Certification Form

I certify that I have read the transcript for the September 19, 2007, meeting of the Panel, and that, to the best of my knowledge, this transcript is accurate and complete.

[Signature]
Linda Zeiler, Designated Federal Officer

[Signature]
Dr. Jan M. Mutmansky, Chair
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

Wednesday,
September 19, 2007

The parties met, pursuant to the notice, at
9:04 a.m.

BEFORE:  LINDA ZEILER
Designated Federal Officer

PANEL MEMBERS:

DR. JÜRGEN F. BRUNE
Dr. FELIPE CALIZAYA
Mr. TOM MUCHO
Dr. JAN M. MUTMANSKY
Dr. JERRY C. TIEN
Dr. JIM WEEKS

Heritage Reporting Corporation
(202) 628-4888
DR. MUTMANSKY: Ladies and gentlemen, I'd like to begin our work for today. Today we will be working on the discussion sections for each of the 20 recommendations that were completed yesterday. First of all, I would like to begin to address those discussion sections in which Dr. Jürgen Brune has played a part in producing because he will be leaving us soon, and we would like to get as much of the work associated with his recommendations done as soon as possible this morning.

Jürgen, do you have specific ones that we would like to work on this morning?

DR. BRUNE: Yes, I have the ones that I commented on were numbers 2, 9 and 12, and 2 is the belt maintenance issue, and 9 was --

DR. MUTMANSKY: Jürgen, let's work on No. 2.

DR. BRUNE: Two, 4 and 12. I'm sorry. I misread my number here.

DR. MUTMANSKY: Okay.

DR. BRUNE: Two, 4 and 12. Four is the --

MALE VOICE: Four is belt flammability to all mines.

DR. BRUNE: Yes, right.
MALE VOICE: Twelve is the review of AMS.

DR. BRUNE: Yes.

DR. MUTMANSKY: All right. Is it appropriate to start with No. 2, or do we want to start with No. 4 first?

DR. BRUNE: Certainly. No, certainly No. 2 is very much so appropriate.

DR. MUTMANSKY: Okay. The panel has the discussion information in your notebook, and so if you would utilize your notebook please, what we can do is we can quickly read through the discussion material associated with that recommendation and see if we have any suggestions to Jürgen or to the panel as a whole concerning what is necessary in that section and whether or not we feel as though we have a complete discussion section here, whether we need to add additional material.

Jürgen, that's not on the screen, so would you like to just sort of summarize it quickly for us, and then what we'll do is try to determine if that's a sufficient discussion section?

DR. BRUNE: Yes, fundamentally what we mentioned in the discussion, and this is a discussion that has been reviewed and edited by the members of the subcommittee that we recognize this is a result of
the Aracoma incident and the following investigation and the investigation report that certainly I would characterize them as belt conveyor maintenance and housekeeping items were not being attended to, and that's how we came about with the recommendations to strongly enforce existing standards.

I believe MSHA has the enforcement tools in the bag currently. I don't think there was any need to add any elements to the ability of MSHA to enforce better maintenance on belts, but it needs to be done, and it needs to be done both by the MSHA inspectors and also by the mine personnel and especially the fire bosses, who inspect the belt, on every shift wherever coal is loaded on the belt and prior to every shift and miners enter the mine.

This is essentially what is outlined in the recommendation and the discussion section, and frankly I think personally it's fairly complete in that it addresses the salient points of the inspection needs, and together with the former recommendation that we as the panel have agreed on, I think we're pretty much there, but I offer that to discussion.

DR. MUTMANSKY: Okay. Jürgen, I don't see anything that become obvious to me, but I'd like to just sort of kind of get a quick thought from the
panel members. Anybody? Tom?

MR. MUCHO: I agree with what Jürgen said. I think we're pretty much there.

DR. MUTMANSKY: Jerry, are you okay with it, too?

DR. TIEN: Yes, it's pretty much in place.

DR. MUTMANSKY: Jim, do you have any thoughts?

DR. WEEKS: Yes. I think there's two things I would like to see in the discussion. One is there already, so I probably don't need to mention it. Maintenance is a critical issue, but that MSHA doesn't have any regulatory powers to deal with maintenance per se. We have to deal with it in some kind of other way that we recommended in the recommendations.

The second thing is, and I'll confess I'm obsessed with the problem of prevention, but I do think we need to state that improved maintenance is critical for fire prevention, or something like that or adequate maintenance.

DR. BRUNE: Yes. I think that's certainly something that can be --

DR. WEEKS: Yes. As I've said over the past couple of days, one of the problems with the rule is that it doesn't address the problem of fire.
prevention, and we're trying to do that, and this is
one of the ways of doing it. There are two other
recommendations that deal with prevention also.

DR. MUTMANSKY: Felipe, do you have any
comments?

DR. CALIZAYA: No.

DR. MUTMANSKY: Okay. I think, Jürgen, if
you would take it upon yourself as your task to write
a paragraph or a sentence or sentences that would
appropriately address that issue, I think that would
be very helpful, and we will all be reading these
discussion sections so Jim will have an opportunity to
interact with you if there's any necessity.

DR. WEEKS: Just before you get on the
plane, make sure your battery on your laptop is
adequately charged.

DR. BRUNE: I'll e-mail that around the next
couple of days.

DR. MUTMANSKY: Sure.

DR. BRUNE: I'm pretty sure I'll have plenty
of opportunity to work on that, and I don't think
there's a problem with that. In fact, Jim, I value
that as an important statement to be made that this is
indeed something that addresses fire prevention rather
than just firefighting or response after the fact.
DR. MUTMANSKY: Okay. Thank you, Jürgen, I appreciate that, and we will now begin to analyze your No. 4 recommendation, the BELT recommendation, and, Jürgen, you may want to just simply summarize that one and this is a short discussion section. Is that appropriate, Jürgen?

DR. BRUNE: Yes. That was basically saying that the BELT standard should not apply just to those mines that carry belt air to the face or use belt air at the face, but that it should apply to all mines, and I recall one of the discussion items that we had in the discussion on Monday that was that it would make it very complex for both enforcement and the maintenance folks in the mines if they had to deal with two different BELT specifications depending on which way the wind blows on the belt.

I think that's one element that I would like to add to the discussion section.

DR. MUTMANSKY: Okay.

DR. BRUNE: Again, respect to Jim, it's also a prevention item. It's probably an important element of preventing fires in the first place to install belts that do not propagate flames as they do in currently approved belts.

DR. MUTMANSKY: Okay. Thank you. Any other

Heritage Reporting Corporation
(202) 628-4888
thoughts from the panel members on that issue. This recommendation is of course a follow-up to the recommendations on belt flammability, and hence this is a reason there's a short discussion section. The major discussion will come in the BELT or the belt flammability recommendation, and we have a long discussion section in that section of our report.

Anybody have any additional thoughts about what should go into that discussion section? Jerry? Tom? Felipe?

DR. WEEKS: You're talking about this one here?

DR. MUTMANSKY: Yes.

DR. WEEKS: No.

DR. MUTMANSKY: No? Okay. Thank you, Jürgen, once again, and the next one is No. 12. Is that correct, Jürgen?

DR. BRUNE: Yes, that's No. 12.

DR. MUTMANSKY: This one is called review of AMS records. Would you go ahead with that one then, Jürgen?

DR. BRUNE: Yes. My contention and motivation to add this recommendation to the panel recommendations is that false alarms are an indication of potentially poor system installation, poor system
maintenance, poor function of system components, and they have the consequence that miners get complacent about alerts and alarms and may not properly react and respond to a real alarm.

I think it's just good practice for both the miner/operator and as well as the MSHA inspectors to review the AMS records that are typically presented and preserved in computer printouts to see how many false alarms there are. We as a committee specifically did not go to any specification as to how many false alarms would be characterized as excessive, but we will leave that to MSHA because they get the overview of being able to compare side by side several mines in similar settings.

If one mine has five or 10 times as many false alarms as another one, then I would think that is grounds for concern. Again, it's also an element of housekeeping and maintenance. The better the system works, the fewer false alarms. I would expect with appropriate tuning and perhaps adding components that are not as effective to false readings, ones that are masked by hydrogen or non-CO censors. Things like that would add to the quality of information that comes from the AMS system.

DR. MUTMANSKY: Okay. Yes, Jerry? You have
DR. TIEN: Certainly, I'll agree with that.

Just a question on the background information. We're talking about regular and periodic. What is the industry practice? What is regular? How regular is it? Once a year? Twice a year or upon request?

DR. MUTMANSKY: Jerry, are you asking the MSHA personnel that?

DR. TIEN: Yes, yes. Is it appropriate to do that? I'm just curious.

DR. BRUNE: That's perfectly defined in the law as a quarterly inspection.

DR. MUTMANSKY: I don't think there's any guidance on this.

MR. KALICH: Ask the question again.

DR. TIEN: Yes. The question has to do with the regular and periodic. I'm just curious about MSHA's practice now.

MR. KALICH: For review of records?

DR. TIEN: Right.

MR. KALICH: Once each quarter when the inspector goes to the mine, he'll review all the records, so including the AMS records would be done at least once each quarter, and of course if the inspector would request additional assistance, the
specialist would go to the mine would also review those records.

DR. TIEN: And the result, a turnaround of recommendations will be pretty quick?

MR. KALICH: Well, if you find any violations involved with the records, actually it would be cited and corrected immediately, that same day most likely, and if it would be a matter of maybe making some changes in a plan or if they might be items in the ventilation plan, that might take a little longer period, a few weeks maybe to get a change made in that respect.

DR. TIEN: I'm just wondering if the current practice or arrangement of frequency is adequate, good, or any thinking from the panel?

DR. MUTMANSKY: Well, I'd like to just simply say yes. Quarterly would certainly be appropriate. Any shorter period it would be statistically less meaningful, and so it would certainly make sense. Jürgen, do you have something to say?

DR. BRUNE: This recommendation also serves to alert the operator to the fact that MSHA will review the number of false alerts and that the operator has some explaining to do if too many false
alarms are registered in the system, and a lot of
times the operator will be able to explain that. You
know, if they change the sensor, if they found a bad
sensor, they did something about it.

That's essentially what my goal and then I
hope what the panel's goal with this recommendation
is, is to alert both the operator and the enforcement
authority to the fact that false alerts are an
indication that there's something wrong with the
system, and it needs to be fixed.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes. As a follow-up, are there
any mechanisms in our current practice that should
anything happen say when the MSHA inspectors leave
today and something happens next week you don't wait
until the next quarter to come back to react on that?

MR. KALICH: Well, that would depend on what
type of incident may have happened. If it would be
something that's reportable to MSHA, we would take
immediate action. If it's items that aren't
immediately reportable, we wouldn't necessarily know
about them until the next inspection.

DR. TIEN: Are they classified as
reportable? I mean, are they obligated to?

MR. KALICH: Well, the only items that are
reportable are the items in Part 50 for accidents that are immediately reportable to MSHA. A fire would be immediately reportable.

DR. TIEN: False alarms?

MR. KALICH: No.

DR. MUTMANSKY: Jerry, I think it's a logical question, and I think if we want to in our discussion group say it should be done quarterly or it should be done in some other fashion, it may be appropriate. I think quarterly is adequate in my opinion because a shorter period doesn't have much statistical meaning.

DR. TIEN: I agree.

DR. MUTMANSKY: It's a longer-term record that you have to look at.

DR. TIEN: Yes. I'm just more curious about this incident that just happened, and how do I address that?

MR. MUCHO: Yes. The thrust of this is to point the review of those records in a direction rather than saying yes, the records are here, they're being kept and moving on, take a look at that data with something particular in mind, which I think is false alarms in this case. That's the real thrust of what we're doing.
DR. WEEKS: Well, there's something else going on here that I think needs to be reflected in the discussion, and by way of analogy in the field of public health one of the most common activities is disease surveillance, and the purpose of disease surveillance is to identify trends and clusters. That is the rote purpose of surveillance. Stuff that you learn in Public Health 101 is to identify trends and clusters in the occurrence of disease so you can do something about it.

I think part of the purpose of looking at these records is not simply to identify that the people are doing their jobs or that there's a citable offense or something like that, but the purpose of it is to evaluate the system as a whole, to identify trends to what's going on in the mine. I mean, these systems generate an incredible amount of information, and it should be used to evaluate as I said the system as a whole.

I think it's an administrative database that provides a lot of information that helps you do your job better. It's not simply a recordkeeping mandate. It's a tool for managing the mine in a better way. That's a rather convoluted way of saying it. I think there should be some language to the effect that the
purpose of record review is to evaluate the whole system, identify trends.

Well, I wouldn't use the word clusters or trends, unusual events or something like that so that the mine operator and MSHA can persist in managing the mine in a more informed fashion and so on. Looking for citations is not efficient.

MR. MUCHO: I would echo what Jim is saying. That's what we're really trying to do. They'll look at it in a sense of false alarms, or what we're really saying look at the data, what is the data telling us.

DR. MUTMANSKY: I think that's very appropriate. I think the truth of the matter is if you look at a quarter's record, you don't know anything until you look at the previous quarter's and the previous quarter's may include a whole year's worth of quarters so that you can come to a conclusion. Each mine will have a certain base characteristic in terms of number of false alarms based upon the system and the mine.

Unless you really look at previous quarters, you don't know whether it's getting worse and whether or not there's a problem. It may be that it really is necessary to look at the previous say year of quarters to draw any conclusions. Can we state that I think in
the discussion? It would probably be appropriate.

MR. MUCHO: I guess something else, and I don't know whether we need to state it or whatever, but assuming as Mike said who might be doing that review could be the regular inspector. The inspector could be some specialist.

I would think that if this recommendation were taken by MSHA and enacted upon that at least initially it would probably be kind of a specialist person in order to gain that overall perspective as Jürgen talked about at a number of operations and so on, or at least a funneling of that information to an individual or individuals, who kind of have this on their plate, and assessing it.

In other words, if you had a lot of diverse people looking at it, I don't know what you'd end up with, but I just assumed that that's what MSHA would do if they would enact it, do something like that at least initially. Funnel all the information to Bill or whatever.

DR. MUTMANSKY: As it turns out, if MSHA ever has a computerized reporting system in place, that reporting system can be used to initialize the analysis of whether or not false alarms are increasing or not or whether there's an unusual occurrence of
false alarms of some sort. Computers are very good at that and may be better at that than a human being if you just want to pinpoint things to look at carefully. That might be worthwhile also saying in the discussion section of this recommendation. Any other thoughts?

MR. MUCHO: Yes. One other comment, and that is the recommendation right before this one, No. 11, the Diesel Discrimination recommendation, diesel sensors. Where's the other one?

DR. BRUNE: That is the one, diesel discrimination. I think that's the one you mean.

DR. WEEKS: Somewhere along the way we got renumbered.

DR. MUTMANSKY: Yes, yes.

DR. BRUNE: That was later, yes.

MR. MUCHO: Yes, this one is really a subset of the one we just discussed and maybe just for clarity or neatness of the report and recommendations maybe you ought to take this one and put it in as a subset of that. In other words, it would follow in as you do this review at mines that use diesel, pay particular attention to diesel interference false alarms.

DR. WEEKS: Well, it may be in the discussion section, but I don't want to start messing
with the recommendations as they are now.

MR. MUCHO: Okay.

DR. MUTMANSKY: Yes, I think we probably prefer not to at this point in time, but you're absolutely right. Number 11 and 12 are very closely associated with each other, and the language in No. 11, and the language in No. 12 have to be linked together very clearly.

DR. BRUNE: Yes. In fact, I'll add a cross-reference in No. 11 as well.

MR. MUCHO: Yes.

DR. MUTMANSKY: Jürgen, if you would do that, that would be a big help I'm certain.

DR. BRUNE: Yes.

DR. MUTMANSKY: Felipe, do you have any comments at all on this?

DR. CALIZAYA: Just a couple of comments. We talked about false alarms. We didn't say much about malfunction of the monitors, and I think we also need to stress that point, CO monitors or any other monitor that they are subject to malfunction, and again we need to see the frequency, how often this happens. The other thing we need to do, how many times we had fires and were not detected by those instruments?
DR. MUTMANSKY: The periodic calibration of CO sensors is done fairly often. Is that correct, Mike? Isn't that done fairly often?

MR. KALICH: Normally every 30 days.

DR. MUTMANSKY: Every 30 days, yes.

DR. BRUNE: And I think the indication was that, Felipe, a zero reading is normal, ambient CO is 3 ppm, a zero reading is as bad as a 10 reading if they're not indicative of actual conditions, so you're exactly right. Even though a zero reading is not necessarily causing an alarm or an alert, it indicates malfunction of a sensor.

DR. MUTMANSKY: Do we have to address that in our discussion? I guess that's the next question.

DR. BRUNE: I think I will address it in the discussion, yes.

DR. MUTMANSKY: Yes. Okay.

DR. BRUNE: And I also wanted to address one extra point that hasn't been discussed. I would like to point out that additional complexity of the system, a large system has by nature more tendency for malfunctions and then false alarms than a system that comprises of three or five sensors. If you have 30 or 50 sensors throughout the mine, obviously the occurrence and the chance for a false reading is much
higher than if you have a simple system in a single section mine.

That's also one comment that I would like to add to the discussion section.

DR. WEEKS: Yes, yes. The probability actually of a system malfunction increases exponentially with the size of the system.

DR. BRUNE: Yes.

DR. MUTMANSKY: Okay. Now, this also brings up the point it looks like we're closing in on all the discussion sections that Jürgen had written up initially. Now, we could also discuss this one, review of the diesel discriminating sensors. Who led the discussion on that one, Tom? Is there anything in the discussion section there that needs to be supplemented with additional information at this point? Since we're already discussing this, it's a good time to bring it up.

MR. MUCHO: Okay. Let me go back. I've got too many follow-ups here right now. I'll be right with you. Well, the discussion section on diesel discriminating as I mentioned earlier we start with as we're doing this review we want at mines that use diesel equipment. We want to especially note any false alarms due to diesel interference.
Just what Jürgen talked about, we're looking for MSHA to assess whether those are excessive going through the process that we talked about here, and in the event that it appears to be excessive, we would like to see MSHA have the capability of requiring the use of diesel discriminating sensors to address that issue rather than letting these false alarms occur and create a situation where a response might not be timely, so I don't see right off hand anything additional. I think that clarifies what we're after.

DR. MUTMANSKY: The issue is fairly clear. That's obvious.

MR. MUCHO: Yes.

DR. MUTMANSKY: And if we were to support this recommendation with a certain amount of logic in here. I think it's very clear to people what we're after. Any thoughts about the paragraphs in the discussion section on diesel discriminating sensors?

DR. WEEKS: Well, I haven't looked at the discussion, but I assume it says in there somewhere that CO from diesel exhaust is something like the most common cause of false alarms, and there's a way to deal with that problem. It seemed to me that the discussion should show that, that it's a common cause.

MR. MUCHO: I don't know that fact. Where
1 does that fact come from?
2     DR. WEEKS: I just said it. I think it's true. I don't know. It ain't nothing until I call it. That's what the umpire said.
3     MR. MUCHO: Yes, I was going to ask Bill some questions.
4     DR. MUTMANSKY: The reference in the discussion section is Francart's 2003 MSHA survey atmospheric monitoring systems in U.S. underground coal mines. It was an SME presentation in 2005, and I don't remember the specific nature of that. Bill, do you want to speak to that? You remember it intimately, don't you?
5     MR. FRANCART: I'm sure I do. As far as I recall, this is basically a survey of the districts on how the systems were used and what they were used for. There was some information we obtained on false alarms, and of course not all mines use diesel equipment, so I don't know that it is the most common source of a false alarm. You have electrical interference, which is common in some mines, and also some hydrogen interference alarms, but diesel is right up there. There's no doubt.
6     DR. WEEKS: Well, whether it's common or not, we can say it's known, and we can do something
about it, and here's what you should do about it I think.

MR. MUCHO: I would like to ask Bill one other question. There's a motivation here. I'd like to see if it's accurate or not. I've been told or have the understanding that really there's only one mine that's using diesel discriminating sensors, and that being Twenty Mile. Is that a fact that that's --

MR. FRANCART: No. There's a number of mines that use DDS.

MR. MUCHO: Do you have a feel for how many?

MR. FRANCART: I don't have a number on the tip of my tongue this morning, no, but there are definitely more than one mine.

MR. MUCHO: Okay. Do you have a feel for approximate percentage of diesel mines that are using diesel discriminating sensors?

MR. FRANCART: Not all dieselized mines use AMS systems.

MR. MUCHO: Right. But I'm saying at AMS system diesel mines, do you have a feel for the population that's using this diesel discriminating sensor as opposed to those that aren't?

MR. FRANCART: It would be a guess, and I
1 don't know it's a very educated guess at this point,
2 but we can get that information for you.
3               MR. MUCHO: All right. Thanks, Bill.
4               DR. MUTMANSKY: Okay. I would recommend,
5 Tom, that why don't we just simply say that diesels
6 can be a problem and are known to be a problem, and
7 maybe we could leave it at that if we don't have a
8 good statistic to quote.
9               DR. WEEKS: I'm not even sure the statistic
10 is all that important. I mean, if it's a known cause
11 and there's a good fix, you should use it.
12               MR. FRANCART: Yes.
13               DR. BRUNE: That's essentially what the
14 discussion says already.
15               MR. MUCHO: So let's take a look at it.
16 There's a problem out there that can be addressed, as
17 Jim just said.
18               DR. MUTMANSKY: Okay. All right. The
19 discussion section says, "During these reviews at
20 mines that also use diesel equipment, MSHA should note
21 the number of occurrences or false alarms due to
22 diesel exhaust interaction." Now, of course if they
23 know that, it would certainly be helpful information,
24 and they could use this as a means of detecting which
25 mines really do need to have diesel discriminating
sensors in place during their normal operation, so is that going to be sufficient, Jim?

MR. MUCHO: Yes.

DR. MUTMANSKY: Okay. Anything else in this number? This is No. 11. In this No. 11 discussion section, is there any other suggestions, Jerry?

DR. TIEN: Yes, more like a thought that just came to me. So far we have at least three or four recommendations. We have addressed the hardware. Should we also look into a list of comments on the maintenance personnel? Are they available? Have they been certified? Are they qualified? The quality of them?

MR. MUCHO: The maintenance people that maintain the system?

DR. TIEN: Who do this to take care of these folks? The hardware?

DR. BRUNE: I think specifically the number of false alarms and the overall function of the system is a reflection on the maintenance, and if the mine operator does not have the qualified maintenance personnel, typically the vendor that sells the AMS systems will also have some technical support available, so I don't think that is a huge concern. Ultimately the criterion is does the system
function or not, and by calibrating, by releasing test
gases around the sensor, you find out if the sensor
works or not, and then you have to get proper
maintenance to make it work. I think in this case
it's outcome based. It wouldn't be enough if you had
the best certified maintenance person on it if he or
she can't put the system to work properly. Nothing is
gained from that certification.

MR. MUCHO: I'd just add a little bit. One
of the things you see historically at any mines once
they start using AMS systems is their maintenance
people, as Jürgen just pointed out, irrespective of
how good of a maintenance person they are or what have
you. They go through a learning curve getting
familiar with the CO sensors, the calibration, the
particulars of the system and so forth.

You see that from operations, do some kind
of foolish things like not have the same people do the
job and as a result, that learning curve gets extended
until all the people that get involved go through this
learning curve, but basically, I don't think there's
anything that you can recommend. The maintenance
people are capable. They know how to do this job.

There is going to be a learning curve for
two operations, and again review of the records, as we
point out, if there are problems, as Jürgen was
talking about, it should indicate that. I basically
think you have a good point, but it's not going to be
easy for us to do anything in the recommendations here
to solve that problem any more than if you and I
recommend we need more mining engineers, we're going
to get more mining engineers.


MR. MUCHO: It isn't that easy of a thing to
recommend and expect results.

DR. TIEN: Yes. Yes, it is not a
recommendation. I'm just curious should that be
addressed in discussion section or something we should
be mindful of?

DR. BRUNE: The panel makes the
recommendation that clearly requires that the AMS
system operator be qualified and certified so you have
a person, who is certified, in charge of the system.
Obviously, not every electrician that works on
electrical equipment in the mine may have
certification. As long as he works under the
supervision of a certified electrician, there's a
possibility of that working, too.

As long as there are people, who are
certified and in responsible positions, I think that
DR. MUTMANSKY: Okay. Any other comments on this? Tom?

MR. MUCHO: I thought Jerry was going to go to something and to just maybe to comment on for completeness of record. One of the things we talked about, especially when we had the presentations by the AMS manufacturers is the software portion of the system, and there are things there I don't think the panel ought to be making any recommendations on. I'm not even sure that a process through regulation is the way to handle it, but there's certainly room in the software to do certain things.

For example, we asked one AMS operator, who appeared to be very competent, what happens if two sensors in a row go on alarm, and the answer was send someone to investigate, which is the wrong answer, and where software within a system I think can be done through software just put out the correct answer, what to do in this situation when they alarm just like we talked about with point C with the reaction of two sensors.

You can have instructions on what's to be done pop right out up on the screen, but that gets variable and so on, and you're dealing with multiple
AMS manufacturers. I don't know how you handle that, but it certainly seems that there's some room in that area to do some things that could help out.

DR. MUTMANSKY: I agree. I agree, Tom.

DR. BRUNE: I just want to point out that the Australians have systems in place in at least two mines there that had systems that gave explicit instructions to the AMS operator as to what to do based on criteria that was sent by the mine operator specifically to the mine. They had four different levels of alert and alarm, and the system would indicate this is Level 3. Because of combined conditions, these sensors are in certain states, and this is what to do, so it's possible.

It's certainly an effort, and it has to be tailored and custom-made to every mine operation, but it's something that software nowadays can do. There's state of the art software available on the market.

DR. MUTMANSKY: Yes. I think there's a great deal of knowledge about these sorts of things already available, and I think we also can draw on knowledge from other industries such as chemical plants and nuclear plants. There's an awful lot that we can learn from them, and it would be best if that were done by the manufacturers to try to optimize
their software systems used in conjunction with the AMS system.

Any other comments, and in particular, are there any other comments about what we should insert in the discussion section?

DR. TIEN: I'm just curious, Mike, again, and MSHA folks. Are we pretty happy with the current manufacturers? Are they meeting the demands as requested or required by MSHA regulations? What are some of the areas you like to see happen if you had magic wands that you can wave it? Just wish list looking ahead?

MR. KALICH: I believe the manufacturers are responsive to the needs of the industry and meet the standards. Of course, there's always room for improvement, but I believe we're doing a good job, the manufacturers in the industry and MSHA and working together to meet these challenges.

DR. TIEN: Thanks.

DR. MUTMANSKY: Thank you, Mike. Any other questions or comments on this one at this point in time? Okay. I'm glad we're moving right along here. It turns out that now we have covered all the discussion sections that Jürgen has authored, and that means that we're in very good shape. We'll go back
through the other discussion section starting with No. 1 I guess, and we'll begin processing those as we move along.

Let's go back to the No. 1 recommendation, Lifeline recommendation, and begin our analysis of the discussion section here. In essence, the discussion section talks about the regulations published in the Federal Register last year and basically makes some additional suggestions regarding possible improvements in that lifeline system, and the first reference of value here is a NIOSH publication that was issued in 2005.

In that publication, there was recognition that the lifeline tactile signals could be used for multiple purposes rather than just for a single purpose, and in this particular case, they were recommending directional indicators in front of impediments to travel so to speak, doors, regulators and so forth. Then that was expanded into other possibilities, possibilities for indication of doors and SCSRs.

Currently, the lifelines already are pretty well designed to allow the miners to locate the SCSR caches without difficulty, and there was discussions in here with the Cambria Association for the Blind,
who is the primary producer of these lifelines today,
and in those discussions, we did learn that it would
be easy to alter the current lifelines just by adding
the tactile cones or other types of devices to the
lines as add-ons.

You don't have to dismantle the lifelines to
do that. It's perfectly possible to add them after
the fact, and so the discussion involves some of the
logic of trying to implement additional tactile
signals on the lifelines. Is there anything missing
in this discussion section? Are there any references
that we could add to it?

MR. MUCHO: I have to express I guess it's
nervous instinct more than anything terribly well-
formed, but I think it would be useful to have in
the discussion something about the number of signals.
The greater the number, the greater the potential for
confusion, and you consider that worst-case scenario
you've got a limited amount of time, you're travelling
in smoke, you may be wearing gloves. It's easy to
mistake one for another and make some mistake on your
way attempting to get out of the mine.

My instinct is that 3 is too big, but I
mentioned that before, and I think it would be useful
to have in the discussion that they should be clearly
1 distinguishable from one another, no more than three
different signals. If I had my druthers, I'd have
only two, directional and where the SCSR is, but you
could load it up with all kinds of stuff. People
aren't to interested in learning Braille. I don't
mean to be sarcastic about this.

    They're not interesting in learning Braille.
8 They want to get out of the mine, so I just think we
9 ought to limit the number and keep that sort of thing
10 in mind. I don't know how to reduce that to a
11 sentence or two, but that's my concern.

12 DR. MUTMANSKY: I can certainly put that in.
13 I have no problem with that at all. Jerry?
14 DR. TIEN: Yes. You want the discussion. I
15 can't remember when or who. Maybe you or Jim
16 mentioned color and somebody might be color blind,
17 might be something with the --
18 DR. WEEKS: Well, if you're in smoke, you
19 can't see.

20 DR. TIEN: You can't see.
21 DR. MUTMANSKY: Actually, I believe in smoke
22 it is fairly easy to see the reflective stickers.
23 DR. WEEKS: Right.
24 DR. MUTMANSKY: But still, your vision will
25 be impaired, but your reflectors on the lifelines are
1 clearly an important design feature I would say.
2 DR. TIEN: We mentioned cones. I'll agree
3 with you the three, more than that is too many. It
4 can be very confusing. Does the different shape make
5 any difference, or is it practical to even think about
6 it other than cones? Tom, I'm curious.
7 MR. MUCHO: Well, I'll just pony on to that
8 with what I was going to say. I think in both what
9 you're saying and Jim has said, there's an issue
10 there, and that the problem is coming up with these
11 tactical methods, and I agree with Jim. If you don't
12 come up with a method that facilitates that quite
13 easily, you could complicate things and really go the
14 opposite way, so the design of those tactical signals
15 is to me a problem.
16 We don't say what they should be, and those
17 are good reasons because it's a problem to come up
18 with what's the right way, how that should be done.
19 Cones have been traditional.
20 DR. MUTMANSKY: Yes.
21 MR. MUCHO: The thinking being as you're
22 sliding your hand along the rope, if you hit the
23 obstruction, well that's telling you you're going the
24 wrong way. You slide up the pointed end, and that
25 tells you you're going the right way, and that seems
to make a lot of sense. It doesn't seem to slow anybody down, et cetera, et cetera. But now find other tactile things that would do the things we're asking here, I just don't know what they are offhand. DR. MUTMANSKY: We have left that open. We have said you have to do research to have a useful set of tactile signals. Jim's comment about maybe three is too many, we can change this recommendation this morning, but it has to be done before our friend, Jürgen leaves. I'm open to that, though I'm not suggesting it.

DR. WEEKS: Actually, the ones that are mentioned up there are three additional tactile signals. That doesn't say anything about direction, so if we recommend all of those, there are four different signals on the line.

DR. MUTMANSKY: Actually, two are coincident so to speak. If you use the cones as your tactile signals, then of course these three signals are also directional signals, but it's a good point, Jim.

DR. BRUNE: I think the recommendation doesn't say that we couldn't even use the same signal like a lot of mines are already doing that where they have two or three closely spaced cones indicating something is wrong or something is near that is of
importance.

DR. MUTMANSKY: That's correct.

DR. BRUNE: Like you said, on Monday, a lot of mines go towards branching off a mine that leads directly to the cache, so there are already methods in place. I think what the recommendation says and the way I read it as a panel member is that the lifelines should be used to indicate special circumstances such as doors and SCSR caches and impediments to travel where the escaping miners have to potentially make a decision or at least have to pay attention to what's going on.

Then we are recommending three different conditions be recognized. We're not saying they shouldn't all have the same signal. I think that could be well done and really if you indicate to a miner hey, there's something happening here, a lot of the miners will remember hey, that's the door we're looking for or that's the cache we're looking for.

DR. MUTMANSKY: Right.

DR. BRUNE: They're walking these escapeways at regular intervals, so at least perhaps not all in the crew, but some in the crew are likely to know what's happening here.

DR. MUTMANSKY: Okay. Any other comments
about this recommendation?

DR. CALIZAYA: Jan?

DR. MUTMANSKY: Yes, Felipe?

DR. CALIZAYA: I think when Jim mentioned about number of signals, he's talking about the frequency of those numbers. At least that's what I understood, frequency, how often. Not all the man doors are escapeway doors. You mentioned yesterday those are two by two, which is not suitable escapeway door. According to the regulations, we need to have some limited, so we are talking about specific doors that are located I don't know how often.

I'm sure it's in the order of six cross-cuts or maybe more than that, so we are talking about two specific doors, and those signals are for those doors?

DR. BRUNE: Yes. The idea in my opinion is that the doors that are typically in coal mines you have depending on cross-cut spacing, you have it every two or every three cross-cuts. At most, you have a door to get into a different entry, and if the crew has to because they encounter heavy smoke, or they encounter a roof fall that impedes travel, then they would have to go even to a 30-by-30-inch door.

That's not considered an escapeway door that's in the escapeway itself, but nevertheless, the
crew has to know where these doors are, and they need to be able to find them in thick smoke.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes, I agree with you. By the time you try to get out, you find the first door to get out.

DR. MUTMANSKY: Right.

DR. TIEN: You do not look for that particular four by four door, so I'm not sure you want to specify the escape door.

MR. MUCHO: No, we definitely don't. You want to utilize any door that you can get out of if that's a good door to get out of.

DR. MUTMANSKY: If you're escaping from a house fire, you don't look for a specific window. Any window will do at that point.

MR. MUCHO: Right. Right.

DR. MUTMANSKY: I don't want to end this discussion because I think Jim brought up a very good point. The question is are we still comfortable with this recommendation? Jim, are you still comfortable with that?

DR. WEEKS: Well, I'm mostly comfortable. I think that it's important to address the topic, and that's another issue, which I'll comment on in a
1 minute, but yes I'm comfortable.

DR. MUTMANSKY: Okay.

DR. TIEN: Another thing, it is over there, but it's not being emphasized enough is the word "standardization." I think that's very important.

This should be reflected somewhat. It's standardized.

DR. BRUNE: Well, it says that.

DR. MUTMANSKY: It says that.

DR. TIEN: Yes, but it's very, very important.

DR. MUTMANSKY: Yes.

MR. MUCHO: The other issue is that if you just looked at this recommendation by itself, the concept of using the belt entry for ventilation simply wouldn't occur to you because the words are not there. The concept is not there, et cetera, so I think in discussion we need to address the question why is the committee on belt air addressing the question of lifelines.

It's because the use of belt air has an effect upon the number and the quality of escapeways, and that's something that again to note another problem with the rule is it doesn't address the issue of the number or quality of escapeways, and it's an important topic.
DR. MUTMANSKY: Yes. I recognize some problems in trying to put this recommendation through, and one of the things I said in the paragraphs was these signals should be researched for practicality and easy detection by both gloved and ungloved miners before they are implemented.

I was concerned in particular about the fact that many of the miners would be gloved, or half of the miners might be gloved, and the other half might be ungloved, and when you're moving along a lifeline of this sort, each of those people would have somewhat different ability to feel the tactile signals, and I realize we might be recommending something that might be better addressed in a different manner. Jerry?

DR. TIEN: Yes, I have somewhat not exactly along the lines but a question addressed to you and Linda, the way the 20, it used to be 21, 20 recommendations were sequences for good reasons. Now would that be the final format it's going to turn out in the report, or are you going to prioritize which is more important?

MS. ZEILER: It doesn't need to be in this order. It can be in whatever order the chairman decides in consultation with you guys.

DR. TIEN: So to reflect the importance? Do
you see what I'm talking about?

DR. WEEKS: Would you not put this in No. 1?

DR. TIEN: I don't know. I suppose I ask a question. I just used that. Should we resequence in the way we --

DR. MUTMANSKY: I would do whatever the panel recommends. If the panel recommends that we resequence them in some other order, and if they give me some basic idea of how they feel they should be ordered, I will try to order them, and we'll get back in touch with you. Actually, with some discussions with me, Linda set the order, and I thought that that order of sequence as we addressed these recommendations worked out quite well.

We may wish to have a different order, a presentation in the final report, and I'm open to suggestion from the panel.

MR. MUCHO: I think it should be reordered. I thought it was going to be. I think we ought to section off by belt air issue and the belt flammability issue and some rough prioritization there. Obviously, belt flammability ought to lead with the BELT recommendation then followed by the other test, the drum friction and so forth. The same for belt air.
DR. MUTMANSKY: I think it would be appropriate, Tom, and all we would have to decide is the actual order of those. Do we wish to attack that problem right now, or do you want to let it go until this afternoon?

MR. MUCHO: Are we going to do it today?

DR. MUTMANSKY: You will not leave here until you do it, Tom.

MR. MUCHO: I'm going to give it to you then. This is my recommendation.

DR. TIEN: Well, probably we should consult with Jürgen I guess before he leaves, at least how he feels.

DR. MUTMANSKY: Yes, we should. We should consult with Jürgen.

DR. BRUNE: I personally agree with the prioritization. I think that makes sense even though on the other hand the way laws are written, it's typically not right. If you look at 75, the regulations on the 30 CFR Part 75, is ventilation of higher priority than roof support or vice versa?

I think if these recommendations ultimately are recognized as recommendations by the panel, then each of them should have a certain amount of weight and certainly should be looked at by MSHA and by other
1 regulatory bodies.
2
3 DR. MUTMANSKY: Right.
4
5 DR. BRUNE: I think however with assigning a
6 priority, we can express our feeling as a panel as to
7 what is the most important of our recommendations
8 versus some that are perhaps of less weight.
9
10 DR. MUTMANSKY: Yes. Tom, do you have an
11 order already written up?
12
13 MR. MUCHO: Well, I do for the belt
14 flammability issue. Three, 5, 6, 4. No.
15
16 DR. WEEKS: What is this about?
17
18 MR. MUCHO: Three is belt flammability we
19 called it. I don't know what we're calling it these
20 days. That's the BELT test. Five is other belt test.
21 That would be two. Then belt flammability to all
22 mines would be 3, and then coordinating BELT test with
23 other countries, No. 6, would be No. 4.
24
25 DR. WEEKS: What's No. 3? I'm sorry.
26
27 MR. MUCHO: Number 3 is the belt
28 flammability applying to all mines.
29
30 DR. MUTMANSKY: Give me the numbers again
31 there, Tom.
32
33 MR. MUCHO: Okay. Three, 5, 4, 6.
34
35 DR. MUTMANSKY: Three, 5, 4, 6?
36
37 MR. MUCHO: Three 5, 4, 6. That was a quick
38
Heritage Reporting Corporation
(202) 628-4888
review. I think I got all the belt flammability ones there are.

DR. MUTMANSKY: And where do you want belt maintenance to go?

MR. MUCHO: Sorry. I did miss that one.

Well, belt maintenance, I've looked at that, and that's really I think tied into the belt issue. To me the issue of fires in general applies to the belt air issue. You can put it over in the belt flammability issue, but that's why I left it out of that.

DR. MUTMANSKY: Okay. Should these be the first four that we take in our list? That's the next question.

DR. TIEN: Should we look at how we're going to cluster them, use the words?

DR. MUTMANSKY: Sure. Other clusters, yes.

DR. TIEN: Yes.

DR. MUTMANSKY: Yes, I think so, Jerry.

DR. TIEN: Other groups.

DR. MUTMANSKY: Do you have other recommendations as to clusters?

DR. TIEN: The belt petition we used on the yes or no and the different process will be a natural family.

DR. MUTMANSKY: Yes. Yes, I agree.
DR. TIEN: It used to be 7 and 8. I don't know what it's --

DR. MUTMANSKY: Seven and 8?

MR. MUCHO: It shouldn't have changed.

DR. MUTMANSKY: Here we go. Thank you, Bill. Belt air approval No. 8. Now, go beyond No. 8 there, Bill, if you can 9. Go back one more, Bill.

DR. BRUNE: Jan, while you are working on this, I think I need to get ready to leave, so I would like to thank you as the chairman and my fellow panel members for their cooperation, their support. I would also like to thank the MSHA support staff for their hard work in reviewing our recommendations and preparing this, and finally I would like to assign a proxy vote to Dr. Tom Mucho in case there's any additional voting that needs to happen here, so thanks all of you.

It was an enjoyable experience, and I hope we are doing something that benefits the safety of the miners.

DR. MUTMANSKY: Jürgen, those are very nice words, and on behalf of the other members of the panel, we thank you for your service to this panel, and we wish you well on your trip to China.

DR. BRUNE: Thank you.
DR. TIEN: Jan, Mr. Chairman, I'm just wondering, will it be okay to take a nice break so we can sit down and look at those one off hour?

DR. MUTMANSKY: And work over our break?

DR. TIEN: And work on this when we come back, yes.

MR. MUCHO: I think somebody ought to do some straw men and facilitate the efficiency here.

DR. MUTMANSKY: Why don't we do this. Why don't we take up this topic right after lunch. In the meantime, I will attempt to work with any of you, who want to, to try to put that in order.

DR. TIEN: I'll be very glad to work with you.

DR. MUTMANSKY: Do you want to work with me on that, Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: Jerry, you and I can attempt to put together an order.

DR. TIEN: Yes.

DR. MUTMANSKY: After lunch we will consider that order, and everybody will be able to weigh in at that time on that, yes.

DR. TIEN: Okay.

DR. MUTMANSKY: Okay. Perhaps as we break...
for our lunch break, we can spend five minutes or 10
minutes if necessary to try to do some ordering,
Jerry, and if you and I can bring a proposal back to
the group, that might save a lot of time rather than
doing it here in session.

DR. WEEKS: Yes, I think the clustering that
Tom proposed I think makes good sense, and I think we
should just adopt it.

DR. MUTMANSKY: Sure. I agree. I agree
with that, too.

DR. WEEKS: Does that make sense?

DR. MUTMANSKY: We'll try to put the others
in clusters, and then the more unclustered ones we can
try to figure out how they fit in the overall pattern.

Okay. Thanks for that suggestion, Jerry. Okay.

Next let us return to the general discussions. We
have already discussion No. 1 and No. 2. I think what
we need to address next is No. 3, Conveyor Belt
Flammability Testing and Approval.

If you will turn in your notebooks to that
section, we need to have your input as to whether or
not we need any additions to the discussion section
for No. 3, Conveyor Belt Flammability Testing and
Approval. Okay. Who wrote this up originally, Tom?
I've forgotten.
MR. MUCHO: This is one of all three subcommittees.

DR. MUTMANSKY: That's right. Okay. Jim, you pulled together much of the good material.

DR. WEEKS: I started it.

MR. MUCHO: Jim presented it here.

DR. WEEKS: In a nutshell, basically it's historical review of the evolution of testing and approval of belts for flammability and ended up concluding that we should support the BELT test.

There have been a number of comments on it, which I haven't yet incorporated but will, and there was some discussion yesterday or the day before about toxic materials. I looked at the paper by Henry Verakis and wrote a couple of paragraphs to put in there on toxic materials. I can read them or display them, or how do you want to do this.

DR. MUTMANSKY: Yes, okay. That was Harry.

DR. WEEKS: Harry. Sorry.

DR. MUTMANSKY: Yes, I would like to, Jim. I would like to review those, and you have just two paragraphs?

DR. WEEKS: Yes, yes.

DR. MUTMANSKY: I think we can probably just
read through those and analyze them quickly.

DR. WEEKS: And this is a draft. I may have some distortions. Are you going to plug me in?

DR. MUTMANSKY: Sure.

DR. WEEKS: Why not? I'm not sure I can take that plug. Well, let's give it a try.

DR. MUTMANSKY: Yes, it's a different plug.

DR. WEEKS: No, I think it will go. How do I get it up on the screen?

DR. MUTMANSKY: How about if we take a 10-minute break while Jim gets his computer hooked up to the system.

(Whereupon, a short recess was taken.)

DR. MUTMANSKY: Okay. We'd like to go back into session again, and we would like to take up where we left off. Jim's paragraphs concerning toxic materials are now on the computer, and we can take a look at them. Jim, would you like to go ahead with the discussion?

DR. WEEKS: Sure. First of all, keep in mind this is a draft, and there is some incomplete sentences. There's some errors and so on, and part of what I like to do is fix all of those problems, but basically this is building off of the paper that Verakis prepared for us, and it was quite similar to
the presentation that we had in Pittsburgh. Let me just read it over starting at "Belt fires produce a variety of toxic materials including carbon monoxide, hydrochloric acid, sulfur dioxide and others."

I'm actually not sure about the sulfur dioxide. I think it's true, but I don't know.

"Except for CO, these toxic materials are irritants to eyes and the respiratory tract. They also pose a significant vision hazard. While the production of toxic materials has been evaluated by the Bureau of Mines and then by NIOSH, neither agency has recommended that belts be subject to a regulatory limit on either the composition or concentration of toxic materials.

"Instead, the NIOSH approach includes three features: 1) is use of a Toxicity Index or TI, 2) was measuring the TI while conducting the BELT test by looking at the two of them together, and 3) concluding the most effective way to prevent the dispersion of toxic combustion materials is to prevent combustion.

In brief, if you don't want smoke, don't have a fire."

Now I try and discuss these in very brief fashion. "The TI is designed to reduce information about the concentration of all toxic materials to a single measure for the purpose of evaluating toxic
materials from the belts." I say it's a weighted average of the principal ingredients from smoke from a belt fire. Is that accurate? Fair? I mean, I actually don't know exactly how they --

MR. VERAKIS: Basically, that's accurate, yes.

DR. WEEKS: Okay. It's close enough?

Great. "Measuring the TI while conducting the BELT test demonstrated that there was no difference in the TI between belts that passed versus those that did not pass the BELT test. Those that passed the BELT test however had, in general, less and slower flame propagation, and as a consequence, they produced less smoke. It follows then that if a belt passes the BELT test, it poses less of a risk of toxic effects than if it did not pass the BELT test."

So it's a sort of indirect benefit of passing the BELT test. Would you say that's a fair summary of circumstances?

MR. VERAKIS: Yes, I'd say that.

DR. WEEKS: We can have smoke without a fire, so that's totally unaddressed either by me or by NIOSH, but this was simply an attempt to discuss the issue. NIOSH's logic, I think it's very straightforward logic. I don't have any quibble with
MR. MUCHO: One comment, Jim. The smoke without a fire is one of the rationale for proposing the smoke sensors issue so that we get a warning when we have smoke without a fire, i.e. smoke with little CO, so that was part of the background of the smoke sensor recommendation.

DR. WEEKS: Do you want to add a sentence down here at the bottom then? I'd hate to just leave it out there and saying here's a problem we don't have anything to say about.

MR. MUCHO: Yes, do like Jürgen recommended or said he was going to do with one of his, just cross-reference the smoke sensor information.

DR. WEEKS: Well, actually just say this is one rationale for proposing smoke sensors in addition to CO monitors and just add that sentence in there.

MR. MUCHO: Yes.

DR. WEEKS: You can't do that?

MR. FRANCART: It will be encrypted.

DR. WEEKS: Oh. There's a technological limitation for putting it on the screen.
MR. FRANCART: Oh, it will go on the screen, but the problem is when you save it.

DR. WEEKS: Okay. All right. I can just add it when we're done. I mean, it's a pretty straightforward sentence.

MR. MUCHO: Yes. Right.

DR. WEEKS: All right.

DR. MUTMANSKY: Jim, anything else you want to say about that now?

DR. WEEKS: I just want to make sure it's reasonably accurate, fair, what we want to say, et cetera.

DR. MUTMANSKY: Okay. I have no problem with that. Jerry or Tom, do you have any comments?

MR. MUCHO: No. I think that does a good job of addressing something that it didn't have in it.

We needed to address that.

DR. MUTMANSKY: All right. Good. Thank you, and, Felipe, are you okay with that?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: All right. Okay. Jim, I would guess then that we have approved your general paragraphs here, and if there are any additional changes that you make, I think as long as you don't change the meaning or anything, we're perfectly okay.
1 with that.
2 DR. WEEKS: No. It's just the issue that
3 Tom and I would discussing about the rationale for
4 smoke sensors.
5 DR. MUTMANSKY: Yes. Okay. Good. All
6 right. Good. Are there any other additions for
7 clarifications to the discussion material for this
8 particular one? It's appropriate now for the panel to
9 take that up. Are there any other additions to the
10 belt flammability discussion sections that are
11 necessary at this point in time? Okay. Thank you.
12 We will then move on to the BELT recommendation, and
13 is that one No. 4?
14 MR. MUCHO: Five.
15 DR. MUTMANSKY: Number 5. That's other belt
16 tests.
17 MALE VOICE: Isn't this what we were just
18 doing?
19 MS. ZEILER: We just did 3, the next one is
20 4.
21 DR. MUTMANSKY: Number 4.
22 MALE VOICE: We're going on to four now?
23 DR. MUTMANSKY: Yes.
24 MR. MUCHO: We already did 4. We want to do
25 5. We've already done 4, which is also Jim.
DR. MUTMANSKY: You're right. You're absolutely right. We want to do No. 5 now, other belt tests, and in this particular situation, we're primarily discussing a drum friction test. Who is leading discussion on this one?

DR. WEEKS: I guess I am.

DR. MUTMANSKY: Okay.

DR. WEEKS: Here again, the discussion recapitulates what we discussed on I guess it was Monday, which is that friction or ignition is a frequent source of belt fires. Second of all, it addresses the problem of igniting a fire whereas the BELT test addresses the question of flame propagation and spread, so it addresses the different phenomena. Not that there isn't overlap, but that's a different phenomena and that drum friction tests are employed just about everywhere else in the world on evaluating belts. What we should do here is adopt a drum friction test also. Now, the principal problem with recommending that is there is no such thing as a drum friction test.

There is a variety of drum friction tests, different parameters, different objectives and so on, and the empirical basis for doing that here, that is the experiments have not been conducted and the test
developed by NIOSH in the U.S., so what we recommended
is we adopt the drum friction test that's used
elsewhere. Do it for two years, and during that time
evaluate it, and at the end of those two years, decide
whether to keep it or drop it.

The original rationale for not having a drum
friction test is to some extent buried in obscurity.
It was considered when the Bureau of Mines first took
this up in 1955 or so and then dropped, and I don't
know what the source of this is, the idea that I have
in my mind, but the idea being and my understanding,
and it's not supported, is that if a belt would pass a
flame propagation test, it would also pass the drum
friction test, and therefore the two tests were
somewhat redundant.

There's no need to do two when one will do
the job. Whether that's an accurate representation of
decision making 50 years or so ago, I don't know, and
it's somewhat irrelevant at this point. We think
there's a need for a drum friction test to deal with
the problem of frictional ignition. We should do it
now, evaluate it for two years, and then based upon
that evaluation, either keep it or not, and the
discussion I think is an attempt to address those
issues.
DR. MUTMANSKY: Okay. Jim, we also have a section in our discussion section here on other conveyor belt tests. Do you have any comments on that section?

DR. WEEKS: No. It's entirely about the drum friction test, and, Tom, do you have some comments about other tests?

MR. MUCHO: Yes. We conclude that with a paragraph that says, "All of the above testing be adequate gauges of fire resistance over the panel fills, that the correlation between the belt and the full scale gallery test performed by the U.S. Bureau of Mines is evident of belt laboratory scale test along with a drum friction test will sufficiently determine whether belt is fire resistant for use in U.S. underground coal mines."

In essence, we're saying we look at these other tests. I propose we talk about a paragraph on a static electricity test. We haven't found any application in U.S. coal mines, any issues in U.S. coal mines.

DR. WEEKS: The other test would arguably include a test for toxic emissions, so this might be a reasonable place to put the discussion of toxic materials.
MR. MUCHO: That's correct. Okay. Although you talked about adding it in on the BELT test, you might want to do the Toxic Index. You could put it either place I think.

DR. WEEKS: I think it makes sense to put it under other tests. That's my take on it.

DR. MUTMANSKY: Okay. Jim, are you recommending that we take the paragraphs that you had put together and put them here? Is that what you're recommending?

DR. WEEKS: Yes.

DR. MUTMANSKY: And we take them out of the other discussion section?

DR. WEEKS: Yes.

DR. MUTMANSKY: Okay. I don't see any problem with that. It's clear that they sort of come under the category of other tests so to speak, and if they're appropriate here, we'll put them here. Any comments on that from anybody else? Jerry? Tom?

DR. CALIZAYA: A couple of comments. We are talking about MSHA should adopt this drum test. Are we saying this is mandatory? I understand that some companies are already doing this. If I'm not mistaken, Jim Walter mentioned that they had
implemented. It's kind of routine for them to have
this, but I don't know if that one is still not up to
the end or not.

MR. MUCHO: No one has implemented this.

What Jim Walter did was over a period of years
utilized belts that had passed the BELT test and belts
that had passed other fire resistant standards around
the world on a trial basis, and not actually using the
drum friction test. That apparatus has hardly been
used in the United States and certainly not used for
any real evaluation since the '69 Act.

DR. WEEKS: Yes, any belt manufacturer
however that is selling belts in the international
marketplace has to be concerned with the drum friction
test.

MR. MUCHO: Right. Yes.

DR. MUTMANSKY: Okay. Any other comments on
this one?

DR. TIEN: So, Jim, just try to clarify.

We're trying to do the test, conduct the test for two
years and then make a decision, or MSHA will make a
decision based on that?

DR. WEEKS: Yes.

DR. TIEN: That's what you were saying?

DR. WEEKS: Yes.
DR. TIEN: Okay. Is two years adequate?
I'm just thinking this one out.

MR. MUCHO: The time period was originally
three years. MSHA and Harry Verakis felt that it
could be accomplished within two years, and we said
fine, and so it will take some doing on MSHA's part
and NIOSH's part will have to participate to get that
done. They could probably do it in two years if they
dedicated themselves to doing it.

DR. MUTMANSKY: Okay. Then Jim will be
responsible for putting those two paragraphs into this
discussion section, and we've already looked at those,
and as long as they go in this section with reasonable
wording and so forth, we are okay with this, Jim.

DR. WEEKS: All right.

DR. MUTMANSKY: So we will now move on to
our next discussion section, and this is No. 7.
MR. MUCHO: Number 6, coordinate the BELT
test with other countries, and Jim is up again.

DR. MUTMANSKY: I'm sorry.

DR. WEEKS: Well, we said it on Monday.

Internationally, there's a variety of tests that belts
used in coal mines have to meet. It will be useful
for MSHA in developing and applying tests for belts to
keep in mind this international marketplace, and to
the extent possible, coordinate with the international practices in evaluating belts. At first we thought we should adopt the same as what's been adopted internationally.

Then noted what's been adopted internationally covers a lot of territory, and there's a lot of diversity amongst coal mining countries about how they evaluate belts. Consequently, this is actually a little more than saying that MSHA should pay attention to what's happening internationally and act accordingly.

That doesn't give clear or emphatic guidance except to note that we're in a global marketplace and a global economy, and we need to be able to participate in that marketplace in that economy.

DR. MUTMANSKY: Well, I think this is very straightforward. The discussion is very short, but I don't think it requires references. I don't think it requires a lot of background material. Is the panel okay with the discussion section? Felipe?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: Okay. It looks like we have unanimity on that, and we can go ahead with the next discussion, and that is on No. 7, Special Requirements for the Use of Belt Air. Was that you, Jerry?
DR. TIEN: Yes. I was just wondering if I can have about 30 seconds so I can put my information on the screen to have a comparison between the old and the new?

DR. MUTMANSKY: Okay, Jerry. I think that would be helpful.

DR. TIEN: Yes. We remember that yesterday we went through a lot of discussion over this particular No. 7 and No. 8 since these two are interrelated, so it makes sense if I may just combine them for the sake of discussion. If we can put them on the screen, you can see the comparison. We reworked them quite a bit. We changed the title, and so I think it will be useful at least to see the comparison of them. Yes, No. 7, that's the first one.

MR. MUCHO: You didn't put this in as foundation, did you?

DR. TIEN: Yes. Here we go. The black one was the old title. We refer to that as belt air usage analysis. After discussion, the new title will be Special Requirements for the Use of Belt Air, and as you can see, you look at the old wording of our recommendation, which is in black, the recommendation is pretty straightforward, pretty lengthy. Bill, if you can scroll down a little bit.
The red one will be the reworked, the newer version of the recommendation. The panel recommends the mines using the belt air, and the working section must be held to a higher standard. That involves the use of 1) AMS, 2) the belt materials. That must meet the BELT and other test standards, which reflects what, Jim, you just talked about, other tests that the panel recommended, and 3) more vigorous inspection procedures, which we also talked about yesterday toward the end by MSHA inspectors.

In addition, we recommend that the BELT and other test standards recommended by the panel be applied to all belt conveyors used in underground coal mines. That is the newly worded recommendation we just had yesterday. Now, the discussion on that is pretty straightforward because the issue has been around for quite a while, since the 1969 Coal Mine Health & Safety Act.

It had become more obvious when we got into the '80s and '90s, and if you remember correctly the fires as a result of the belt fires between 1980 and 2006. I think 65. There was three fatalities associated with those fires, and one miner died of a heart attack in fighting the fires, and the other two came from the Aracoma last year, but it's not directly
relating to the belt entries, the use of belt air, although they're somewhat related to that.

Those are the three that are affiliated with that 65. Bill, go up a little bit. We can also recognize the primary reason for those belt fires are the frictional heating and the flame cutting and welding and electrical malfunctions being the primary reason for these fires. It's not directly relating to use of the belt air.

If you look down, the panel recognizes that there's a very argument for use the belt air, and the two reasons cited yesterday were 1) in the western coal mines where the cover is deep, they're bump prone, and they're very gassy. The benefit for using the belt air will allow the more air to be delivered to the working sections, but at the same time because the ground situation, we try to limit the exposure, the number of entries, to no more than three, so we have a dilemma.

It worked out to be using the belt air we can accommodate the requirement for limiting exposure to the ground conditions, but here at the same time providing the dilution for the methane, so that's the number one specific reason the panel felt that it is justifiable to use the belt air. Number 2 is for the
eastern coal mines, where it's very, very gassy. Even
with the methane drainage programs, the methane is
still very challenging to the mining situation.

In that particular situation, we felt that
it is recommendable to use the belt air to increase
the dilution to the dust and the gas standards in
compliance with the requirement, so that's
justifiable. Those are the reasons we gave yesterday,
so we recognize that using the belt air in the face
does not eliminate or reduce the conditions, but by
extra requirements, such as use of AMS and extra care,
the vigorous inspection procedures by MSHA inspectors.

We felt that all the concerns can be
properly addressed, so we suggested that use of belt
air is appropriate. Then we also, if we can get the
next one, that's No. 8, that's MSHA being in charge
with the responsibility of reviewing that process.
That's the old recommendation. The district manager
be charged with the responsibility of reviewing these
that which everybody thought it appropriate.

Instead of having the separate petition
process that to include the belt air use in the
ventilation plan to be reviewed and approved by the
district manager, by looking at all the conditions
submitted, then we have to justify and provide
convincing reasons to be granted, so those are the discussions relating to two recommendations. Now, since the issue has been around for quite a while, so the references and studies are numerous.

We cited specifically two studies. One was done by MSHA in 1999. The other one was done by the committee in 1992, so in terms of references, I don't know if it's in No. 8 or No. 7 we cite at least a half a dozen references. Yes, there are a couple of them in the references section. That's No. 8. Bill, I wonder if you can go to No. 7 to see some other recommendations?

Yes, so we cite a list of references to be included in the discussion section. I open the floor to the panel for further comment and observations and additions or revisions.

DR. MUTMANSKY: Yes. Jerry, thanks for doing it in that manner. This was our most complicated set of revisions that we accomplished in the last couple of days, and it's important for us to pay attention to this particular discussion section. It's fairly obvious that we should take out some of the words in those discussion sections and that we should bring those discussion sections together, so to speak, in a viable manner I would say. Okay.

Heritage Reporting Corporation
(202) 628-4888
Questions if there are thoughts about that? Tom?

MR. MUCHO: Yes, just on the points of the valid arguments for using belt air. The current discussion combined deeper and high methane. Those need to be separated. Deeper mines the issue is the amount of horsepower and the amount of resistances to get the air down to those kind of depths and the number of shafts and so on, and all the complications related to deep mines.

High methane means that I need high volumes in lots of places to dilute and render harmless to methane and so forth, so while often those two are combined and reality out there in some of our mines, but they are two separate issues and need to be separated.

DR. WEEKS: Can I raise a question about that? I agree it's important to separate them, but my understanding of the issue with deep mines was that the problem of maintaining ground control required a limitation on a number of entries or something to that effect, and that it was because of the ground control problems that use of belt air for ventilation was an appropriate accommodation to the ground control needs.

MR. MUCHO: That was the bump prone mines in the western United States, which coincidentally many
of them are deeper, and coincidentally one of the sort of parameters for bump prone is depth. We generally don't see bumps until we get to depths greater than 1,000 or 1,300 feet, depending on who you want to cite, so that's a separate issue.

That's was the first one that Jerry talked about, and then he talked about a second valid one being deeper and methane combined, and I'm saying they need to be separated in terms of not necessarily the discussion, but in deeper mines and/or high-methane mines.

DR. MUTMANSKY: Tom has a point. The point is that in some cases deeper mines have methane problems, and in some cases deeper mines have bump problems. It might be better that we look at those paragraphs and do a better job of addressing those issues. Jerry, perhaps you and I can look at those sections and rewrite them in an appropriate manner. I think there's plenty of material in the discussion sections, but it does need major revisions now.

DR. WEEKS: Well, let me go back to the discussion that you gave, Tom. There are two issues then with these mines: One is bumps, and the other is with increasing depth, it's harder to get sufficient air.
MR. MUCHO: Tremendous pressure losses getting the air down the shafts of the level mines.

DR. WEEKS: I understand the first one in relationship to using belt air. What's the second one? This is the problem of getting air down to deep mines. How does belt air fit into that?

MR. MUCHO: Well, in order to ventilate those mines efficiently, we need to maximize the ventilation capacity that we are able to do from a practical standpoint, and belt air does that. Instead of taking the air up to the face area, suffering that pressure loss, turning it around and heading it back down the belt where it's been dumped to return.

We put it in at the belt entry, or it's coming up the belt entry to the mouth, going to the face and being utilized at the face to dilute methane, reduce dust and --

DR. WEEKS: It's a problem with air conservation?

MR. MUCHO: Yes.

DR. WEEKS: Okay. All right. Thank you.

DR. MUTMANSKY: Yes. Jerry, go ahead. You got a comment to that?

DR. TIEN: Yes, just to add to what you're saying, or do you want to go ahead and finish?
MR. MUCHO: Yes, because I'm going to take that and go to another issue.

DR. TIEN: Okay. With that, I think, Jim, in way of a clarification, I think you and I talked about yesterday there are actually three issues we're going to separate. To bring the adequate amount of air to the face is difficult. Sometimes the depth contributes to that. Sometimes it's the fewer distance.

In other words, you do not have to be very deep, but you're still having problems to bring the air to the face, so the mine could be so large you have not traveled miles or miles to get at the face, and in some cases, there's no way you can even drill the shaft, so you need that additional air, and also the distance to bring the air to the face, so that's one issue. We talked about yesterday using the example of a salt mine.

They are very deep. Because they're under water, there's no way you can drill the shaft, so the amount of access for air to get down there is only through that shaft. That's where the problems start to come in, so that's another thing.

DR. WEEKS: Yes, I understand the issue. I appreciate the clarification.
MR. MUCHO: Okay. Good. Now, bigger than that though is when we look at this discussion section, and we talk about these issues, and we've ended up with this recommendation for the district manager to evaluate this. I have a question as to by discussing those specifics, are we somehow providing direction to the district manager or somebody provide direction to the district manager that these are the conditions that should be considered in order to approve it.

We discussed in earlier meetings, for example, I pointed out a number of small mines in Pennsylvania are utilizing belt air. Right offhand to my knowledge of those mines it doesn't seem to fit any of these things that we say are valid, and of course we wrote this section originally, or those who wrote it, wrote it with the intention of going to the petition process, which has prescription for validity, a valid reason to do it built into it.

Now you see the problem I think in the discussion section might either raise or might raise. Yes. Sorry, Jim.

DR. WEEKS: Here's the way I understand it. Those three issues, two having to do with depth, the other having to do with gas are instances that say if
1 you want to use belt air, you've got to get something
2 for it. There's got to be a problem that it solves.
3 It's not simply a matter of convenience, and these are
4 problems. There are obviously other problems that may
5 appear that would be solved by using belt air.
6 
7     I think that's the implication saying. It's
8 not simply a routine part of planning a mine. There
9 has to be a real reason for it.
10     MR. MUCHO: Yes. Just lay the cards on the
11 table. The other reason is, and the other situation
12 that comes up I don't want to buy a bigger fan, I
13 don't want to put a bigger horsepower motor on. I can
14 ventilate efficiently if I use belt air. I can't
15 ventilate efficiently if I don't use belt air, and so
16 the question is is that a valid reason to do it?
17     DR. WEEKS: Well, that's an issue that we
18 decided to put on the district manager's plate.
19     DR. MUTMANSKY: Yes, we did. That's
20 correct. The way we decided that, Tom --
21     MR. MUCHO: If that's what we decided,
22 that's fine. I don't think that's clear from the
23 discussion as it sits right now.
24     DR. WEEKS: Well, then fix it.
25     DR. MUTMANSKY: This is one area where major
26 revisions in the suggestion section are necessary. It
may require time that we can devote to it at today's meeting, and I think it's necessary since I wrote much of that material originally in conjunction with Jerry, and maybe Jerry and I should work on that and seek the approval of the other panel members. This is one area where the other panel members must weigh in I'm afraid on all the words we put in the discussion section, so, Jerry, would you like to say something?

DR. TIEN: I agree with Tom. The third situation, since this panel over this year we see the benefits of using the belt air provided if certain things are being accomplished at the same time such as using AMS and more vigorous inspections and other things stipulated in the recommendation, should we put a little bit more stronger recommendation in terms of for the district manager to make their decision? In other words, the reason you were talking about for them not to reject, or is that appropriate to do that?

DR. WEEKS: Like what?

DR. TIEN: Like you have to weigh in the box we said yes to --

DR. WEEKS: Yes, you have to weigh the policy.

DR. TIEN: Just like any other system, there are pros and cons, and it looks like in this
particular situation there's more pros than cons.
DR. WEEKS: Yes. The issue that Tom raised about I don't want to buy a bigger fan, that's not a health and safety issue.
DR. TIEN: Yes.
DR. WEEKS: That's an issue of economics essentially, and my thinking is that MSHA, the Health & Safety Agency, if you're going to use belt air, which tolerates certain hazards to exist, you've got to get something for it, and there's got to be a health and safety benefit from it.
DR. TIEN: If the mine will be able convince him, what other situations might be such that they do not provide less safe -- well, again that word. They're just as safe if not safer or something.
DR. WEEKS: Well, we're dealing with things that are inherently difficult if not impossible to measure, and really it is a judgment call.
DR. MUTMANSKY: Remember, we folded this into the ventilation plan so to speak, as part of the mine ventilation plan. Every aspect of the mine ventilation plan has to be considered by the district manager as is this acceptable from the standpoint of health and safety, and the ventilation plans as approved by the district manager will have many
characteristics, many variables that he must consider. I think the only problem we have here is what do we want to express in the discussion section to the district manager as his role in assessing the use of belt air in the working section?

DR. WEEKS: Something like the following: In order to use belt air, there must be a demonstrable health and safety benefit to offset the hazards that are tolerated, or something like that, inherent in the use of belt air, and in the case of bump prone mines, it's ground control. In the case of gassy mines, it's gas control, and in other situations like the depth, it's a question of feasibility.

DR. TIEN: Yes. Got you.

DR. MUTMANSKY: If you're okay with that, Tom --

MR. MUCHO: Two votes here are okay.

DR. MUTMANSKY: Okay. Felipe?

DR. CALIZAYA: Yesterday we mentioned this, but I don't know if it's appropriate today to talk about it again. We are not saying anything about two entry systems, and the one that you already mentioned, it's mainly a two-entry system, and I don't know if we can have one discussion point for that two-entry system. I agree with Jim on those mines with the
special problems. They have to do something else to use the belt air.

Maybe redundancy of monitors would be one specific topic. Redundancy of monitors we have talked about in addition to CO monitors. They also need to monitor methane and other gases for gassy mines. For the mines that have ground control problems, maybe they should also have monitors to find out whether the pillars are in good shape or something like that. I don't know about that.

I don't know exactly whether they are doing any monitoring about ground control. Maybe that's the tradeoff because physically we are talking about trivia in the number of entries. If the plan is to develop mines with three entries, now we are talking about panels with two entries, and we are limited. We will talk about cases where both entries are disabled. There is no escapeway, and then maybe the need of having a third shared escapeway would be an alternative. Along those lines, maybe we can talk about the two-entry system.

DR. TIEN: I agree. Would that concern be addressed in the ground control plan?

MR. MUCHO: Yes. Let me recommend this.

It's get's a little afield here. Currently, the
regulations provide for use of belt air, and MSHA to this point has left the two-entry system to the petition process. I would suggest that in our discussion section we make the comment that MSHA, if they move forward with our recommendation to put it within the ventilation plan and under the district manager that they make will want to consider that for two-entry mines.

I'm not sure if they can do that technically or legally, but if they can, just leave that kind of decision up to MSHA or leave it in the petition process. Basically, what we said so far is we're not really dealing with two-entry mines specifically.

We're dealing with what's covered under the Regulations 350, 351, 352.

DR. TIEN: Well, you and I have some work to do.

DR. MUTMANSKY: Yes. Jerry, how about if you and I tackle that. I basically feel that the comments that have been made are very appropriate. We need to reconstruct the discussion section, and because it's an important issue, we need to get back to the panel regarding whether our words are appropriate I would guess. This may be the one discussion section that needs major effort on our
part.

DR. TIEN: Yes.

DR. MUTMANSKY: Many of the others would be very minor efforts I think.

DR. WEEKS: I'm assuming that the process that we're going to follow here is that you all will revise it and circulate it amongst the panel members?

DR. TIEN: That's correct.

DR. WEEKS: Then there might be actually another round of revisions after that?

DR. MUTMANSKY: I would guess.

DR. TIEN: Yes, that's correct.

DR. MUTMANSKY: I would guess because as we have witnessed in the last several days, a single person's words can be greatly improved if everybody thinks about the words and tries to make improvements, so I would guess it would be necessary to take --

MR. MUCHO: Yes. Just a follow-up comment. I think, if I can remember correctly, MSHA's rationale for the two entries remaining in the petition process, and then I'll just state this in general is that it's such a special case because of two entries affecting so many other things in more normal three- or four-entry developments and so forth that that's why they left it that way.
Again, if they follow the recommendation we have and with the district manager, they may feel they have broad enough control of it that they don't need to rely on the petition process. I think that was the rationale and so forth. Somebody from MSHA might want to address that or not, but we can move on.

DR. MUTMANSKY: Okay.

DR. TIEN: There's a working phase, which you're looking at.

DR. MUTMANSKY: There's a comment that has come in to us that the No. 8 recommendation still has a few words that could be reworked possibly.

DR. TIEN: Yes.

DR. MUTMANSKY: At this point in time, let's just take a quick look at that and see whether or not we should reword this No. 8 recommendation. "The panel recommends that MSHA evaluate the safety of belt air used at the working face as part of the approval of the mine ventilation plan," and that's the sentence where there's some question as to whether or not the wording is appropriate.

Again, when we go to the second sentence, "The district manager must take special care to evaluate whether the belt air can be routed to the working face in the manner that is safe for all miners"
involved," we purged the use of the word "face" in most of our recommendations, but we have not done that here.

DR. TIEN: Yes.

DR. MUTMANSKY: And because Jürgen has approved Tom voting on his behalf, we can, if you would like, make corrections to this recommendation at this time.

MR. MUCHO: Specifically what?

DR. MUTMANSKY: Specifically, we should say something of the sort that MSHA evaluate the safety of use of belt air coursed through a working section as part of the approval, and again we would want to use the words "working section" or some similar words in the second sentence, so I'm open for panel interaction on this. Should we make our changes at this point?

DR. TIEN: Mr. Chairman, I think this editorial revision does not change the character or spirit of what we intended it to. I don't foresee any problems personally.

DR. MUTMANSKY: All right. However, as chairman, I would like to have full approval with the proxy vote of Jürgen on this, and so I would recommend that we do it formally and that we change the wording at this particular time as appropriate. Would you
like to recommend wording? Tom?

MR. MUCHO: I thought what you said was all right.

DR. MUTMANSKY: Yes. Okay. Evaluate the safety of --

MR. MUCHO: You said the use of belt air coursed to the working section.

DR. MUTMANSKY: Of the use of belt air in the working section.

MR. MUCHO: But you said "coursed to."

DR. MUTMANSKY: Coursed to the working section. You're right. Coursed to. "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 section in a manner that is safe for all miners involved." At this point in time, I would move that we consider this wording change and that we read it one more time and then vote on it using the proxy vote of Dr. Brune.

"The panel recommends that MSHA evaluate the safety of the use of belt air coursed to the working section 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 section in a manner that is safe
for all miners involved." Any thoughts about that now?

DR. TIEN: Yes. Taking a special care, would it change anything if we change the word "care" to "emphasis" or "attention" or something to that effect, or is it the same thing? Does it change anything?

MR. MUCHO: I like care.

DR. TIEN: Care? Okay.

MR. MUCHO: I think that might be getting out of the editorial --

DR. TIEN: Okay. That's good.

DR. MUTMANSKY: Anybody else? We can change any word now. If we're going to change the recommendation, we can change any of the words.

That's my thought.

DR. WEEKS: But let's not.

DR. MUTMANSKY: Let's not?

DR. WEEKS: Let's not change anymore.

DR. MUTMANSKY: Let's not change anymore?

Okay.

DR. WEEKS: I think it's fine.

DR. MUTMANSKY: Jim recommends we not change any additional words. How does everybody else feel?

DR. CALIZAYA: I agree.
DR. MUTMANSKY: You like that? Okay. Let's take a vote, and the first vote will be Tom and Jürgen by proxy.

MR. MUCHO: Yes, for myself and yes for Dr. Brune.

DR. MUTMANSKY: Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: I vote yes. Jim?

DR. WEEKS: Yes.

DR. CALIZAYA: Yes.

DR. MUTMANSKY: We have taken care of that problem. Thank you for going through that with me.

DR. TIEN: Shall we go back to No. 7?

DR. MUTMANSKY: Should be go back to No. 7? That's a good question. Are we okay there? I think we're okay there, Jerry.

DR. TIEN: Yes.

DR. MUTMANSKY: It's worthwhile looking at it though to make certain that everything is appropriately stated, okay? Okay. Now, as best as I can see, it is going to be the duty of Jerry and myself to go back to the discussion section, rework it and rewrite it and dispense it to all members of the panel for their approval so that the discussion section properly reflects the changes in these two
recommendations and is appropriate to be put into the final report.

DR. TIEN: Yes. That's correct, yes.

DR. MUTMANSKY: All right. Good. Okay.

What else do we have? Now we are moving to No. 9.

DR. WEEKS: When can we expect to see something from you on that?

DR. TIEN: Timewise?

DR. MUTMANSKY: I'm going to recommend, Jim, that all changes to the discussion sections be completed by September 30. Therefore, Jerry and I should try to get words to you before that time so our final discussion can be submitted to Linda by September 30. Is that okay, Jerry?

DR. TIEN: Yes.

DR. MUTMANSKY: Is that okay with other members of the panel? September 30 will be our deadline for getting final changes to Linda and her staff so that she will have plenty of time to start work on the final report.

DR. WEEKS: That's less than two weeks.

DR. MUTMANSKY: Yes, sir. Yes, sir, it is.

Okay. Everybody okay with that? Okay. Now I think we want to move on to the recommendation called discontinuing point type heat sensors, and as long as...
nobody finds any problems in the recommendation, we're going to talk about the discussion section, so who was it?

MR. MUCHO: That's me.

DR. MUTMANSKY: Okay. Tom?

MR. MUCHO: I think the recommendation is straightforward in terms of what we're looking at, just discontinue point-type heat sensors in U.S. coal mines. No problem using them in and around the terminal group area for fire suppression activation. The discussion, as I try to keep all the discussions, is to try to keep them short and sweet, and it is fairly that. It just says that we're making this comment in response to a request by Richard Stickler at the opening meeting.

Then a statement about our justification for that, and we rely on a body or research and actual experiences with the sensors in the U.S. to note that there is a big gap between AMS-type sensors and the point-type heat sensors. Then we go on to mention for that reason we think it should be in all mines while we seem to be looking at belt air mines, I think it makes sense to look at all mines in that regard, and that's the discussion.

DR. WEEKS: I came across some data
someplace that pretty much had a comparison of AMS
with the point-type heat sensors and their ability to
provide an early warning of a fire, and if I remember
the data correctly, it was very convincing the
superiority of the AMS over the point-type heat
sensors. I think it should be included in the
discussion.

MR. MUCHO: Well, I'm not sure which one
you're talking about, but the references, or many that
worked, worked by Conti, for example. I don't know if
that's what you're referencing.

DR. WEEKS: I honestly don't remember. I
can dig it up. I just think it was compelling and
needs to be included.

MR. MUCHO: The references that I've
included have a lot of data that's very compelling,
and I've mentioned the statement that Dr. Litton made
in one of his RI that point-type heat sensors would
need to be on a four-space seam to be comparable to a
CO sensor, and I think that statement might be a 9380.
I'm not sure, but it might be in one of these. I'll
double check that, but I think we're pretty well
covered in terms of justifying through the references.

DR. MUTMANSKY: Yes. Tom, I make note of
the fact that when you put your references into this
discussion section, the format of the references is
different than the format that I use, and I'm not
certain that my format is in agreement with the MSHA
formatting requirements for their reports, so I would
like to give permission to the MSHA staff to put all
of the references into a uniform format.

I assume there is a style manual for MSHA
reports, and we should probably give them permission
to put it into the standard format for MSHA reports.
I think it's necessary to do that at this point in
time. Anybody in agreement with that?

DR. TIEN: Yes.

MR. MUCHO: Yes. I was deliberately sloppy
in that regard because it made no sense to format it
because I wasn't formatting correctly, so why do it.

DR. MUTMANSKY: Okay. Let the record show
that we are in agreement that the MSHA staff has
permission to rework our references into a
standardized format that meets their own needs.
Jerry?

DR. TIEN: Yes. Also probably we should
extend to the citing of those formats in the text as
well, yes.

DR. MUTMANSKY: Yes, yes. I might mention
also that a couple of recommendations ago, I saw a
number of different minor corrections that I would like to make to the paragraphs just regarding formatting and a few other things, and I think it may be absolutely necessary for the MSHA staff to look at those and do very routine grammatical and punctuation corrections where appropriate.

We will have the opportunity to read their words in our discussions at least one more time again, and I would like to recommend that they have permission to make those minor grammatical, punctuation errors and so forth in the final preparations of the report, subject to our ability to read them over at least one more time. Any discussions about that?

DR. WEEKS: Yes, I think we should acknowledge that reformatting references can be a really tedious chore, and I don't know what it means to give permission to people to do a really tedious chore, so if there's anything that we can do to make that easier, we should do that.

DR. MUTMANSKY: I will also bring up one other topic at this point in time. At the beginning of our meeting, Debra Janes asked me if I would help the MSHA staff in providing some references that they could not easily lay their hands on that are in our
discussion sections, and sometime this afternoon, I'd like to get that list of references out and ask for your help in supplying those references to her. There are some that would be very easy for us to provide, and there will be others a little more difficult, but we just simply have to locate the proper reference and give her a copy so that they would always be available to the MSHA staff and to Congress if they ever needed them, so we will discuss that later this afternoon, and I do believe that it's appropriate for us to give them some leeway in making changes as necessary. Any other discussion of that?

Okay. I think the point-type heat sensor recommendation is very straightforward. There's no controversy involved here, and if Jim wants to interact with Tom to add an additional reference, I'm in favor of that, in particular if it's a compelling set of arguments as to why the point-type heat sensor may be appropriately discontinued at this particular point.

DR. WEEKS: Well, I'll take a look at what Tom wrote in the data. It may not be necessary.

DR. MUTMANSKY: Okay. Good. Jim, if you're satisfied, then I'm satisfied as well. Okay. Are we okay to move on to the very next recommendation on
smoke sensors. In the discussion section, who
presented this one?

MR. MUCHO: That's me.

DR. MUTMANSKY: Okay, Tom.

MR. MUCHO: Okay. You see the
recommendation there. The recommendation is for MSHA
to also consider rule making that would require the
use of smoke sensors at belt mines in addition to CO
sensors, and the other part of this recommendation
goes to revising Part 75-1100 to 1103 Fire Protection.
Actually, maybe the second part is more key than the
first.

The more I kept looking during this meeting
at Part 75-1100 to 1103, it certainly has a lot of
holes in it for appearances of some things we talked
about. The discussion goes on to talk about the body
of research that goes to smoke sensors providing an
earlier warning in general to both CO sensors and to a
greater extent over point-type heat sensors, so in
some cases, it's some of the same research that we
just talked about.

That's been shown in a number of cases in
general, and as we talked about, we also make the
comment to provide earlier detection and more
reliable. What the more reliable goes to is the issue
of the type of combustion process or heating that
might be going on that may be more signaling the smoke
as opposed to signaling the CO.

By using a combination of smoke sensors at
least to some extent with CO, we might do a much
better job of covering the field of earlier warning
and covering the field of more reliable early warning
detection. The recommendation in terms of use of
these is considered. You put them behind the terminal
group, the belt drive and take them up and midway on
the belt line and towards the end of it.

That's just a recommendation. The idea
being not to be excessive, but let's try to utilize
them and see if that can really help us out in that
regard. We recognize that what we're asking for is a
sensor that is maybe not on the shelf right now.
There are some industrial types that are being tried
that maybe can be used. We don't know the answer to
that question, and so we talk about MSHA considering
some phase-in period while this evaluation goes on.

Then we go on to talk very briefly that MSHA
consider revising 75-1100 to 1103. One main reason
being that it was put forth in 1972. A number of
things have changed. We have seen a number of things
since such as the whole suite of recent mine fires,
and we start with Aracoma and work back through 1984
and so on and so forth that if shown issues that
really aren't addressed or aren't very well addressed
in those things.

DR. MUTMANSKY: Okay. Thank you, Tom. Do
we have any comments here from the panel concerning
the discussion section in this recommendation?

DR. WEEKS: Yes. At our meeting in
Birmingham when the topic of smoke detectors came up,
there seemed to be an instant and enthusiastic
consensus amongst participants there that smoke
sensors were unreliable and hard to maintain and so
on, and I think in the discussion we need to address
those criticisms head on. You may have already done
it in some fashion.

MR. MUCHO: Yes. We state, "The panel
recognizes this use of smoke sensors has been limited
in coal mining applications due to the 1) the rigorous
environment in which they would be used, for example,
changing and high humidity, dust, rock dusting and so
forth, and 2) the response and susceptibility of the
sensor due to the environment and conditions,
dependent on the smoke sensor type, for example,
ionization or optical base."

What that refers to is if I'm using an
optical-type smoke sensor, then dust will show up as an optical issue and may not be reliable. The type of sensors that we're talking about, the industrial type as well as a prototype that Dr. Litton has designed, which is a combination ion and optical sensor, address those kinds of issue or intended to. Dr. Litton's prototype by being both an ionization and optical, it looks at the situation from both aspects.

Ionization being that it's going to ionization and go to a light scattering measures of particles and so forth. It looks at those too and says both of them tell me that I have smoke here and not something else, and if the answer is yes, then I'll send a signal I got a problem here. The industrial type use different techniques to deal with those issues, filtering.

A number of them use pumps to clean filters and look at the kind of issues we've had where rock dust builds up and so on and so forth, so the types of sensors that we're talking about are aimed at addressing those maintenance issues. The question is whether they do it or not, and that's the evaluation period.

DR. WEEKS: It's there.

MR. MUCHO: "We recognize the smoke sensor
has been limited due to the...

MR. MUCHO: Yes. Right.

DR. MUTMANSKY: Okay. Are there any permissibility issues here, Tom, or are these things going to be easily recognized as being permissible devices?

MR. MUCHO: You better ask somebody from MSHA. I don't ever recall any permissibility issues, and we're tying it into the system, which the system is tied that way, but the only issue I know of is with a smoke sensor that comes out of South Africa, and that's because of radioactivity, not because of permissibility.

DR. MUTMANSKY: Okay.

MR. MUCHO: But maybe somebody at MSHA can comment. They all are such low voltage, such low-amperage devices that I don't think so.

DR. MUTMANSKY: Okay. Anybody here from MSHA would have a thought on that? Mike and Harry are both racing for the microphone.

MR. KALICH: There are various sensors in use, and the AMS system also say, for instance, on longwalls there are permissible sensors that are within 150 feet of the face. They're designed and tested so they won't ignite methane, and the
outstation that operates the sensor is designed so
that the energy supplied to the sensor will not cause
a methane ignition.

There are those types of sensors and devices
available with the AMS systems to be able to be used
in return airways in areas where permissibility is an
issue and is required.

DR. MUTMANSKY: Okay. Harry, do you have
anything to add to that?

MR. VERAKIS: Yes. I would say in the belt
entry it's not required to be permissible, so your
smoke sensors and your CO sensors in that belt entry
would not be required to be permissible. You would
not have a permissibility issue there unless you had a
methane problem that required either the sensors to be
intrinsically safe or explosion proof.

DR. MUTMANSKY: Okay. Thank you, Harry, and
thank you, Mike. Okay. Are we okay on this? Are
there any comments in addition to the ones we've
already taken? Felipe?

DR. CALIZAYA: Well, this is again a
question to MSHA personnel. Do we have limits for
smoke? I'm talking about upper limits, a lot of
limits or anything along those lines.

DR. WEEKS: In terms of personal exposure to
DR. CALIZAYA: No. I'm talking about TLVs or that kind.

MR. MUCHO: Jim can address that.

DR. WEEKS: Well, yes. There are exposure limits for individual ingredients in smoke, and then there's also a formula for combining the effects of those individual ingredients in their TLVs, and there are also exposure limits that have been adopted by MSHA, so yes.

DR. CALIZAYA: Okay.

DR. MUTMANSKY: Okay.

MR. MUCHO: That's just another issue for the heck of it. There's been considerable resources where I thought Felipe was going on the amount of smoke that should trigger a smoke sensor for use in coal mines. There's been a considerable amount of research to do that, and that's tied to this earlier warning aspect too at the level that has been put forth, and it's in the regulations right now. At those levels, they provide that earlier warning capability.

DR. WEEKS: The other matter is not all ingredients in smoke have exposure limits. Most of them do, but not all.
DR. MUTMANSKY: Okay. In this particular case now do we feel comfortable with the discussion section, and are there any additional comments regarding the discussion on smoke sensors in this case? Okay. There being no more additional comments, I would like to discuss whether or not we would like to take one more of our discussion sections before we go to lunch?

DR. WEEKS: Excuse me. Let me just give a slightly longer answer to Felipe's question.

DR. MUTMANSKY: Sure.

DR. WEEKS: My guess is, and Tom can correct me, is that if there's smoke from a fire that the smoke sensor would go off long before any exposure limit would be reached. Yes. Okay.

DR. MUTMANSKY: Okay. In my listing here, the next one is Diesel Discriminating Sensors. Is that correct?

MR. MUCHO: We covered that one.

DR. MUTMANSKY: We did that one?

MR. MUCHO: We're on No. 13, AMS Operator Training Certification and whatever.

DR. MUTMANSKY: And we did No. 12 also I am told, so the next one that we want to consider is AMS Operator Training Certification, and that's No. 13.
MR. MUCHO: That's Tom's, and that's why he wanted to take it and be done. Now, I'm done after this. I wanted it done before lunch.

DR. MUTMANSKY: All right. Good, Tom, so would you just simply outline your discussion section here, and we will hopefully be able to take care of that.

MR. MUCHO: We're recommending that MSHA commence rulemaking that require the qualifications and certification of AMS operators, and of course 301 defines what an AMS operator is. We added the point to the recommendations the highest priority of the AMS operator is operating the AMS system.

Okay. In our current discussion section, we go through briefly the justification why we make this recommendation, justification being things like the Aracoma fire incident and other incidents where the critical actions of the AMS operator are obviously noted and in some cases some people may be second-guessing those actions and feeling that they may be adding to a problem or could have been maybe better routes to a problem.

In looking at that what we deduced is that the AMS operator is critical to the safety system at the mine, and obviously if a mine is in some type of
emergency, they're very critical. We go through the fact under the current regulations training was required. It was required annually. There's a provision that tells the AMS operators what to do. That's fine, but our question is do we have an operator who A) understood the training that they have, B) understand what their duties are, C) understand what they need to do, and D) are they qualified to make some of the calls or provide some of the guidance they may even make maybe from a mining background standpoint, from maybe understanding the physical underground mine standpoint, those kinds of things?

Those are the issues that we recognize. We said in mining there is basically a provision of qualifying and certifying people that are in these key safety roles. AMS operators are relatively new, since the '80s or so, but there's no reason not to look at them in the same way, and somebody ought to do it.

I'll add a comment here that additionally I noticed we had some concerns about this recommendation because MSHA has seemed to shy away from certifying people, leaving it to the states and so forth.

I notice in the recommendation on mine the actions that MSHA has taken in terms of mine rescues,
that they're looking at certifying mine rescue people,
which is very analogous to the AMS operator thing. It
looks like MSHA's not shy in that area, so I feel a
little bit better about this recommendation of doing
that, and we have left it open in the discussion. We
don't go to what qualifications might be.

We're leaving that out in MSHA's domain to
figure out what these kind of qualifications would be.
We recommend some things like we think at least on a
semi-annual basis the operator should be a day
underground to understand the physical environment,
how the mine infrastructure is installed and so forth
in the event that they need to tell people to go to
say an electrical installation and pull power on a
belt or something like that.

They understand these kinds of things and
where they're at and where they're located and what's
it going to take for that person to do it. That's it.
Now, what we don't go into in the discussion is the
last sentence that we added saying the high-priority
AMS operator. That was relative to a lot of feedback
we got about the length of AMS operators days
sometimes being 12 hours, the extent of their duties
sometimes wearing so many hats you couldn't keep track
of what hat to have on at any point in time.
In the recommendation we try to address that without being prescriptive by saying that that should be their highest priority, so we probably need to add some language in the discussion to just say what I just said.

DR. WEEKS: Yes, and not only wearing so many hats, some of those hats have nothing to do with health and safety. Those clearly you could say they shouldn't be bothered with that, but if they're concerned with other issues having to do with health and safety, that arguably fits within their realm. I did a little research on the shift length issue as well and wrote a paragraph that I could give to you. It's a short paragraph. Should I just kind of read it rather than --

DR. MUTMANSKY: Yes, why don't you read it, Jim. It would be worthwhile.

DR. WEEKS: By way of background, NIOSH published a monograph on this topic in 2004. The title was *Overtime and Extended Work Shifts, Recent Findings on Illness, Injuries and Health Behaviors*, and then there was another chapter of a book on work organization. The book is *Preventing Occupational Disease and Injury* published by the APHA, and they were essentially in agreement on what they were
saying.

This is what I wrote, "Extended work shifts up to 12 hours and other occupations have been associated with decreased performance, reduced attentiveness and an increase in stress, injuries, cardiovascular disease and errors. As a consequence, we suggest that MSHA evaluate the length of the workshift for AMS operators. If AMS operators are less attentive and more prone to errors, then the consequences could be significant for miners, who are dependent on them." Basically, that's all.

DR. MUTMANSKY: I think it's worthwhile to discuss this in the discussion section. In particular because the question may come up did we consider it at all, and this at least shows that there was discussion and that there was recognition of the fact that in some cases there may be problems with these long shifts. It's important I think from that sense at the very least.

I'm open to discussion from the panel as to whether or not we should accept Jim's paragraph and discussion here, and I would like to hear what the other panel members feel. Felipe?

DR. CALIZAYA: I agree with that. I think we have on more than one occasion the AMS operators
were overloaded, and they were doing things that were not really safety issues, and I think we need to distinguish this in two sections. I think Tom mentioned about this other activities, and Jim mentioned about the extended period, so I would like to --

    DR. MUTMANSKY: Yes. Jerry, do you have any thoughts?

    DR. TIEN: Yes. This is very good. I look at the old version of that. It's one sentence, very short. The new one is two sentences, also very short. Both are pretty good. I'm especially very happy with the second sentence, reduce the lengthy conversation to a very small concise wording. It's quite appropriate, and it's good.

    DR. MUTMANSKY: Okay. Tom, can you work with those suggestions with Jim?

    MR. MUCHO: Yes. I don't have a problem with the paragraph and we'll work a couple paragraphs around.

    DR. MUTMANSKY: All right. Good. I'm happy with it. I thought we needed some additional discussion, and I'm happy with the additional discussion as described by Jim and so forth, and, Tom, if you could work with that, that's great. Okay. At
this point, I would like to get the approval that we are happy with the discussion section on operator training certification, and if we are, I would recommend that we get concurrence.

Is everybody okay with that? I see that everybody is okay with that. I would recommend that at this point in time we go to lunch. Jerry and I will be working on the order of presentation of the recommendations in the report over lunch, and I recommend that we get back at 1:30 to begin our discussions of the remaining discussion sections and that we try to get our work done as quickly as possible this afternoon so that our discussion sections have all been processed through the panel.

Is 1:30 an acceptable time for everybody? Okay. Thank you. We will go to lunch. Jim, do you have a point? Thank you. We will go to lunch at this point in time.

(Whereupon, at 12:10 p.m., the meeting in the above-entitled matter was recessed, to reconvene at 1:30 p.m. this same day, Wednesday, September 19, 2007.)
DR. MUTMANSKY: Ladies and gentlemen, we would like to get back into session, and we would like to continue our discussion of the discussion sections in each of the recommendations. Over the lunch period, Jerry and I put together an order for these, which we will share with the rest of the panel after we're done with the discussion deliberations, so we will now go on to the one called escapeways and leakage I believe. Is that correct, Bill?

As you probably realize, we combined escapeways and leakage recommendations into one recommendation. At this point in time, Felipe will discuss what he would like to put into the final combined discussion, and we will take up with that particular discussion. Felipe?

DR. CALIZAYA: Thank you. As Jan said, we combined two issues here and are closely related. In the escapeway section in the discussion we address a couple of points. One point was "Primary and alternate escapeways should be designed and constructed to protect the integrity of the mine that must bear in these airways. They should be located to follow the most direct or safe route nonworking"
sections to surface."

Here there are two things that I want to highlight. We are talking about integrity of the escapeway. That means two things. This escapeway should be isolated from other airways. Isolated means to install stoppings that are, if possible, air tight, and the other thing is the type of ventilation of those escapeways, and what we are suggesting is these airways, this escapeway should be ventilated with intake air as much as possible.

Now, those are the two issues that I would like to have highlighted here to guess the other issues that I have here. Maybe we need to reword and summarize the like that we don't need to be very specific. Jürgen would say what I have here is very prescriptive and maybe we need to remove that part.

DR. MUTMANSKY: Yes, I agree, Felipe. It would be helpful, and the other members of the panel would probably more readily just accept the words if it were done in that fashion, yes.

DR. CALIZAYA: Now, just before I continue with the next section, I would like to ask that maybe Bill can explain this a little bit more about the escapeway itself. The way how it's written in the regulations, we have two primarily and secondary
escapeways, they should be clearly marked. That's what the law says, and if it's clearly marked, that means we cannot just go to any door.

We need to go through the doors that are marked in the escapeway if I'm not mistaken, and again if we go by that, do we need to also look about the dimensions of doors or whatever is in that escapeway, and according to the regulations, we have this minimum requirement of four feet for that door.

MR. FRANCART: Typically, the primary escapeway wouldn't travel through any doors. That's an isolated intake escapeway that runs from the section to the surface. You do have some instances where an alternate escapeway would possibly go through doors. I think the intention was the marked doors that provide access from the primary escapeway to the alternate escapeway or an adjacent entry.

Those doors would be typically man doors, 36-inch doors or smaller man doors, not the equipment doors that you're talking about. Those doors have to be marked if it's a door between the escapeway and an alternate entry. They have to have a mark within the entry that you can actually see where you're traveling in the escapeway. This shows that there's a door in

Heritage Reporting Corporation
(202) 628-4888
1 the cross-cut. Does that answer your question?
2
3 DR. CALIZAYA: Yes. In light of that, I
4 think the doors that are close to the main fans, if
5 the fans are high pressure and they need to be double
6 doors or air-lock doors. Is that a reasonable
7 amendment or correction or recommendation here?
8
9 MR. FRANCART: That's really up to the panel
10 to make that decision.
11
12 DR. CALIZAYA: Okay. That was one of the
13 reasons why I said we need to have air-lock doors, and
14 I mentioned two-inch pressure on both. They need air-
15 lock doors. Why I'm telling you this is because we
16 had several cases where people lost their fingers or
17 toes because of this high-pressure, trying to open it
18 and suddenly you release that, and you're going to get
19 your fingers or toes now.
20
21 That one is not a problem when it's less
22 than one inch or even two inches, depending on the
23 size of that man door, but when we are talking about
24 two, three, five inches, I wouldn't be comfortable
25 going through single doors. I would prefer to have
26 those air-lock doors.
27
28 DR. MUTMANSKY: I have a question I guess.
29 Bill, is there any established regulations that
30 pertain to how many inches water gauge is acceptable
MR. FRANCART: There's nothing in the CFR that requires an air lock to be installed, but there are instances where inspectors have cited doors for not having an air lock because of high pressure. I don't know that there's any protocol on what that pressure would be within our inspection guidelines.

MR. MUCHO: Yes. Again, earlier comment, you wouldn't talk about it in terms of pressure. You would talk about it in terms of pounds force, which considers both the pressure and the size of whatever it is you're talking about, so it would be a certain pounds force that would be the criteria. Felipe here has 166 pounds in that calculation he did, which sounds kind of reasonable.

Jürgen's comment about being prescriptive is one I have also. That might be a good number. It sounds like pushing up against 166 pounds might be somewhere in the ballpark of where we're at, but I would think really somebody needs to look at that and decide what is the maximum force somebody should or could be working against to open a door, so to prescribe anything directly in terms of terms a number at this point, I don't think we can do it.

I've opened full doors like that that you
walk through with nine inches of pressure using a bar
to get into a fan, so I mean it just depends on the
situation that we're talking about. I think we can't
prescribe a number at this point. We can make the
recommendation I think that somebody ought to look at
that and find out what that magic number is and maybe
look at it. I think that's very valid. I've tumbled
through a few man doors that I wish there was an air
lock to.

DR. MUTMANSKY: Yes, I think most mining
companies do have air locks at the prime locations in
the mine where it's convenient for people. The real
problem is since there's no standard, you actually
might want to put an advisory number in there. I
don't know what the right number is. Felipe did make
mention of the fact that when you're opening a door,
the hinges will bear half of the force necessary.

Of course, once the door is opened, then the
forces are not active, and the forces don't come into
play again until the door is starting to close. I
think the biggest problem is the door is liable to
slam shut, and that is a safety hazard to some extent.
I'm not certain we've been asked to address that
safety standard, but nonetheless, it is somewhat of a
problem.
Would people object if Felipe put in his numbers as an advisory issue?

MR. MUCHO: I think citing it as an example, we on examination found these issues at these levels?

DR. MUTMANSKY: Yes.

MR. MUCHO: I don't think so. I don't see it as a problem.

DR. MUTMANSKY: Okay. All right. Jerry?

DR. TIEN: Yes. Along the line of that, should we also prescribe how the doors should be installed? Sometimes they're opposite to the pressure side, so you could cause leakage. Would you like to increase that is what I'm talking about finding.

MR. MUCHO: I know I've seen it.

DR. TIEN: While we are at a discussion, I'm just curious as a question.

DR. MUTMANSKY: Well, it's a very interesting point. Earlier in our discussions, maybe yesterday when we were discussing this, I was thinking about you wouldn't always know where the high pressure side was going to be throughout the lifetime of the mine. You may install the door, and it's not properly installed such that the door is always on the high pressure side, so you may have some problems.

MR. MUCHO: It actually occurs quite a bit.

Heritage Reporting Corporation
(202) 628-4888
When you take a longwall gate route, when you're on development, entry system No. 3 is on return, a lot of people put that on intake pressure and high-intake pressure, so those doors are backwards, so somebody has to go through, reinstall all the doors. Take them out and install them. That happens fairly often.

DR. MUTMANSKY: Fairly often, yes. Jerry?

DR. TIEN: Also on the same line, I think Tom will appreciate that those, who are in the field, that it's oftentimes the doors are being gapped. You have the door. You know the door is there, but it's on the other side of the gap. You couldn't get to it, so along that line I don't know it should be appropriate to have some recommendation and make sure a door would be acceptable.

MR. MUCHO: I'll ask Bill this question. Is there a regulation that addressed that because we do see it?

DR. TIEN: I doubt it.

MR. FRANCART: I don't know if it's specifically stated in the CFR in that way. I don't believe it is.

DR. MUTMANSKY: Would an inspector normally address that kind of a problem in his inspections?

MR. FRANCART: If a door is not accessible,
I would expect that he would.

MR. MUCHO: It gets a little tricky. I mean often things scoop, clean up. You've got this triangle, that technically, you can crawl over and around on one of the corners. Yes.

DR. MUTMANSKY: Okay. Yes. Go ahead, Jerry.

DR. TIEN: Felipe yesterday mentioned the size of the door for escapeway ought to be large enough to accommodate a stretcher going through, four by something. How does that tie to the escapeway without going through the doors?

MR. MUCHO: Help Mike out a little bit here. That is provided for in the regulations.

DR. TIEN: Yes.

MR. MUCHO: The height and width clearance on escapeways and through doors and so on is provided for in the current regulations.

MR. KALICH: This 75.380 spells out the requirements for the escapeways and what size the escapeway has to be maintained and things of that nature. Normally, you wouldn't expect to have a door in the primary intake escapeway, but there are possible times. Of course, you may have a regulator in it, and they need to be able to pass through a door.
or a set of man doors, so there may be cases where
you'd have a door in the intake escapeway, but
normally you wouldn't find that.

DR. TIEN: So that, to kind of come back to
Felipe's earlier comments or questions, should be mark
the closest door or mark the door that is big enough
to be in compliance with the regulation. Remember the
earlier discussion?

DR. MUTMANSKY: Well, do we have to since
it's already in the regulation? I'm not certain we
have to do that, do we?

DR. TIEN: When we were talking about
lifelines, we also mentioned these three cases where
we need to have those tactile signs, and one was the
accessibility to doors, and I'm assuming that those
doors are the escapeway doors, not any door, and those
escape doors are maintained. They are checked
regularly, and they are of the right dimension so that
it passes this stretcher test.

MR. MUCHO: Those doors, as Mike just
pointed out, are very few and far between. You might
find them around shafts depending on how you're
running the air around shafts. They are properly
sized. I thought we were talking about the man doors
that occur along the entry itself being marked and so
DR. TIEN: Yes, I guess. To put it nicely, if you have two doors, one just next to it, which is two by two, and there is another five crosscuts down, is appropriate size specified by the regulation, which door shall we mark on the lifeline?

MR. MUCHO: We'll mark them both.

DR. MUTMANSKY: Both.

MR. MUCHO: We'll mark all doors. The point was we come down out of there escaping, and if we're in a situation where we wanted to check whether we're in the best entry, we want to know where those doors are so that we can at least check to see if there's a better entry. The Aracoma guys are coming down and jumped into the belt line through a known door to that particular section as far as I can recall, but that's what we want. Any door. The door along the escapeway will pass the stretcher test.

DR. TIEN: Okay. Felipe, is that what you had in mind, or I thought you were specifically only marking the escape doors?

DR. CALIZAYA: That's what the escape door is, right? We are not talking about the equipment doors. Equipment door is something else.

DR. MUTMANSKY: Jerry, we meant that to mean
any door. At Aracoma, that was not an escapeway. That was just a door between the belt entry on one side and the escapeway from that mining section on the other side. Some of the people at Aracoma knew there was a door there because they had installed it, and they were searching for that door after their SCSRs were on, and unfortunately only a portion of them made it to the door.

DR. CALIZAYA: Yes, yes.

DR. MUTMANSKY: Okay. Well, we need to help Felipe. We still need to help him structure his section on discussion of escapeways and leakage. There's going to be a considerable amount of work in taking out the prescribed materials here.

How about if we request that Felipe put together a two-page discussion or whatever is an appropriate length that discusses first general aspects of escapeways, general aspects of leakage without going into great detail in prescribing exactly what is necessary and allow the regulations to dictate that part of the issue? Felipe, would you be comfortable doing that?

DR. CALIZAYA: I would be happy to do that, but I would like to have that number mentioned maybe in terms of force, not in terms of pressure.
MR. MUCHO: What I'm saying by that, that's a mini research project. Somebody needs to take a selection of miners and so on and see who can open doors against what force and what that number should be, assuming someone wants to move forward with then requiring air locks beyond situations that exceed that force.

DR. MUTMANSKY: Well, I'm somewhat surprised there is no standard for that, whether in the regulations or in some other area. You would think people have looked at this before I would guess. Yes. Go ahead, Mike. Do you have a thought? All right. Jerry?

DR. TIEN: Yes. I'm just wondering are there state regulations addressing that issue because I know some states, like in Kentucky, they specify how often the spacing of the doors for a certain code height. Is there something?

MR. MUCHO: Well, that's the doors along the escapeway.

DR. TIEN: Yes, along the escapeway.

MR. MUCHO: Yes, federal regulations also address those.

MR. KALICH: 75.380 addresses that.

DR. TIEN: Okay. The spacing?
MR. MUCHO: Yes.

MR. KALICH: Yes.

DR. TIEN: Okay.

MR. MUCHO: Yes, those doors. It makes them two doors back and forth.

DR. MUTMANSKY: Okay. Tom, it appears as though any possible disagreement I hear may come between you and Felipe here.

MR. MUCHO: And Jürgen.

DR. MUTMANSKY: And Jürgen? Felipe, would you be willing to work through the wording with Tom and Jürgen on this one?

DR. CALIZAYA: I think it's okay.

MR. MUCHO: Yes, and I don't see a problem. I think we'll figure that all out.

DR. MUTMANSKY: Okay. The rest of the panel will weigh in if necessary, but I think basically that this can be accommodated, and I'll leave the assignment up to Felipe to complete the wording and share it with Tom and Jürgen, and once everybody agrees, we can share it with the whole panel just to make certain that people are okay with that. Jim?

DR. WEEKS: Well, one thing I think this recommendation needs also is some discussion of why this is an issue in using belt air for ventilation.

Heritage Reporting Corporation
(202) 628-4888
DR. MUTMANSKY: Okay.

MR. MUCHO: That's the issue of opening the doors? Is that the issue?

DR. WEEKS: I don't know. You tell me.

DR. MUTMANSKY: You mean escapeways and leakage, how that relates to --

DR. WEEKS: Yes. Right.

DR. TIEN: It's tied to these.

DR. WEEKS: Yes, why is this an issue for this panel and for belt ventilation in general?

DR. TIEN: It's an important topic.

DR. CALIZAYA: The main reason is this. We are talking about isolating the primary escapeways and the alternate escapeways. You will have at one point doors. You need to go from alternate escapeway to primary escapeway, and they are separated by means of these doors, and if these doors are cut out or high pressure, then we won't be able to open them. We are stuck there, or if we try to force it, Tom was saying using steel or something like that, we have a chance to get injured. That's the problem.

DR. TIEN: Well, you may not have the steel to open the doorways.

MALE VOICE: Yes.

DR. WEEKS: I mean, I just think that some
discussion to that effect should be explaining why
this is an issue.

DR. CALIZAYA: Yes. Good idea.

DR. WEEKS: Why are we making this recommendation?

MR. MUCHO: In general, the integrity of the escapeways I think is very intimately tied to belt air. I mean, from early on I mean, that's one of the main things we wanted to do is when you're looking at belt air, you want to sit and look at possible scenarios of escape and so on.

Fire hazard is in the primary, not being in the primary so that you can almost be assured that if a fire occurs in the belt entry, I'm almost assured I'm coming out on an escapeway that's at a higher pressure and not going to have a problem.

DR. WEEKS: Well, I mean, this report is going to go to Congress, and there's going to be some Congress staffperson who knows next to nothing compared to what is known on this panel about mining, so we shouldn't assume that the connection between this and escapeways and belt air is self-evident. I don't think we need a long elaborate explanation, but just saying this is why it's a problem. This is the solution.
MR. MUCHO: Sounds like you got another assignment there, Felipe.

DR. MUTMANSKY: Felipe, can you handle that? Would you like Jim to help you at all?

DR. WEEKS: I don't know the answer myself. I mean, I have a feel for it, but I can't say that I know --

MR. MUCHO: If Felipe has a go at it, Jürgen and I will comply.

DR. MUTMANSKY: Okay. That's fine.

DR. WEEKS: Just imagine who's going to read the report.

DR. MUTMANSKY: Right. Good point.

DR. TIEN: Good point. Jan?

DR. MUTMANSKY: Yes, Jerry?

DR. TIEN: Well, there are three words in the title escapeways and leakage. We spent a lot of time discussing something, which does not appear at the doors. Should we also address the discussion on leakage?

DR. WEEKS: You mean on doors?

DR. TIEN: Well, leakage. We talk a lot about doors, which we're aware of.

DR. CALIZAYA: Regarding leakage, we have some more in a few minutes.
DR. TIEN: Okay.

DR. CALIZAYA: But I will like to clarify about these doors. Doors is really part of the escapeway as Tom was telling us. It's part of the system, and we are concerned about the safety of that. I agree with Jim. We will make it as short as possible and maybe in two paragraphs we could say what the problem is and what the possible solutions are.

DR. MUTMANSKY: Thank you, Felipe. Mike Kalich has another comment he'd like to make.

MR. KALICH: As far as the issue of being able to open a door or pass through a door, 75.380(d)(1) states that "Each escapeway shall be maintained in a safe condition to always assure passage of anyone, including disabled persons," so as an inspector if you are unable to open a door because of pressure, the inspector would require that some action be taken whether it would be a set of air lock doors or some means to assure passage because in that case it would not meet the current requirements.

MR. MUCHO: The issue we're getting into here is that as I travel that escapeway, those are doors in the escapeways. I travel to it. I can have adjacent entries on either side that I may want to get into, and there might be a big pressure difference.
For example, if I'm traveling down the primary escapeway, Jim Walter, and there's a door into the return, do you know what that pressure differential is going to be?

It's going to be tremendous, and I don't think that we can start talking about air locks at every one of those doors along that escapeway. I mean, that's way out there.

DR. TIEN: Impractical.

MR. MUCHO: I don't know what to say, but we are confusing those two sets of doors as we're talking here.

DR. MUTMANSKY: That's a good point. Whether you could actually require air locks on all those would really be difficult.

MR. MUCHO: That's what I tumbled through in half a cross-cut work a couple times.

DR. MUTMANSKY: Good point. Well, I personally think we need to move forward, and I think we need to allow Felipe some freedom to make the first rewrite of the discussion for escapeways and leakage. Then have interaction from Tom and Jürgen, and, if necessary, from the rest of us before we approve that discussion section.

I believe that there's plenty of material to
work with here, and if Tom and Jürgen are okay with it, we can move forward in that fashion. Anybody have any other comments before we leave this particular issue of escapeways and leakage?

DR. CALIZAYA: The second point about the escapeway was to ventilate this using intake air as much as we can on our own terms, and the reason for that I think I have two paragraphs about that, and it has to do with firefighting. When escapeways are on the intake side, we have some advantage. That's one point, and the other thing is when we have those escapeways ventilated with clean air or fresh air, then the possibility of leakage will be high pressure. Therefore, leakage will be from escapeway to other entries, and what I would do is just keep those comments that we will review.

DR. MUTMANSKY: Yes, I think those are appropriate comments, and I was just reading them here as you were discussion them, and I think it's worthwhile to put that in the discussion section. Okay. Any other further comments about escapeways and leakage? Okay. We still have some work to do there, and since Felipe has taken on this chore, give him an extra day to complete this.

It turns out that September 30 is on a
Sunday, so we'll give him until Monday, October 1, to complete it, and you get an extra day, Felipe.

DR. CALIZAYA: Okay.

DR. MUTMANSKY: We next want to consider air velocities, and Felipe again is going to introduce --

DR. WEEKS: What about the rest of us? Do we get extra days to?

DR. MUTMANSKY: I will consider that, Jim, at the appropriate time. Felipe, would you go ahead with the discussion on the air velocity and give us just your basic thoughts about the discussion section?

DR. CALIZAYA: All right. We have two numbers there. One is 100 feet per minute for a minimum air velocity, and 1,000 for maximum air velocity, and the supporting document for the lower end it has to do with the transport of the combustion products and carbon monoxide to that same source, and I think yesterday we spent some time in discussing this issue, and the discussion that they had it just supports that, and I have a couple of references.

Talking about the upper limit, 1,000. Again, here we have another problem. When the air velocity is above 800 really it starts, when the entrainment takes place, entrainment of float dust and respirable dust into the air stream, and once that one...
is in the air stream, it's difficult to dilute or to control, so that was the reason for the upper limit. In addition to that, we have other factors that will take place here.

Depending on where you are, if you are in a cold climate, then you will see the chill factor. If you are other areas, you may have other air contaminants. Then this 1,000, it will help you to some degree, and the other thing, when it's 1,000, I think when we're at Jim Walter, when we were going from one crosscut to another, we had to go through an overcast, and that overcast I'm sure that panel members who went there were able to appreciate the effect of 1,000 feet.

That velocity was above 1,000, and I remember I think one of our peer members was about to lose his helmet, and some of you I think you went through that experience, so that's the reasoning for the upper limit.

DR. MUTMANSKY: Okay. Felipe, I think you have about four different references there. I think you may have to supply copies of those references to the staff, if necessary. I know the first one, Barclay & Leach, you do have to supply, and there may be others there, too.
DR. CALIZAYA: Okay.

DR. MUTMANSKY: Okay. Any comments on the discussion section on minimum and maximum air velocities?

DR. TIEN: I think we pretty much summarized what we discussed yesterday because you can get as complicated as you want to be.

DR. MUTMANSKY: Yes.

DR. TIEN: And the only comment that I have throughout the 20 recommendations, this is the only one that had bolded velocities, minimum and the maximum. Would that be okay, do you want to be consistent, or it's critical?

DR. MUTMANSKY: Okay. Jerry, I'm not exactly --

DR. TIEN: The minimum air velocity is bold in both letters.

DR. MUTMANSKY: In bold?

DR. TIEN: Yes.

DR. MUTMANSKY: Okay. Good. I'm not certain that makes any difference, but we can.

DR. TIEN: For the matter of consistency.

DR. MUTMANSKY: For a matter of consistency. Right. For a matter of consistency, Jerry is saying let us consider whether we take the bold printout of...
those. I'm okay with that, Jerry.

DR. TIEN: I don't know if the rest of the panel --

MR. MUCHO: I'm okay.

DR. WEEKS: That's fine.

DR. MUTMANSKY: We're all okay with that, Jerry. We will change that. That does not constitute a change to the recommendation at all.

DR. TIEN: Okay.

DR. MUTMANSKY: All right. We're in good shape then. Any other comments?

DR. WEEKS: I just think in the discussion section we need to mention also that if the air velocity increases, it impairs the AMS system by diluting the carbon monoxide and that that's a problem. It's dealt with in the regulations, but I just think we need to acknowledge that preliminary factor on the upper velocity.

DR. TIEN: Definitely, that will do some changes.

DR. WEEKS: Okay.

DR. MUTMANSKY: Okay. I think it's reasonable to make note of that in the discussion section.

DR. TIEN: Definitely.
DR. MUTMANSKY: Okay. Any other comments about minimum and maximum air velocities? Okay. We move on to the next recommendation, and the next recommendation is Point-feeding I believe, and we can begin by just simply saying that the discussion as constituted now talks a little bit about the point-feeding procedure, discusses some of the testimony given by Fred Kissel at the Pittsburgh meeting.

In particular, he was referring to fatal events involving mine fires where certain features or characteristics that were common in these events are detailed in some of his papers on escape in mine fires, and some of those features are generally being addressed by other MSHA actions during the last year and have been to a great extent those features have been mitigated through better control of certain aspects of the mine environment.

Several of them however have not been addressed, and we have pointed the finger at point-feeding as one thing that could perhaps be improved, and we have addressed that in the recommendation. I believe that in most cases, we presented a pretty reasonable rationale in the discussion section. However, we made considerable changes in the point-feeding recommendation. Therefore, we may want to
address additional issues in the discussion section as well.

I think the biggest aspect about this is we had recommended that there be some sort of sensors placed out by the point-feed regulator and that there be some additional technology applied to the closing of the point-feeding regulator. If anybody feels as though we need to address that issue in the discussion section, then we should take that up at this point in time.

I think the only thing I could see is that maybe this one needs to be carefully read. I can do that if you'd like. I can carefully read it to make certain that the language does not reflect the old form of the recommendation and instead reflects the revised form of the recommendation.

MR. MUCHO: Yes. Conceptually, it shouldn't be very much different. We've got some changes into the mechanics.

DR. MUTMANSKY: That's right. Yes, that's correct. Any other comments about that? Does anybody see anything in the discussion section that I should pay attention to or that I should revise in my --

DR. TIEN: I think you're fine.

DR. MUTMANSKY: Okay. I will make this my
job to read this carefully and make certain that the language is in agreement with the second recommendation that we put forth, okay?

DR. TIEN: Is it possible to break this long, one-page narration to two or three paragraphs?

DR. WEEKS: Where would you break it?

DR. TIEN: Somewhere in the middle we propose would be a good start.

DR. MUTMANSKY: Jerry, you had brought that up earlier, and somehow we got sidetracked onto other issues, and the only thing that I could see is that there was not a perfect place to break the paragraph up into two paragraphs.

MR. MUCHO: I think the only place I saw was after emergency situations. That states the case, and then from there on you're going to how you're going to deal with it.

DR. TIEN: Yes, because I'm concerned if it's too long, you lose it. By the time you read at the bottom, you already forgot about what you read in the beginning.

DR. MUTMANSKY: I prefer it not broken myself, but I don't have a strong feeling, and I don't think we need to revote. If you decide we may want two paragraphs here, and everybody else is in agreement, I
think we can break it up without it being a votable change, but I could be wrong there.

DR. WEEKS: If you broke it at that point, it would highlight what we're recommending, which is two CO sensors, et cetera.

DR. TIEN: Right. Yes.

DR. WEEKS: It would make it easier for somebody to say well, what do you think we should do? That's where it starts to explain. That would be the reasonable place I think to break it.

DR. MUTMANSKY: Yes, it gets specific at that point. Are you in agreement with Jerry on that?

DR. WEEKS: Yes.

DR. MUTMANSKY: You are? Okay. Well, it appears as though the chairman will be overruled by others who are in perfect unanimity, and, Tom, you agree?

MR. MUCHO: Yes, I think that's okay.

DR. MUTMANSKY: Felipe, are you in agreement? I dare not vote no on this. I vote yes on this, and I think Jürgen votes yes, too?

MR. MUCHO: Yes, he does. Yes, he does.

DR. MUTMANSKY: Okay. Good. Thank you.

DR. CALIZAYA: Jan?

DR. MUTMANSKY: Yes?
DR. CALIZAYA: Maybe when you are discussing this justify the 1,000 feet spacing between the two sensors. There may be cases when you don't have room for that.

DR. MUTMANSKY: That's correct.

MR. MUCHO: Yes, that's how he said that, 1,000 feet if available and so forth. We talked about the Jim Walter with the 150 feet from the shaft.

DR. WEEKS: What's the spacing now in the belt entry?

MR. MUCHO: Well, that's the justification for the 1,000 feet. That's the normal maximum spacing.

DR. WEEKS: I see. I think that's sufficient.

MR. MUCHO: But Felipe is also mentioning really that you may only need one, so Jan can handle that.

DR. MUTMANSKY: Well, actually no. I think I may take a vote because let us look at it this way. I can explain that in the section, but I think you still need to CO sensors because one CO sensor may have a defect. I mean, it may need calibration, and the other one may be specifying the correct CO reading, so we may still need two.
DR. CALIZAYA: Yes, if we do this.

DR. WEEKS: If you want to get into issues, I'll tell you one more. When you put a CO sensor near the bottom of an intake shaft such as the Jim Walter situation, you find that you record all the field fires in the area or any other burning trash that goes on.

In fact, any CO sensor in fairly close proximity off the intake shaft bottom will pick that up, so hopefully there's no houses around who regularly burn trash or whatever, and hopefully there's not any pit fires, but you're going to get that kind of a complication. That particular kind of an issue has a couple of issues to it.

DR. MUTMANSKY: Yes. There's another one I'll tell you about. The parking lot. If it's too close to the intake shaft, occasionally it can cause some problems as well.

DR. WEEKS: That's correct. Yes. We used to pick them up really on sensors that were fairly remote from the shaft bottom, and like that case, you start putting them right at the shaft bottom, you're going to pick up any CO activity in any of these fairly large areas.

DR. MUTMANSKY: I'm assuming you're not
recommending we get into that to any degree at this point in time.

MR. MUCHO: Well, no. That kind of detail has a time and place.

DR. MUTMANSKY: Okay. All right. Where are we on this? Do we need more discussion of what needs to go into the discussion section?

MR. MUCHO: I thought you said when we talked about this 1,000 feet, there might be some situations that might want to bring them in tighter? You might not have 1,000 feet for some other reason. Do I recall that?

DR. MUTMANSKY: I think we do need a paragraph on that. Okay. I will take the responsibility for producing the paragraph that gives our thoughts on that, and I will try to get that to members of the panel for approval in fairly short order. I will give myself until Monday, October 1 to do that. Any other points on this one? Okay. I think the next recommendation is titled Research.

We changed the research recommendation considerably, but we kept most of the same concepts in the research recommendation and then added the use of booster fans in underground coal mining operations as an additional research topic that might merit
consideration. Now, again in this particular case the discussion section was written pretty much to the previous form of the recommendation. I think we need to carefully read it over again to make the discussion section match the changes in the recommendation that we've come forth with, so I think I should probably again take the responsibility for rewriting this and probably just simply pass it by the other members of the panel. Any thoughts about that in this particular case?

DR. WEEKS: Well, as before I think some discussion about why is this an issue for the belt air panel would be useful.

DR. MUTMANSKY: All right. So we want some sort of a relationship. We want some sort of relationship with belt air as a necessary part of the discussion.

DR. WEEKS: Yes.

DR. MUTMANSKY: Okay. I'm making note of that, Jim. Anything else that we should address in the discussion section, and I will take the first stab at this and make certain that everybody has a chance to read that over, and I'll try to get that to Linda by October 1 as well. Okay. Can we move to the next one? We still have three more recommendations. I'd
like to take a moment to review what else we have left this afternoon.

We have three more recommendations on which we will look at the discussion section. I have some references that I would like to have people provide to Debra Janes, and one other thing that we want to cover is the revised order of the recommendations and the final report, so if we can get through with those three things afternoon, we'll have accomplished an awful lot. What is the current one we're discussing here? Dust.

The dust recommendation was one that I put together. In this particular case, I don't think we need a lot of changes to the respirable dust recommendation, so the discuss section more or less reviews some of the data that was given to us by Mark Schultz at the Pittsburgh meeting I believe. It also discusses some of the issues that are discussed in the federal regulations that pertain to the percent of their moving down the belt airway and the percent of air that goes into the primary intake entry.

It also discusses some of the issues of what is the probability that dust in the belt airway will raise the belt concentrations in the working section itself, and the only reference given here is the
reference to Mark Schultz's comments to the panel in February of 2007, and so that more or less lays out what the discussion is in this particular section of the report. Are there any comments concerning anything that needs to be changed in that discussion section?

DR. WEEKS: Well, I'm going to take a look at it. I don't know that there's anything to change in it, but I'll take a look at it. I think also there was an equation presented to us in Pittsburgh showing sort of a weighted average.

DR. MUTMANSKY: Right. Yes.

DR. WEEKS: Including dust concentration and air volume and so on, how do you get to the final cut that I think presents a useful framework for talking about the issue.

DR. MUTMANSKY: Yes. That there was a paper by Bob Haney, and maybe that should be added. We should probably put in reference to Haney's work and provide the specific source of that equation. Would you like to see the equation at all?

DR. WEEKS: I think it would be useful to put it in there.

MR. MUCHO: I agree. That's a basic concept when we're talking belt air. If you recall, when we
first got into that, there was a lot of confusion or whatever. I think to keep emphasizing it applies of course to methane, any mixing problem, so it's very basic. I think it's good to keep that in there and put that in there.

DR. WEEKS: I do think that we should include the reference to Haney's work. Personally, I think it's one of the best in the whole field.

MR. MUCHO: I agree.

DR. MUTMANSKY: That shouldn't be a problem. I think that would be very easy to do. I'm familiar with it, and I have this reference, so we're in good shape. Okay. Any other comments regarding the dust recommendation? Okay. We move to gases and the gas recommendation.

MR. MUCHO: I just wanted to jump back on air velocity and methane layering. The recent NIOSH publication, *Methane Control in Mining Handbook*, edited by Dr. Kissel, has a good summary discussion of methane layering and things that could be done. It's a good summary that might be something that might want to be referenced in that discussion on methane layering.

DR. MUTMANSKY: Felipe, do you have that reference?
DR. CALIZAYA: Not this one. No reference.

DR. MUTMANSKY: Okay.

MR. MUCHO: Do you have it on that reference list?

DR. CALIZAYA: Yes, I have that one. I may add some more references there because I think in England during that time there were more than one author working on that. One was in the field, and the other one was in the lab.

DR. MUTMANSKY: Okay. All right. You'll put that in then?

DR. CALIZAYA: Yes.

DR. MUTMANSKY: Okay. Good. We're back to mine gases again. I'm sorry. It's now called mine methane. Incidentally, this was not changed greatly when we went through the discussion. When we went through decision making on this recommendation, there were minor changes, but the discussion section should pretty well apply to our final form of the recommendation.

We've made some discussion to informal references to gas problems at mines, and we primarily used information from MSHA personnel as the source of that data. There was also one very applicable study done by Robert Krog and three of his colleagues at Heritage Reporting Corporation.

(202) 628-4888
NIOSH, and that was presented in 2006. That reference is very important here primarily because it shows how the gas that is generated in the belt entry can effect the gas concentrations at the face.

I think the appropriate references are there. Is there any reason that we need to do any additional paragraphs or topics in that discussion?

MR. MUCHO: I see none.

DR. MUTMANSKY: Okay. Anybody else have any thoughts about that one? Okay. Let's move on the. The next one is the final recommendation on inspections. We had a long discussion on this recommendation, and I think the impetus for this inspection recommendation were some of the aspects of the report of investigation of the Aracoma Alma No. 1 mine fire.

In that report, there were a number of different problems with the inspection procedures at Aracoma. The impetus essentially revolved around how do we help a mine inspector complete his inspection without overlooking serious problems that might exist in the mine atmosphere, and as you probably realize, almost all of the impetus came from the Aracoma incident, but we also had input on that from Bill Dupree and Bill Knepp about some of the problems of
trying to -- what was the right word we used?
I think the wording was I believe how do we institute structured procedures? I think that's the basic wording. We had a lot of discussions about that, and as it turns out, we are urging MSHA to try to provide more structure in their inspection procedures, and we are allowing them to do that in a number of different ways including some computerization and some other methods of providing structure.

Anybody have any comments about the discussion section in this particular one? I think it's pretty straightforward. Felipe?

DR. CALIZAYA: I think yesterday we talked about checklists, and I think that should be somewhat here, and also I would suggest to have this third eye during the inspection of the system. We are talking about a system, which is highly specialized. We have electrical units, we have partial play systems, we have monitors and so on, and one person or two probably not sufficient.

I would be inclined to have a third person, who could be from the mine, could be from MSHA or from somewhere else, but to have a team to conduct this inspection, and that team should follow that
checklist.

MR. MUCHO: Okay. That would probably constitute about six hearings across the country and probably about 150 speakers would end up addressing the issue and so on and so forth.

DR. MUTMANSKY: Right. Felipe may find that Congress will look at that. I'm not certain that we want to make that recommendation. What would it be? What would you call it? It would constitute somewhat of a serious problem for MSHA to do that.

MR. MUCHO: It would be a major change in the way things are done.

DR. WEEKS: It would be doubling the number of inspectors.

DR. MUTMANSKY: At least. Yes, at least.

DR. CALIZAYA: Not even a checklist?

MR. MUCHO: Well, the checklist thing, I like the checklist.

DR. WEEKS: I was looking to see. We didn't get that verbiage.

MALE VOICE: One person at a time.

DR. MUTMANSKY: The court reporter would like us to be orderly in our comments, and yes. Let's take them in order. Tom, go ahead. You can make your comment.
MR. MUCHO: The checklist comment is a good comment. I mean conceptually, that's sort of what we were talking about. I don't know again whether you want to get that prescriptive to say checklist.

DR. MUTMANSKY: Since this is mine, I'll try to work language in that allows for computerization or physical checklist of some sort, and I'll pass it by the panel, if necessary. If you'd like me to, I will, yes. I will assign that duty to myself. Jerry, you were going to say something?

DR. TIEN: Yes. Yesterday's discussion and today's were very helpful on various topics, all important, and if it turns out to be we'll narrow it down to the second sentence, that's what we're trying to do. Structure, procedure for all the things we're going to be talking about. Now, as I read it, the third sentence, "This recommendation is aimed at mines using the belt air in the working section but can be applied to any underground coal mines."

The more I read it, the more I don't know what that sentence will do for us. Should we use the word "should" be applied or "can" be applied?

DR. MUTMANSKY: It could mean either I guess. It's like a hint without being --

MR. MUCHO: Yes, it's a hint in case you
1 didn't think of it.
2                    DR. TIEN:  Okay.
3  DR. MUTMANSKY:  Yes.  Anybody else have
4 comments about that specific sentence?
5  DR. WEEKS:  Which sentence are we looking
6 at?
7  DR. MUTMANSKY:  The last one.
8  DR. WEEKS:  The last one?
9  DR. TIEN:  Should we use the word "can" or
10 "should?"  It could go either way.
11  MR. MUCHO:  It's the same issue.  We're
12 dealing with belt air and belt air issues, and of
13 course we again use Aracoma.  It sure would have been
14 nice if an inspector was looking and saying the air is
15 traveling in its proper course, all the stoppings are
16 in place, whatever.  The belts are running properly or
17 whatever for the belt air situation, but for us to
18 step up to all mines obviously you start getting on
19 thin ice.
20  DR. WEEKS:  Yes.  I think we ought to be
21 fairly candid in the discussion section and again
22 probably refer to Aracoma that there were some obvious
23 deficiencies in the inspections that were conducted at
24 that mine, and we ought to try and address those.
25  MR. MUCHO:  That's in there, the Aracoma
Heritage Reporting Corporation
(202) 628-4888
reference.

DR. WEEKS: I think if we do something like recommend a checklist, we ought to do so as if we know what we're talking about and recognize that checklists are not perfect. The problem with them is that they become rote or inevitably there's something that's not on the checklist, and the person might just tend to ignore it if it's not on the checklist, so it's not a perfect solution. It's a step in the right direction.

MR. MUCHO: Part of the thinking was too, and inspectors travel to all sorts of mines, and there are some things that are of course specific to belt air mines under 350 and so forth, so how well does that inspector pick that up and be looking for those kinds of things or not, so again if I have a checklist, and I'm going to a belt air mine, then those things are there.

DR. WEEKS: Some people might say I've got a checklist. It's 30 CFR. What else can you do?

MR. MUCHO: I'm sure they do.

DR. TIEN: Well, either way is fine as long as you can address in the discussion section use a little bit more stronger, how shall I say, hint?

DR. MUTMANSKY: Yes. I think what you were asking for is to put a little bit more emphasis on Heritage Reporting Corporation (202) 628-4888
this in the discussion so that it becomes a strong hint.

DR. TIEN: Yes, instead of yes, okay, either one.

DR. MUTMANSKY: Sure.

DR. TIEN: That goes also with the computerization as I first thought, yes.

DR. MUTMANSKY: Yes. I think we can do that. I'll take responsibility. If the panel wants me to do that, I will do that. Okay. Any other discussion points on this recommendation? Okay. Thank you very much. We are at the end of our recommendations now. There are two other things we have yet to accomplish this afternoon. I hope to accomplish them soon, and we won't even have to take an afternoon break perhaps.

I have a list of about 15 references that Debra Janes would like to have, so she will be able to supply them to the proper people, if necessary.

MS. ZEILER: Jan, I should mention I put a copy of those references in the back of everyone's binder.

DR. MUTMANSKY: In the back of everyone's binder. I'm sorry. Yes. I didn't even realize that. At the back of your binder, you will find this list

Heritage Reporting Corporation
(202) 628-4888
of references, and there are quite a number of them that I can supply I'm certain, and what I'd like you to do is just go down quickly through those and find out who can supply these references? Now the first reference, Barclay & Leach, I know that --

DR. CALIZAYA: I do have it.

DR. MUTMANSKY: Felipe has a copy of that, so that will be Felipe.

MR. MUCHO: Again, you might want to cite the NIOSH thing, which will cover that. It's something you can look at.

DR. MUTMANSKY: Okay.

MR. MUCHO: If you cite the NIOSH Methane Handbook, it discusses Barclay & Leach and other researchers and so forth.

DR. MUTMANSKY: Well, if Felipe puts that into the discussion section, then somebody will have to supply that reference to Debra Janes.

MR. MUCHO: It's on the NIOSH website.


MR. MUCHO: I believe that's on the NIOSH website. If not, I can supply it.

DR. MUTMANSKY: Yes. Okay. Debra, if it's on the website, is that okay? You can just get the
web reference?

MS. JANES: Well, the -- I couldn't find on
the website.

MR. MUCHO: You couldn't find it? I'll tell
you where it's at. It should be on the NIOSH supplied
references that we started this thing with. Let me
double check that.

DR. MUTMANSKY: Response on fire sensors.

MR. MUCHO: It would be in the folder called
general references that we got from NIOSH if it's
there. Let's see. Evaluation, smoke sensors, fire
detection. I don't see it there.

MS. JANES: Yes, I didn't see it there
either.

DR. MUTMANSKY: Okay. So you'll take care
of that, Tom?

MR. MUCHO: Yes.

DR. MUTMANSKY: All right. The next one,
Dupree. I have that one, and I can supply that one.

Dupree's phone conversation. I guess we're just going
to have to leave that as such. Is that okay? Okay.
I have the e-mail from Eslinger. I have Fiscor. I'll
send that one. I have Hartman.

MR. MUCHO: You have Hartman and -- in the
morning?
DR. MUTMANSKY: Yes.
MR. MUCHO: That's surprising.
DR. MUTMANSKY: I have Kennedy, and the next one is a phone conversation. The next two are phone conversations.
MS. JANES: But they're separate, correct?
DR. MUTMANSKY: What's that?
MS. JANES: Is that the same phone conversation or two separate phone conversations?
DR. MUTMANSKY: They're the same.
MS. JANES: They're the same?
DR. MUTMANSKY: They're the same, yes.
Okay. I also have McPherson. Okay. Mintz's. I don't know who provided that one, *Evaluation of Laboratory Gallery Fire Tests of Conveyor Belting* in a journal called *Fire and Materials*.
DR. WEEKS: I might.
MR. MUCHO: Me or Jürgen I think.
DR. WEEKS: I might have dug that up also.
MR. MUCHO: Yes, I know you did cite it somewhere, and I know Jürgen did also.
DR. MUTMANSKY: Do you have a copy you can share, Jim?
DR. WEEKS: I don't know. Who's the lead author?
DR. MUTMANSKY: Mintz, M-I-N-T-Z.

DR. WEEKS: Okay. It's going to take me a minute to find it.

DR. MUTMANSKY: Tom?

MR. MUCHO: Mintz?

DR. MUTMANSKY: Yes.

MR. MUCHO: I'm not sure. I first thought I had it, but I may not have it.

DR. MUTMANSKY: Okay. That would be in the discussion under flammability, right? Does that mean that you would probably have it, Jim?

DR. WEEKS: I can't say right now. I'm looking.

DR. MUTMANSKY: Okay.

DR. WEEKS: I don't think I've got it.

What's the journal?

DR. MUTMANSKY: Fire and Materials.

DR. WEEKS: I can look for it.

DR. MUTMANSKY: Okay. Debra, if Jim does not find that, I can look in our university library. Although, I don't know we have that journal, so we'll keep looking for it. Okay.

MR. MUCHO: The NIOSH library may have that one.

DR. MUTMANSKY: That's a good point. They
might have that one. Okay. Sapko, RI8521, that's an old one, so it wouldn't be on the website.

MR. MUCHO: I have that.

DR. MUTMANSKY: You have that one?

MR. MUCHO: Yes.

DR. MUTMANSKY: Okay. Tom will get you that one. Timko, RI8735.

MR. MUCHO: I thought that came to us.

MS. JANES: No. I have that one.

DR. MUTMANSKY: You have that one?


DR. WEEKS: I've got that.

DR. MUTMANSKY: Jim has that one, so Jim will supply that one to you or a copy of it. Okay. That goes through it. Now, Debra, I have a feeling we have added more references since you made this list up, so you will have the authority to contact these people by e-mail and ask, and in most cases we should be able to help you supply that. Okay. The next issue we would like to address is the issue of
Over lunch, we made a tentative order for you to consider. Do you have that all ready? No. 2 is Other Belt Tests. It was No. 5 originally.

MS. ZEILER: The original No. 2 is No. 6.

DR. MUTMANSKY: I'm sorry.

MS. ZEILER: It comes after CoordinatingBELT test.

DR. MUTMANSKY: Yes. Are you ready? Okay. I just wanted to mention to you that we clustered belt tests into a cluster of recommendations, and Conveyor Belt Flammability Testing and Approval would be No. 1, and then Other Belt Tests would be No. 2, and as we continue on down, Improve Fire Resistance Standards for All Underground Coal Mines is No. 3. Number 4 is Coordinating Belt Testing with Other Countries. Number 5 is Belt Entry and Conveyor Belt Maintenance. Number 6 is Special Requirements for the Use of Belt Air. Number 8 is Belt Air Approval and Recommendation.

MS. ZEILER: Number 7.

MR. MUCHO: I think it's 7.

DR. MUTMANSKY: I'm sorry. Number 7. Number 8 is Discontinuing Point-type Heat Sensors. Number 9 is Smoke Sensors. Number 10 is use of Diesel
Discriminating Sensors. Number 11 is Review of AMS Records. Number 12 is AMS Operator Training Certification. Number 13 is minimum and maximum air velocities. Number 14 is Escapeways and Leakage. Number 15 is Lifelines. Number 16 is Point-feeding. Number 17 is Respirable Dust.

Number 18 is Mine Methane. Number 19 is Inspections. Number 20 is Research. Now, you probably recognize the first few are clusters that relate to belt testing, and then we have a cluster of sensor recommendations. I think there are three of those. Then comes AMS Records and AMS Operator Certification. Again, there's a cluster of two there. Then we go to minimum and maximum air velocities, escapeways and leakage, which can be considered to be clustered with the next one, Lifelines.

Then we have Point-feeding, Respirable Dust, Mine Methane, Inspection and Research. Now, this is a rather arbitrary set of recommendations, but they're clustered somewhat logically, and if anybody has any thoughts about redoing these, please let me know at this point in time.

MR. MUCHO: One thought.

DR. MUTMANSKY: One thought?

MR. MUCHO: In many of these things, you...
often see last research. Why is research always last?

DR. MUTMANSKY: If the Court Reporter would please note that we all laughed at Tom's comment. Any other thoughts about this? Good. Thank you very much. I think it's very appropriate at this point in time to take just a couple of minutes to make a few remarks.

MS. ZEILER: Can I interrupt just one second?

DR. MUTMANSKY: Linda would like to make a comment.

MS. ZEILER: I just want to make a couple remarks before you get to closing statements. One is, should you need it, we hope to have the draft transcript of these three day's worth of meeting available to you as soon a possible for help in finalizing the words. If you need to look back at what someone said, we hope to have that soon.

Secondly, just on behalf of MSHA, I'd like to thank everyone for your dedicated service on the Technical Study Panel and the important work you've done to put these 20 recommendations together. It's given us a lot of good stuff to work with, and I think I speak on behalf of the MSHA staff that we look forward to putting the final report together with you,
so thank you very much.

DR. MUTMANSKY: Thank you, Linda. I was going to make some of my own final comments concerning my feelings about the panel and the cooperation we had from MSHA. Is there anybody else on the panel, who wants to make comments prior to what I have to say?

MR. MUCHO: We'll let you say it in two votes.

DR. MUTMANSKY: Okay. Any other thoughts?

DR. WEEKS: I have a couple of things I want to say, but I don't care whether it comes before or after.

DR. MUTMANSKY: Well, why don't you say yours first.

DR. WEEKS: If you want the final word, by all means.

DR. MUTMANSKY: I definitely do.

DR. WEEKS: Well, first of all I want to thank the MSHA staff. I think you've been extraordinary, and it's an object lesson in be careful for what you ask for. You might just get it because you were very responsive to requests for information and so on and so forth, and I very much appreciate it, so thank you all for that. You've been a very good staff. I want to thank our chairman for keeping a
very steady hand in moving us to unanimous decisions
on virtually every one of these.

I just hope that they're useful and that they make a difference, and also it's really been a pleasure working with everybody on the panel and a real collegial relationship, and it's been a real pleasure.

DR. MUTMANSKY: Anybody else?

DR. TIEN: I just want to endorse what you have said. You just took words out of my mouth.

Thank you, Linda, and your staff. I really appreciate all the very timely support. Keep us in line in many cases, and I also want to thank Chairman Jan. It's a pleasure and also other folks and learning experience and I really appreciate the opportunity.

MR. MUCHO: Just to echo everybody's remarks, and I'll add it's been a great experience for all the reasons that have been mentioned here. I don't think I'll do this again, but --

DR. TIEN: Never say "never" again.

MR. MUCHO: Seriously, I have to tell you that, but it has been a very pleasurable experience and learning experience and nice people.

DR. CALIZAYA: For me too this was a great experience. I would like to thank all the members,
especially MSHA personnel for their help. I appreciate their feedback. The comments were very helpful.

DR. MUTMANSKY: Thank you, Jim, Jerry, Tom and, Felipe, for your comments. I appreciate them very much, and I would like to simply say that many of the thoughts that you have expressed were my exact thoughts. I thought that MSHA personnel were extremely cooperative in everything we asked them to do, and I really appreciate that, and I appreciate also how quickly they responded to our needs when we expressed them.

There are many people, who supported the panel, and if I were to try to mention all their names, it might take quite a while, but certainly we'd like to thank Linda, and we'd like to thank Trina. We'd like to thank Bill Francart, and actually we'd like to thank all of those who in any way participated, supported their efforts to help the panel do their work.

I'd also like to say I am just especially pleased to recognize all of the panel members for how cooperative they were. During the last three days in moving to our recommendations, every effort was made by every person on this panel to try to compromise
where differences existed and trying to get together
to put together recommendations that were both useful
and appropriate.

I would like to end by thanking the panel, and I'd like to encourage that you make every effort
to get the final discussion sections in. I'll give
you an extra day, October 1, and we will look forward
to reading the report as constituted by the MSHA
staff, and each of us will have some responsibility
for those words in the final report, so you will
probably have an opportunity to read the report one
more time before it gets in its finalized form.
Jerry?

DR. TIEN: Yes. I don't know if it's
appropriate to just ask one more question. What's
beyond that? What do we expect once the report is put
together and delivery and all that?

MS. ZEILER: Well, once we receive all the
final wording for the discussion section, we at the
MSHA staff will need to put any additional supporting
background information in that kind of describes what
happened at the meetings. Then I just wanted to
follow-up on what you said. You definitely will see
the final version and approve it clearly before it
goes to print. It has to be in by December 20, 2007,
as you know. After that, MSHA has 60 days.

Is that right? I'm trying to remember exactly how much time. I think it's 180 days the Department of Labor has to respond to the recommendations that you put in the final report at which time we have to say for each recommendation what we intend to do with it.

DR. WEEKS: And it also goes to NIOSH, and I don't know who. Somebody in Congress I guess.

MS. ZEILER: That's true. The final report has to be cleared by not only the Department of Labor, but also HHS and Congress, but I believe that the way the MINER Act was written, only the Department of Labor actually makes a written response. That's right, and I'm getting concurrence from the solicitors on that, and it is 180 days.

DR. MUTMANSKY: Perhaps one final thing that we should mention is that Linda and I have more or less agreed that we will try to follow the general formatting of the 1992 Belt Air Report, and the way we've done our recommendations pretty much is in lockstep with that general format, so we're in very good shape to advance that particular strategy. Any final comments?

MS. ZEILER: One more thing I'll add is we
kind of informally agreed that we'd like to have this
done before Thanksgiving, I mean the final report in
that it's out of our office and maybe in final
clearance at the Department by then. We're not going
to take it down to the absolute wire.

DR. MUTMANSKY: Okay. Ladies and gentlemen,

thank you for coming today. We end this session at

this point. Thank you.

(Whereupon, at 3:08 p.m., the meeting in the

above-entitled matter was concluded.)
REPORTER'S CERTIFICATE

CASE TITLE: MSHA: Technical Study Panel
HEARING DATE: September 19, 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.

Date: September 19, 2007

Mona McClellan
Official Reporter
Heritage Reporting Corporation
Suite 600
1220 L Street, N.W.
Washington, D.C. 20005-4018

Heritage Reporting Corporation
(202) 628-4888