in most cases is certainly possible, then -- I would personally not go to any prescriptive regulation here or recommendation that says when you have more than two inches over doors you have to build double doors, something like that. I'm not sure if we need to go there as a panel.

DR. CALIZAYA: Couple of comments. When Tom mentioned about PSI --

MR. MUCHO: Pounds. Let me correct that. I was really looking at pounds of force.

DR. CALIZAYA: Okay. In fact, what Jim said is correct. Inch water gauge is the one that we use in ventilation. And PSI would be very, very small number. Regarding the size of the doors, yes, our current regulation talks about sizes, talks about five feet or six feet minimum height and the width is about four feet, except we have some exceptions there when you have support system and so on.

In any case, we are talking about doors that are in the order of four feet by four feet. Small doors we may have some cases, but the ones that I showed they were three by four. That's the size that I saw most of the time.

DR. MUTMANSKY: I was unaware, but I think most of the eastern mines do use the two by two.

DR. TIEN: Two by two.

DR. BRUNE: Either two by two or 33 inches square.

DR. TIEN: Probably, you're talking about the western coal mines, the coal height is such you can afford build four by four. When the low coal you don't have even four feet, so let alone a door.

DR. CALIZAYA: The point here is we are talking about escapeway doors, all right, in case we had someone injured and we are carrying that injured person with us. According to the regulation the escapeway doors should have this minimum space so that this injured person plus the two other workers that were carrying that person will go through.

DR. BRUNE: Felipe, I don't disagree with your argument fundamentally.

I think it is right to make the argument that it must be possible for a miner with reasonable

strength to travel the escapeway without any trouble, and I would contend that during the escapeway workings that the miners are doing currently every month or so, every crew member has actually to walk the escapeway all the way out, I think during that time it should become apparent whether these miners can open the doors very easily or not.

I think we should rather say that all doors should be able or should be possible to open all these doors with reasonable force and an average miner should be able to do that rather than being so prescriptive as to say if it's more than two inches water gauge we should have double doors, something like that.

I'm just trying to simplify the argument here, but I fully agree with making certain that the escapeway can in fact be traveled even by a person without any other help.

DR. MUTMANSKY: Okay. Jerry, you want to say something?

DR. TIEN: Yes. I'm looking at the two sentences over there, and the second one is in a way pretty prescriptive. Got to be ventilated by intake airway, or preferably anyway. It's definable. The first one is pretty wide open. I don't know if should

we be a little bit more specific or that's not the place for it?

DR. MUTMANSKY: What do you want to be more specific about?

DR. TIEN: I don't know. I'm just looking at it. I don't see much there. Or can we make it more specific?

MR. MUCHO: One of the things I see about it is how is that not covered by current regulations and so forth. I mean, some of the language was exactly the same in terms of maintenance and so forth, design.

DR. MUTMANSKY: I think that's an important point, Tom. Question is if you don't like this particular expression of the escapeway recommendation do you have a recommendation other than this?

MR. MUCHO: I'm guessing that the crux of it is that we're recommending that preferably they be on intake air. Is that right?

DR. MUTMANSKY: As it currently reads you could interpret it that way I guess.

MR. MUCHO: I don't have a problem with that.

DR. MUTMANSKY: I would like to bring up a new subject that we haven't yet brought up, and that is in some of the recommendations that our

subcommittee brought forward there were comments from the MSHA personnel that it seems as though the problems alluded to here are already covered in our regulations and therefore they bring into question those particular recommendations.

Now, one of the things that we could consider here is is this recommendation necessary, that's one of the things we can consider, or is it necessary but needs revision, or number three, is it essential? We can consider any three of those, okay? I do believe escapeways are pretty well-covered in the regulations. The question is what do the rest of you think?

DR. BRUNE: Well, my question is do we have evidence from previous accident investigations to the effect that escapeways were not properly designed maybe excluding not properly marked, but has there been a problem with the escapeways that they were obstructed or that were improperly designed? Is there something that we want to address in that respect to say hey, let's pay more attention to this?

DR. MUTMANSKY: Well, Aracoma is definitely a --

MR. MUCHO: Outside of marking.

DR. BRUNE: I mean, marking is one thing,

but that's not really addressed here because --

DR. WEEKS: No. There's also ventilation in Aracoma, it wasn't just marking.

MR. MUCHO: Well, yes, that's true.

DR. MUTMANSKY: There were a number of problems there at Aracoma, yes. Okay. Nonetheless, we still have it before us, and we're still considering it and we still have to make an assessment of whether it's necessary, or whether it's necessary but needs revision, or do we want to eliminate it? That is the question.

DR. WEEKS: Felipe, what does this do that the current regs don't do?

DR. CALIZAYA: Well, about the second part should be ventilated intake air preferably. That one is not stated there. Here, we are suggesting that both primary and secondary escapeways should be ventilated with intake air. That has to do a lot with the next section which deals with leakage.

If we have fire in the belt entry and those stoppings or doors are not in good condition then there is a possibility of contaminating the primary intake with the smoke that's generated in the belt entry.

DR. BRUNE: Would it be a solution to

consider this No. 14 in conjunction with the next one, and maybe we don't want to go into that today, but maybe take the relevant portions of 14 and 15 together and formulate them as a coherent, new recommendation. Would that be something that you would entertain?

DR. CALIZAYA: Maybe we should go and look at that Recommendation 15 and then come back to this.

DR. BRUNE: We can do that, yes.

DR. MUTMANSKY: Okay. We can indeed do that. They are connected together. There's a reference in the next one that seems to be important, and this is a reference by Alan Dupree, Mark Schultz and Bill Francart, the effect of stopping leakage on intake escapeway integrity. Maybe we need a summary of what that paper says, and it may be that it would be appropriate for us to review that before we take up No. 14.

Is that a general feeling of the group here? Do we wish to do that tomorrow morning?

MR. MUCHO: Yes. Might be a good idea.

DR. MUTMANSKY: Okay. So it is appearing as though the panel as a whole is saying let us consider leakage and let us consider the escapeway recommendation tomorrow morning by initiating a study of Recommendation No. 15 first and then combine our

discussions of 14 and 15 in one manner or another, either separately or together, and try to go to those decisions tomorrow morning.

Everybody in agreement? Everybody signifies by saying yes. Okay. We will then take up the issues tomorrow morning, and we will get together at 9:00. Is that right? 9:00 a.m. tomorrow in this room we will meet again to continue our discussions of the recommendations. Thank you for your cooperation today. I appreciate all the support we have also from the MSHA people, and I look forward to meeting again tomorrow at 9:00 a.m.

(Whereupon, at 4:50 p.m., the hearing in the above-entitled matter was adjourned, to reconvene at 9:00 a.m. on Tuesday, September 18, 2007.)

//

//

//

//

//

//

//

//

//

REPORTER'S CERTIFICATE

CASE TITLE: MSHA: Technical Study Panel

HEARING DATE: September 17, 2007

LOCATION: Reston, Virginia

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the Department of Labor, Mine Safety and Health Administration.

Date: September 17, 2007

Mona McClellan
Official Reporter
Heritage Reporting Corporation
Suite 600
1220 L Street, N.W.
Washington, D.C. 20005-4018