PUBLIC HEARING

MINE SAFETY AND HEALTH ADMINISTRATION

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PROPOSED RULE ON

LOWERING MINERS' EXPOSURE

TO RESPIRABLE COAL MINE DUST

INCLUDING CONTINUOUS PERSONAL DUST MONITORS

JANUARY 25, 2011

Location: Salt Lake City Marriott
75 South West Temple
Salt Lake City, Utah

Reported by Susette M. Snider, CRR, CSR, RPR

THE PANEL

Gregory R. Wagner, M.D., Moderator

Susan Olinger

Ronald Ford

Javier Romanach

Robert Thaxton

George Niewiadomski

P R O C E E D I N G S

DR. WAGNER: Good morning. I think we're going to get started.

I want to welcome you here. My name's Gregory Wagner. I'm deputy assistant secretary of labor for Mine Safety and Health, and I'm also a physician.

Before we get started with our -- our hearing concerning our -- the proposed rule to lower miners' exposure to respirable coal mine dust, I'd like to spend a few minutes providing some context for what it is that has really driven Agency interest in moving forward with this rule.

I think many of you can identify this picture as having been taken at the Fairmont, West Virginia, mine that blew up in 1968, resulting in the deaths of 78 miners and ultimately feeding into the creation of the Coal Mine Health and Safety Act of 1969.

That fire and explosion drew national attention to miners' safety and the risks of mining. But, also, it wasn't just safety that was considered; it was the Mine Health and Safety Act. There was a lot of activism around and concerns expressed concerning

black lung. That act was a vehicle for Congress to mandate that respirable coal mine dust exposures be reduced to a level -- and this is a quote -- "which will prevent new incidences of respiratory disease and the further development of such disease in any person." That is what congress said should be done.

In 1977, following the Scotia Mine disaster of 1976, the Federal Mine Safety and Health Act was passed. In that Congress said that,

> "The secretary shall set standards which assure on the basis of the best available evidence that no miner will suffer material impairment of health or functional capacity even if such miner has regular exposure to the hazards dealt with by such standard for the period of his working life."

"No miner will suffer."

Fast-forward from the mid-'70s, when that commitment of Congress was restated and the directions given to the Agency, to the mid-'90s. The National Institute for Occupational Safety and Health refutes the world's literature concerning lung diseases that result from exposure to coal mine dust and summarized it in this big document that's copied back there. If you haven't seen it, it's called

"Criteria for Recommended Standard Occupational Exposure to Respirable Coal Mine Dust." In it NIOSH made a number of recommendations based on the literature that they reviewed that included somewhere between 3 and 400 peer-reviewed studies in the scientific literature.

After communicating recommendations on how to prevent black lung to the Department of Labor, the Department of Labor responded by setting up an advisory committee of experts from labor, industry and academia, independent experts who then took a look at all the NIOSH recommendations and, in addition, looked at any other information that they had on hand; and they came out with a report on the Secretary of Labor's Advisory Committee on the Elimination of Pneumoconiosis among the coal miners -- coal mine workers.

It's really those recommendations upon which the current MSHA rulemaking is based.

Let me spend a minute looking at what it is that we're talking about with coal workers' pneumoconiosis. On the left you see the slide of a normal lung from a dead miner.

In the middle you see the dots that reflect coal mine dust, some scarring and a little

bit of tissue shrinkage that comes with chronic coal workers' pneumoconiosis.

The lung on the right shows evidence of progressive massive fibrosis, the most severe form of coal workers' pneumoconiosis, where there's substantial deposition, there is distortion of the lung tissue. You can see holes. The lung is no longer effective in moving oxygen in and out of the body, and this is something that's closely associated with substantial disability and premature death.

But coal workers' pneumoconiosis is not the only disease that is associated with excessive inhalation of coal mine dust. Yes, there is the massive fibrotic disease I showed you but also silicosis when the dust includes respirable crystal and silica.

Then there are the airflow diseases that probably affect even more miners than the coal workers' pneumoconiosis, emphysema, bronchitis, the diseases that rob you of your ability to breathe as you exercise and can shorten your lifespan. And TB is also associated with people who have had excessive silica exposure.

From the time that the 1969 Act put into place new coal mine dust exposure limits, there was

significant success in reducing the incidence of coal workers' pneumoconiosis. You can see over time, from left to right, that there was a gradual reduction, no matter how many years someone had spent in the mines, until fewer than 5 percent of miners with 25 or more years of experience were showing up in the NIOSH X-ray Surveillance Program as having coal workers' pneumoconiosis by the turn of the century.

But following the turn of the century, those participating in the program began to show evidence of more disease. NIOSH did some studies in particular areas of the country and noted that there was rapidly progressive coal workers' pneumoconiosis. I'll give you some examples that they found.

Here's an example of a 37-year-old miner on the left with 16 years of underground experience with advanced chronic disease in 1997. Three years later he had progressed to where he had progressive massive fibrosis showing up with only 19 years of underground experience and all of that under the current coal mine dust standard.

Another example, a 42-year-old miner in 2002 with the most advanced form of progress massive fibrosis, 22 years underground, all of it under the current dust standard.

People are dying with coal workers' pneumoconiosis. Again, there's been a progressive beneficial change over time, but this is just one of the diseases. And if you can't see the numbers, we're still showing in 2004 over 700 people dying with coal workers' pneumoconiosis on their death certificates.

This isn't only a problem of death, disease, disability. It's an economic problem as well. The Federal Black Lung Benefits Program has expended over $44 billion since the beginning of the benefits program started, and that program only pays benefits to people who are totally disabled from all coal mine work as a result of their dust exposure. There are many people with partial disability, people who have life impairment, people who are accumulating medical bills who do not get covered under that program because of its restrictions.

So we've found that the prevalence of pneumoconiosis is rising in miners with greater than 20 years of mining tenure among those who are x-rayed by NIOSH and that there are some cases of severe disease being seen even in young workers less than 40 years old.

The original 1969 standards were based on

a series of assumptions derived from the epidemiology or population studies at the time about what would happen if you limited the dust to 2 milligrams. They ignored or hadn't thought about or it wasn't really prevalent in the literature at that time concerns about chronic obstructive pulmonary disease, emphysema, bronchitis, and it also turns out that they made other faulty assumptions about the development of disease.

More miners are dying with CWP than from mining injuries. Miners are at greatly increased risk for other chronic lung disease. And the bottom line is black lung, this collection of diseases, is caused by excessive exposure to coal mine dust.

Our goal is to reduce miners' exposure to respirable coal mine dust in order to prevent black lung. It's a simple goal, but it involves addressing many problems.

When we tried to find out why it is that you saw the downturn in lung diseases and then they started to get worse, we started looking at what's changed in the mining industry, what's changed in people's exposures. One thing that was noted is that miners often work longer than 8-hour shifts and that that's probably more prevalent now than it was 20 or

30 years ago. Right now the sampling program is based only on 8-hour shifts, and the proposed rule would require sampling from entire shifts and get the entire exposure that a miner had.

Miners are exposed every working shift. But only five shifts are sampled, and the samples are averaged to determine exposure for compliance purposes. And this proposal would determine exposure every shift.

Right now the procedures permit samples to be taken at reduced levels of production. The -- although the samples are supposed to be taken in "normal production," this proposal would change the definition of normal production so that it would be the average of the last 30 production shifts as being normal for what's going on in that mine.

Another problem is that miners are getting disease at the current standard, and the proposal would limit the exposure limit. It would reduce it.

And miners are not provided sufficient information about their health and exposures now to be able to take action to help get engaged in preventing disease from occurring. The proposed use of the continuous personal dust monitor as well as additional medical monitoring would provide miners

with information on which to act.

This comprehensive proposal is part of an overall effort by MSHA and the mining community to end black lung. It includes education outreach, it includes efforts at trying to have improved enforcement, and it also now includes the proposal to improve the regulation to reduce miners' exposure to respirable coal mine dust.

At this point I'm going to call the panel up to the front of the room, and then I'll be introducing the rest of the morning's hearing as well as the panel.

As I said, my name is Gregory Wagner, and I'm deputy assistant secretary for policy at the Mine Safety and Health Administration. That's my current service. And I'll be the moderator for this public hearing on MSHA's proposed rule to lower miners' exposure to respirable coal mine dust, including continuous dust monitors.

First, on behalf of Joseph A. Main, Assistant Secretary of Labor for Mine Safety and Health, I'd like to welcome all of you to today's hearing, extend our appreciation for your willingness to participate in this rulemaking.

I'd also like to introduce the members of

the MSHA panel. Immediately to my left is Robert Thaxton and then George Niewiadomski from Coal Mine Safety and Health. At the far end is Susan Olinger and then Ronald Ford from the Office of Standards at MSHA, and Javier Romanach from the Office of the Solicitor, Mine Safety and Health Division, is to my immediate right.

The proposed rule for lowering miners' exposure to respirable coal mine dust is an important part of the Agency's comprehensive Black Lung Initiative to End Black Lung. The secretary of labor considers ending black lung disease as one of the department's highest regulatory priorities.

The proposed rule we're talking about today was published in the Federal Register on October 19, 2010, and in response to requests from the public, on January 14, 2011, MSHA extended the comment period from February 28, 2011 to May 2, 2011. All comments and supporting documentation must be received or postmarked by May 2, 2011.

The hearing we're having today is the fourth of seven proposed hearings, public hearings on the proposed rule. The first three were held on December 7th, January 11th and January 13th, the first at the MSHA Academy, the second in Evansville,

Indiana, and the third in Birmingham, Alabama.

Three others are going to be held after this, on February 8th in Washington, Pennsylvania; February 10th in Prestonsburg, Kentucky; and February 15th at the MSHA headquarters in Arlington, Virginia.

As many of you know, the purpose of these hearings is to allow the Agency to receive information from the public that will help us evaluate the proposed requirements and produce a final rule that protects miners from the health hazards that result from exposure to respirable coal mine dust. MSHA will use the data and information from these hearings to help us craft a rule that responds to the needs and concerns of the mining public so that its provisions can be implemented in the most effective and appropriate manner.

MSHA solicits comments from the mining community on all aspects of the proposed rule. Commenters are requested to be specific in their comments and submit detailed rationale and supporting documentation for suggested alternatives submitted.

At this point I'd like to reiterate some requests for comment and information that were included in the preamble to the proposed rule.

1. The proposed rule presents an integrated comprehensive approach for lowering miners' exposure to respirable coal mine dust. The Agency's interested in alternatives to the proposal that would be effective in reducing miners' exposure to respirable dust and invites comments on any alternatives.

2. MSHA solicits comments on the proposed respirable dust concentration standards. Please provide alternatives to be considered in developing the final rule, including specific suggested standards and your rationale.

3. The proposed rule bases the proposed respirable dust standard on an 8-hour work shift in a 40-hour workweek. In the 1995 Criteria Document on Occupational Exposure to Respirable Coal Mine Dust, the National Institute for Occupational Safety and Health, NIOSH, recommended lowering the exposure to 1 milligram per meter cubed for each miner for up to a 10-hour work shift during a 40-hour workweek. MSHA solicits comments on the NIOSH recommendation.

4. MSHA included the proposed phase-in period for the proposed lower respirable dust standards to provide sufficient time for mine operators to implement or upgrade engineering or

environmental controls. MSHA solicits comments on alternative timeframes and factors that the agency should consider. Please include any information and detailed rationale.

5. In the proposal, MSHA also plans to phase in use of continuous personal dust monitors, or CPDMs, to sample production areas of underground mines and Part 90 miners. MSHA solicits comments on the proposed phasing in of the use of CPDMs, including time periods and any information with respect to their availability. If shorter or longer time frames are recommended, please provide your rationale.

6. MSHA's received a number of comments about the use of the CPDM. For operators who have used this device, MSHA's interested in receiving information related to its use. For example, MSHA's interested in information related to the durability of the unit, whether and how often the unit had to be repaired, the type of repair, cost of repair, whether the repair was covered under warranty, how long the unit was unavailable and any additional relevant information.

7. MSHA understands that some work shifts are longer than 12 hours and the dust sampling

devices generally have a battery that lasts approximately 12 hours. MSHA solicits comments on appropriate timeframes to switch out sampling devices, whether gravimetric samplers or CPDMs, to assure continued operation and uninterrupted protection for miners for the entire shift.

8. The proposed single sample provision is based on improvements in sampling technology, MSHA experience, updated data and comments and testimony from earlier notices and proposals that address the accuracy of single sample measurements. The Agency's particularly interested in comments on new information added to the record since October 2003 concerning MSHA's quantitative risk assessment, technological and economic feasibility, compliance costs and benefits.

9. MSHA's interested in commenters' view on what actions should be taken by MSHA and the mine operator when a single shift respirable dust sample meets or exceeds the excessive concentration value, known in the proposed rule as the ECV. In this situation, if operators uses a CPDM, what alternative actions to those contained in the proposed rule would you suggest that MSHA and the operator take? MSHA's particularly interested in alternatives to those in

the proposal and how such alternatives would be protective of miners.

10. The proposal includes a revised definition of "normal production shift" so that sampling is taken during shifts that reasonably represent typical production in normal mining conditions on the MMU. Please comment on whether the average of the most recent 30 production shifts specified in the proposed definition would be representative of dust levels to which miners are typically exposed.

11. The proposed sampling provisions address interim use of supplementary controls when all feasible engineering or environment controls have been used but the mine operator is unable to maintain compliance with the dust standard. With MSHA approval, operators could do supplementary controls such as rotation of miners or alteration of mining or production schedules in conjunction with CPDMs to monitor miners' exposures. MSHA solicits comments on this proposed approach and any suggested alternatives as well as the types of supplementary controls that would be appropriate to use on a short-term basis.

12. The proposed rule addresses which occupations must be sampled using CPDMs and which

work positions and areas could be sampled using either CPDMs or gravimetric samplers. MSHA solicits comments on the proposed sampling occupations and locations and the proposed frequency of sampling. For example, please comment on whether there are other positions or areas where it may be appropriate to require the use of CPDMs and whether, for instance, sampling of other designated occupations should be more frequent than 14 days each calendar quarter.

Also, comment on whether the proposed CPDM sampling of other designated occupations on the MMU is sufficient to address different mining techniques, potential overexposures and ineffective use of dust controls.

13. The proposal would require the person certified in dust sampling or maintenance and calibration retake the applicable MSHA examination every three years to maintain certification. Under the proposal, these certified persons would not have to retake the proposed MSHA course of instruction. MSHA solicits comments on this approach to certification. Please include specific rationale for any suggested alternatives.

14. In the proposal, MSHA would require

that the CPDM daily sample and error data file information be submitted electronically to the Agency on a weekly basis. MSHA solicits comments on suggested alternative time frames, particularly in light of the CPDM's limited memory capacity of about 20 shifts.

15. The proposal contains requirements for posting information on sampling results and miners' exposure on the mine bulletin board. MSHA solicits comments on the lengths of time proposed for posting data. If a standard format for reporting and posting data were developed, what should it include?

16. The periodic medical surveillance provisions in the proposed rule would require operators to provide an initial examination to each miner who begins work at a coal mine for the first time and then at least one follow-up examination after the initial examination. MSHA solicits comments on the proposed time periods specified for these examinations.

17. The proposed respirator training requirements are performance based, and the time required for respirator training would be in addition to that required under Part 48. Under the proposal, mine operators could, however, integrate respirator

training into their Part 48 training schedules. The proposal would require operators keep records of training for two years. Please comment on the Agency's proposed approach.

18. The proposed rule specifies procedures and information to be included in CPDM plans to ensure miners are not exposed to respirable dust concentrations that exceed proposed standards. For example, the proposed plan would include preoperational examination, testing and set-up procedures to verify the operational readiness of the CPDM before each shift. It would also include procedures for scheduled maintenance, downloading and transmission of sampling information and posting of reported results. Please comment on the proposed plan provisions and include supporting rationale with your recommendations.

19. MSHA's received comments that some of the aspects of the proposed rule may not be feasible for particular mining applications. MSHA's interested in receiving comments on the specific mining methods that may be impacted and alternative technologies and controls that would protect miners.

20. MSHA's received comments on proposed Section 75.332(a)(1) concerning the use of fishtail

ventilation to provide intake air to multiple MMUs. Commenters were concerned that under the proposed rule the practice of using fishtail ventilation with temporary ventilation controls would not be allowed. MSHA solicits comments on any specific impact of the proposed rule on current mining operations, any suggested alternatives and how alternatives would be protective of miners.

21. The Agency has prepared a preliminary regulatory economic analysis which contains supporting cost and benefit data for the proposed rule. MSHA has included a discussion of the costs and benefits in the preamble. MSHA requests comments on all estimates of costs and benefits presented in the preamble and the preliminary regulatory economic analysis, including compliance costs, net benefits and approaches used and assumptions made in the preliminary economic analysis.

22. MSHA's received comments that the proposed rule should not require mine operators to record corrective actions or excessive dust concentrations as Section 75.363 hazardous conditions. MSHA would like to clarify that the proposal would require the operators to record both excessive dust concentrations and corrective actions.

However, under the proposal MSHA intends that these actions be recorded in a similar manner as conditions are recorded under section 75.363. However, MSHA would not consider them to be hazardous conditions.

23. A commenter at the first public hearing suggested that the time frame for miners' review of the CPDM performance plan be expanded. I want to clarify MSHA's position in the proposed rule. In developing the proposed rule, MSHA relied on the time frame and process and the existing requirements for mine ventilation plans. In the proposal, MSHA did not intend to change the existing time frame and process and stated that the proposed rule is consistent with ventilation plan requirements and would allow miners' representatives the opportunity to participate meaningfully in the process.

As you address the proposed provisions either in your testimony today or your written comments, please be as specific as possible. We cannot sufficiently evaluate general comments. Please include specific suggested alternatives, your specific rationale, the health benefits to miners and any technological and economic feasibility considerations, and please provide data to support your comments. The more specific your information

is, the better it will be for us to evaluate and produce a final rule that will be responsive to the needs and concerns of the mining public.

Now, as many of you know, this public hearing will be conducted in an informal manner. Cross-examination and formal rules of evidence will not apply. The panel may ask questions of the speakers after the speakers are done and sometimes may ask in the course of the presentation.

Those of you who notified MSHA in advance of your intent to speak or have signed up today to speak will make your presentations first. Please -- when you're making your presentation, there's no time limit that I'm going to impose, but I'd ask you to please be mindful of the others who are planning to speak as well and of the interest of those in the audience of being able to hear from everyone.

After all scheduled speakers have finished, any others who wish to speak may do so. If you wish to present written statements or information today, please clearly identify your material and give a copy to the court reporter.

You may also submit comments following this public hearing. Comments must be received or postmarked by May 2, 2011. Comments may be submitted

by any method identified in the proposed rule.

MSHA will be making available transcripts of all the public hearings approximately two weeks after the completion of the hearing, and you may view the transcripts of the public hearings and comments at MSH's website at www.msha.gov.

Anybody who's in attendance, we'd ask you to sign the attendance list at the back of the room. If you haven't, please do so.

And now we're going to begin today's hearing. After I call you up, please begin by clearly stating your name and organization, spell your name for the court reporter so that we have an accurate record.

Our first speaker will be Lou Shelley from the United Mine Workers of America.

MR. SHELLEY: Good morning.

DR. WAGNER: You might want to pull that a little closer to you.

MR. SHELLEY: My name is Lou Shelley, L-o-u, S-h-e-l-l-e-y.

DR. WAGNER: I'm sorry. If you wouldn't mind stating the name of your organization as well.

MR. SHELLEY: I represent the United Mine Workers of America.

Good morning. My name is Lou Shelley. I am an international district representative of the United Mine Workers of America. I have been an underground coal miner for 31 years. I presently perform safety inspections at underground and surface mines in Colorado, Wyoming and Utah that are represented by the United Mine Workers of America.

I am thankful for the opportunity to address an issue that is and has been a top priority of the United Mine Workers, and that is protecting the health of all coal miners. The proposed rule before us today is aimed at reducing a miner's exposure to not only coal dust but also silica dust. Today I'd like to touch on some of the issues in the proposed rule.

The proposed rule will apply to both underground and surface mines. We have known for years that the surface miners, like underground miners, have been exposed to high concentrations of coal and silica dust. We support the fact that surface miners will be included.

We support the method proposed for determining air measurement at the end of the ventilating face with the scrubber off. This will ensure that the minimum amount of air will ventilate

the face if the scrubber is off.

We are supportive of the proposal that each working section, or MMU, will be required to be ventilated by a separate split of air directed by overcast, undercast or permanent ventilation controls. This will be especially important where super sections are used.

We fully support the proposal lowering the standard on belt air course ventilation from the current 1.0 milligram to a .05 milligram. When the use of belt air is ventilating -- excuse me. When the use of belt air ventilation is allowed, that dust is directed onto the working face, further increasing a miner's exposure.

The union supports the idea of the CPDM, the performance plan. This will benefit both the miner and the operator as a guide to maintain compliance to control overexposure of dust. We would, however, encourage MSHA to require separate training from and in addition to the already required annual retraining given to miners today. If we truly want miners to benefit and learn how to use the CPDM, it is important to give them the time needed to become educated in their use.

We are pleased that MSHA has proposed

requiring operators to make approved respirators available when sampling has exceeded the applicable dust standard, but it should not take a violation to cause the operator to make available approved respirators. Operators should have approved respirators available at all times for miners.

Representatives of the United Mine Workers of America have made it clear in prior court filings and in public testimony related to MSHA's failed 2003 dust proposal that the Agency, not the operator, should be responsible for compliance sampling. History has shown that an operator-controlled system is not credible with regard to compliance sampling. We cannot support this proposal insofar as it will have the operator being in charge. MSHA must be in charge of the sampling.

The union believes that with the new technology of the CPDM, every miner should be sampled at least once a year, and every miner should have their dust exposure sampled so that it will reflect their normal work exposure.

The union historically has supported the reduction of dust exposures to our nation's miners. With the developing and testing of the CPDM, we know that we can obtain more accurate information and

truer data. It allows individual miners to monitor their respirable dust exposure in real time and empower them to make adjustments to reduce their individual exposure to concentrations of respirable dust. It can become a powerful tool in the fight against black lung.

The proposed rule, which would allow worker rotation as a supplementary control when the operator is unable to maintain compliance through environment and/or engineering controls, should not be allowed. It simply moves one person out of danger and puts another miner in danger.

The calculation for determining permissible exposure for extended shifts is confusing and difficult for the miners to understand. We would ask MSHA to better explain the various scenarios so we can understand what this rule will actually do and what exposures could be.

We support MSHA in their effort to reduce a miner's exposure to respirable dust. We believe that the common goal of the coal mining industry should be to develop a system that is easily understandable and credible to the miner. That is the individual that we are all trying to protect.

Thank you.

DR. WAGNER: Thank you very much for your comments.

I'm going to turn to the panel first and see if there are any questions.

Susan?

MS. OLINGER: No, I don't have any.

MR. ROMANACH: I actually have one. I'm Javier Romanach with the Officer of the Solicitor.

And, sir, you said that you requested training in addition to the annual training. What kind of training do you suggest, sir?

MR. SHELLEY: Individual training on the CPDM to show how it works, what its values are, what their best requirement would be or best policy would be to move them out of that area and just to more or less let them know how it works and what their options are when they are out of compliance.

MR. ROMANACH: Would this be for the individual miner wearing the CPDM, or would it be for every single miner?

MR. SHELLEY: With every -- our proposal would be that every miner wear one at least once a year, so it would be for every miner.

MR. ROMANACH: And would this be part of the Part 48 training, or it would be annual

refresher, new experience or --

MR. SHELLEY: I think we would ask that that would be a separate training from the 40-hour training or the annual refresher.

MR. ROMANACH: Thank you, sir.

MR. SHELLEY: Thank you.

DR. WAGNER: I just have one question on your suggestion that the Agency take responsibility for compliance sampling. How would this work with the CPDM and the individuals who would be wearing the CPDM daily?

MR. SHELLEY: I'm not sure. I just know in the past with the problems we have had -- in fact, I think that MSHA right now is in charge of taking the spirometric sample. I think if they somehow did that also with the CPDM to monitor that somehow.

DR. WAGNER: If you have additional thoughts on this, we'd appreciate it if you'd provide them in written comments prior to the second date.

MR. SHELLEY: All right.

DR. WAGNER: And if there are no more questions from anyone on the panel, then I'd thank you for your comments.

MR. SHELLEY: Thank you.

DR. WAGNER: Appreciate it.

The next person who's signed up is Michael Kelsh.

DR. KELSH: I have the presentation materials, so can I hook it up?

DR. WAGNER: Please.

And can I assume that you'll be providing copies of this to --

DR. KELSH: Yes. I think she gave you a copy.

DR. WAGNER: Yeah. No, I have it, just officially to the court reporter when you're done so she has a copy, if you can.

DR. KELSH: Sorry. I'm going to have to juggle between looking at you and looking at my presentation, so -- anyway, my name is Michael Kelsh, and I'm here to talk about basically a review of the health effects literature and discussions of that in terms of comments on lowering miners' exposure to respirable coal mine dust.

And I'd like to also acknowledge my colleague, Martha Doemland, who also had done this with me.

DR. WAGNER: Actually, could you identify the organization that you're representing here?

DR. KELSH: Right. It's right -- it's

right up here on the next slide.

Again, for the court reporter, it's Michael Kelsh, K-e-l-s-h, and I'm a principal scientist at Exponent, which is a scientific and engineering consulting company. By trade I'm a epidemiologist, and I've also worked as an adjunct professor at UCLA School of Public Health, former adjunct professor, where I taught courses in occupational and environmental health.

As part of my background of 25 years of experience in conducting occupational and environmental health research, I've done a number of epidemiologic studies on a wide range of different occupational groups, electric utility workers, electronics workers, aerospace workers as well as mining workers; and I've also looked across a wide variety of different types of environment exposures. So I bring that perspective to looking at the data that were used to help develop this standard and the quality of those data and how much we can interpret from the available data.

And I should -- for disclosure purposes, I want to recognize that we were asked to independently review the available health studies and NIOSH publications related to coal miner health. My

company, Exponent, received funding from Murray Energy Corporation to conduct this independent review.

We're also looking at not only the health issues but exposure considerations, use of the monitor, economic data and the methods used for risk assessment for the proposed MSHA coal dust standard.

We'll be providing more detailed written comments in addition to what I'm going to talk about today. And, again, my focus is just on the health data. Some other colleagues of mine from Exponent will talk about other issues at the forthcoming meetings.

I'd also like to say that the opinions and comments that I'm presenting today reflect our independent assessment of the coal miner health data and not necessarily that of Murray Energy.

Just to set a framework for my discussion today, I want to talk about how epidemiology can be used in setting standards and developing safety policy. We've seen, as referenced earlier, there's been numerous epidemiologic studies that examine respiratory diseases and coal mine dust exposures, extensive literature. And the key is -- in looking at that literature is understanding what the data can

tell us for workers exposed to the current 2-milligram-per-meter-cubed standard and how the benefits can be -- what benefits we would expect to see if we go lower and how we can use the information to develop critical and effective health and safety programs.

My point today will be I think we need to take a careful look at the assumptions regarding the CWP prevalence, the PMF prevalence, the limitations of the studies and how we can take the surveillance data that's been collected in the NIOSH programs and apply it to all miners in the United States. And I think this really requires, as part of the process, developing further evaluation and careful consideration. In the end we want to make the most effective preventive standard that we can apply using the resources we have in a careful strategy that gives the best benefit.

So here's -- here's more of the specifics of what I want to talk about today. First I'm going to talk about the general design and the limitations of the coal worker health surveillance programs conducted by NIOSH. I'm highlighting a few recent findings from these programs. I'm not going into extensive detail involved in the data findings by my

means. We'd be here quite -- quite some time if I did that.

In particular, from an epidemiologic perspective, I want to talk about the cross-sectional study design, and that's typically what's been applied in these studies. There are other stronger study designs in epidemiology, and I just want to review what could be done and what -- what this cross-sectional study design entails.

Then I'd like to provide a series of questions that I would like to see addressed regarding the design and analysis of the surveillance programs and further teasing out the incidence of the increase in prevalence of CWP and PMF in the United States coal mine workforce and how generalizable that is and how it is perhaps more specific to certain regions.

I'd also highlight the need for -- in the area of health research and in the area of interpreting the health data, the need for more transparency in the presentation of coal mine health data. For those of us who review it from the outside and don't have firsthand information, there's a lot of unanswered questions and there's a lot of data we would like to see or like to have to analyze and do

various sensitivity analysis [sic], expand the analysis [sic] that have been done, basically, to hopefully gain a better understanding of what these data are telling us, where the risks are and how we might prevent them.

At the same time, I think, in looking at these data, we need to be very careful and acknowledge the limitations and what -- what can they say and how can we use it to guide policy the best and not, perhaps, misguide resources where they could have been used better if we understood this data a little better. And as a researcher, I think we do need more research, better-designed epidemiologic studies to develop a better and more effective standard.

I think you're probably well familiar with these programs. This just lists the various NIOSH programs. I won't go through them all in detail, but basically much of the data from the United States is taken from these four different surveillance programs which have detailed differences between them -- I won't go through all of them -- in terms of, perhaps, improvement methods and mobile monitoring, et cetera. But needless to say, these are the sources of data, and it's quite extensive.

But even -- the quantity doesn't necessarily give us the best quality we need to answer the questions when you think about is it always quantity or do we want more quality studies to answer specific questions about risk factors and predictors of disease.

First off I'm going to talk a little bit about when we looked at this data, and with a new perspective, what were some of the trends that we saw. And I will point out and come back to this, even though there are limitations in the data, there's trends that you can see and that have been reported.

And you alluded to some of these earlier, Dr. Wagner, in your talk about exposures to respirable coal mine dust have -- based on data collected by -- by both MSHA and operators, have decreased significantly since the safety act was implemented.

Also, as mentioned earlier, the reported CWP prevalence rates have appeared to decrease as well over the time period, and we saw that graph earlier from Dr. Wagner.

We also note from other reports that CWP prevalence varies with coal rank and geographic

region in the U.S. and in other countries as well.

Other trends that you can see in some of this prevalence data is those who work longer in terms of tenure, duration of employment, have higher prevalence. Those who work in smaller mines have higher prevalence. And it appears we have regional issues where in the southern Appalachian region we see higher prevalence than stated here in the west or other areas in the U.S.

A fact that I'm going to come back to quite a bit on this talk is about the low participation rates of this study and how they can produce misleading results. When you have surveys that involve, say, only 30 percent of the eligible workforce, you really want to know who's participating, who's not participating and how this might bias the findings; and I think there's been not enough attention to this issue and not enough analysis in the reports that I've seen to sort out what could be happening with regards to this.

And then as reported earlier too, the prevalence of CWP and PMF have been reported to increase starting in about 2000 based on this data.

So this is a graph. Sorry I repeated the same one. I didn't know that Dr. Wagner would

present it. But it shows, starting in the '70s, early '70s, the decrease in prevalence of CWP across time by different durations of employment groups. So you see the biggest decrease in those with 25 years or more and then progressively lower risks and lower -- lower slopes of decrease over time with the other tenured groups.

I think it's notable, if you pull apart this graph a little further to focus just on groups, say, 15 to 20 years or less, this uptick that we talked about doesn't really show up in these groups. Now, CWP is a disease that has a long latency period, which is the time from first exposure to where you measure the onset of disease. So some of these haven't experienced a long enough latency period. But most of these -- we can assure most of these workers have not experienced anything but the new standard, whereas the problem with interpreting the other data -- I'll go back to that -- those with 25 years or more, 20 years or more, we're not certain that they haven't had higher exposures.

So in this other group we're certain under the standards that they've had, just the recent standards, and I don't see the uptick that we saw in the other data, nor is NIOSH reporting that. But --

so this is important in terms of the current standard of 2.0 milligrams.

As I mentioned earlier, participation is a big concern on our part in terms of what we can say when we have low participation rates, and it's -- it's a common concern in epidemiologic studies that rely on cross-sectional design and volunteer samples, volunteer participants. And what we see over time is it's a pretty dramatic drop in the participation. In the '70s you had a higher number relative to the workforce, closer to 90 percent, I think the number was, going down to a low of 30 percent at times in participation.

So the question is, when you have this kind of participation, how much can you generalize on what's really going on with the prevalence and whether they're increasing or decreasing or whether you have perhaps selective participation by people who might be more concerned and they're deciding to come back into the survey after time or not. That's really a question we need to look at further in the data that I don't think has been fully explored.

Now, this is another look at participation rates and CWP prevalence , and you see, as I mentioned earlier, participation started out quite

high in the early '70s, but now, for instance, in the later periods, 2005, 2006, we're down below 20 percent. And it's kind of interesting that this pattern of participation mirrors the pattern of prevalence.

So is that saying participation, is there a relationship here? At one point in the '80s, to '85, the prevalence seemed to go up and the participation went down, and then in other areas it pretty much tracks it. But, in fact, we just don't know. We can't really interpret this data because it's such a low participation.

So in order to understand it, is perhaps this uptick is just because the participation rate was increased among people who might be sick more or inclined to think they have problems so it doesn't reflect overall prevalence in the cohort? We don't know. So that needs to be evaluated.

Again, I mentioned cross-sectional studies. And so these -- these are studies that take your measurement at a point in time. You sample the workers available, and you -- you consider their exposures and you consider their health outcomes simultaneously, as opposed to, say, other designs in epidemiologic studies such as cohort studies or

case-control studies which take a more careful approach to defining the population at risk. So they'll take an entire cohort and try to follow that group through time and continue to monitor them, even -- even if they've left the workforce, and follow that group versus the cross-section that takes who's available at the time. And you can't really account for those who have left, and you don't necessarily have the same people working in the same mine. So you're saying this is the mine they're working at the time, but it may not reflect the exposure history that may be relevant to any disease outcomes that they have.

So I mentioned that there's a decreasing number of miners examined and low participation rates in the current data. Given the limitations that -- say you don't have the complete exposure history at the current mine. Since we know miners migrate quite a bit between mines, it may not be reflected in their historical exposures. So trying to develop causal interpretations between what's going on at this mine, in other words, at this mine at this time and their historic exposures, aren't able to be completed with this type of design.

And then, again, as I mentioned,

because -- I recognize that there's difficulties in doing these studies and it's not feasible to get a hundred percent participation, but we should think of sampling methods to be able to strategically sample representative workers that we can consider then the data generalizable to a larger population. Pretty much today, except for perhaps a few studies, only volunteer samples have been studied in this literature.

Kind of repeating somewhat what I said -- what I've said earlier, another factor is that this uses what we call prevalence data. That means an existing case of CWP at the time that you take the survey versus incidence data. So you might ask, Why is this important? Well, when you're trying to determine when the exposures, the relevant exposures that occur to a person, if you have prevalence data, you really don't know when the disease started, you don't know when the relevant exposure period is. When you look at incidence data, which is new cases, you can assume that their exposure history prior is contributing to this current new case. It's a limitation in epidemiology we try to avoid. We prefer incidence data whenever we can collect it.

The studies here in this case, as I said,

they sample at the time when they go to the work site. It's limited to active workers, perhaps other groups. But we often don't know what's happening among those who have retired in these studies.

A limitation with cross-sectional surveys, could there be differences between those who participate and those who don't? Maybe you have more smokers participating, perhaps older folks, perhaps those who are sicker. Maybe you have shorter term workers. You don't really know from the data the way it's presented at this time. So I'll point out those are questions I'll ask later that we should try to address.

Also, it's alluded to in several of the studies that it's frequent that they have to rely on self-reported data such as where they worked, how long, and other disease symptoms rather than, say, a clinical diagnosis are relied on in these surveys. So it would be ideal if we could at least verify or get better data from work history records or clinical diagnosis information rather than always self-reported.

Okay. So kind of summing up a bit, the NIOSH programs do provide surveillance information. It does provide valuable medical information for

those people who are participating. For the active actual participants, they're going to find out what their status is, and they can act on that. But in the sense of can it be generalized to look at health risks, to look at dose-response? Not necessarily.

These limitations of all the different surveys do limit how you can generalize. Does data taken in Kentucky represent what happens in Utah? Is it fair to extrapolate that data to say this is what's going on in Utah?

So I would point out that -- this quote here:

"In recent years, the prevalence of CWP has increased among experienced miners, and in some cases CWP has progressed rapidly to PMF."

I think we need to reevaluate those claims in the context of design limitations and implementation and how much we can generalize that statement. Is that simply a trend that's happening very regionally, or is that a trend that's happening across the United States' mines? And I bring it up because I think it's really cited as a justification of why we need to go lower and why we need to impose extra surveying and lower levels when it may be very difficult to achieve those.

So how can we interpret these potential explanations for this reported increase? One thing one could say, maybe this increase isn't real or it's not related to the current standard. It could be basically a reflection, as we've said, you know, among 20-year-or-more-experience mine worker -- mine workers, so perhaps it's still a reflection of earlier standards and not the 2 milligram.

Now, if it is a true increase, does it reflect an increase in cumulative dust exposure over time? I think with the data that we're seeing that doesn't seem likely because the levels have been going down in the last 20 years.

Several studies have pointed out the proportion of silica dust in the mine could be interacting and creating situations where the -- the diseases progress faster. But I would point out that -- a couple things. The silica trends have been -- concentrations have also been going down, and if you look at, say, an article by McCunney, he points out that the data aren't consistent. If you look at both European and U.S. data, it's mixed results, and he points out that perhaps there's another element that's changing, perhaps the iron content.

And that should be a question, I think, that's addressed, and if you want -- if it is, in fact, that, we should be looking for exposures in that area. So that to me merits further research to evaluate that hypothesis.

It could be that although we have this new standard in place that compliance to the standard has not been optimal and, in fact, workers are exposed to higher levels.

There could be some change in the biological potency of coal in recent years. I think it's more, too, that perhaps the other rock and materials are becoming -- taken out more with the coal. That's perhaps a possibility that changed in those features.

And I think we have to keep in mind that this has a long latency period. CWP is believed to be exposure 20 years or more, so immediate changes now may not be reflecting what -- what are the long-term exposures or the earlier exposures that are relevant to today's new cases.

Could this increase be an issue of screening? As I pointed out, as we go out and try to get more workers into the system, we pick up more diseases. The participation issue, those who were a

little bit more concerned about their health are participating. And it's not that they shouldn't, but the point is if you're trying to accurately estimate if the prevalence it's going up or down, you need to know among the entire population, and you're getting a selective group, so it may not reflect the entire population's experience.

And it could be misdiagnosis, some of it, as more silicosis than pneumoconiosis. It's still an issue, but it does impact how you might want to regulate and how you might want to try to prevent.

And as I've discussed in several slides here, there's a general limitation in the cross-sectional survey design that could be part of the explanation for the difference.

So here I'm just going to list out a series of questions. I think, in looking at the health assessment and looking at the health data, is how is miner migration accounted for in these analyses? Because they can work in various different mines, and you want to get a complete history and understanding of their exposures. So that's not clearly described in the reports.

Do you track miners as they move from one mine to another, or do you have a plan for tracking

these? What's the way to address this issue?

And how many eligible coal miners who were employed more than three years have never participated in the surveillance programs? I think in some of the reports we've seen that large portions haven't had any kind of x-rays for more than 10 or 20 years, so obviously it's a need -- an area that needs improvement to see -- to really track the health in this workforce.

You know, we've looked at a model that goes out to the specific mines and tries to measure individuals, which is assuming a long, stable workforce at that mine. Is that appropriate for what's going on in the modern-day coal industry? Do we need to somehow track miners as they move through different locations and different jobs in a better way to establish a cohort and see what their risks are?

In some of these methods, I think we have to look at -- when we look at exposure, the assumption appears to me to be that they assumed that it was at 2 for all miners. Was that, in fact, assumed in many of the studies in making the assessments of the surveillance data that these were the exposures?

A question that I've been alluding to several times heretofore in my questions is how did the following factors of a miner's employment history affect differences in the prevalence: The specific times in the mine, job changes, number and size of mines worked in. We've seen some analysis of that but not -- not whether they've changed mines a lot.

Time in the different types of mines, different sizes, different geographic areas is not really accounted for as we analyze the recent miner data. It's analyzed from a mine perspective and not necessarily from a cohort or an individual mine worker's perspective.

And then what methods are used to -- to at least address or hopefully adjust for participation bias in these studies?

And, again, I'm just throwing this graph up again because I'm going to ask some questions about participation. But here it shows the rates, as they've gone over time, decreasing.

So I would contend that the results and prevalences can be strongly influenced by who participates in your study and how do the participants in the study differ from miners who don't participate across all of these factors, across

age, race, tenure, hours per week in the mine, history of smoking -- and I'm just reading a few off, but the list is all there in the slide.

I think a lot of these data are collected. We need to analyze it or someone needs to analyze it and see if, in fact, we have more smokers participating, so we'd want to adjust for that. You know, if there's other non-coal mining employment history that may be important. So those are the kinds of things, I think, are in data that could be analyzed that currently aren't.

I would ask what -- what NIOSH and MSHA believe accounts for the increase in participation in the 2000-2004 surveys, and then were these methods applied across the board or just in certain areas where perhaps the prevalence is higher?

How is this increase distributed across mine size, geography, tenure and other questions regarding participation?

And then what is this relationship between the participation within these groups and the prevalence of CWP and PMF over time and among key groups that I mentioned in the last slide?

So putting this back in context, then, as I said, the majority of the data on the prevalence of

CWP and PMF was generated from the surveillance programs, not necessarily optimally designed case-controlled or cohort studies.

The 1995 NIOSH Criteria Document, proposed rule and quantitative risk assessment really based their conclusions a lot on the data generated from these programs, so I'm just pointing out we need to take a very critical look at how we can use that data and how we can generalize it.

So just as an example, I'm going to walk through a couple of issues in very recently published NIOSH data, the Laney, et al., studies, which reflect the most comprehensive U.S. data and the latest look that NIOSH is doing. And it's a point, really, that these issues are still out there. They're not -- the newest analyses aren't yet addressing some critical issues such as participation.

So Laney pretty much aggregated the data across the period 1970 and 2009. He had over 145,000 miners and over 240,000 x-rays to look at. And, really, they wanted to look at here mine size and whether it was associated with CWP or PMF experience -- prevalence. The authors reported that miners from smaller mines experienced significantly more CWP and PMF in the 1990s and 2000s than mines

with a larger number of employees, greater than 50.

And I would -- I would point out, too, that in particular in that study, if you look at the graphs presented -- it's actually in the silicosis one, but Figure -- the Figures 1 and 2, which really show large mines decreasing their rates and small mines in Kentucky and Virginia increasing, which shows a real different pattern. And so I'm wondering if we need to look at why the rates are still maintained low at other places and high in the other, and that seems to call for, perhaps, a different approach than the one-size-fits-all standard in looking at safety.

Here's some more questions regarding these recent studies. You know, again relating to how they analyze it, why was the unit of analysis a miner from a small mine rather than sort of the miner's specific employment history? Was that taken into account? How you really define miners from small mines? What if they worked in a big mine and a small mine? How many days did it require to be designated as a miner in a small mine? The duration of time in a small mine, is that considered in the analysis?

So these are all questions that I think are critical to figuring out how we can design better

safety regulations that aren't addressed.

And what methods are there to prevent sort of the misclassification of the miners' history so that you can get a closer analysis to what the risk factors are?

Again, more questions on these recent studies. Approximately one-third of the participants had more than one x-ray, yet two-thirds had only one x-ray. So I'm curious to know how do those two-thirds maybe differ if you only have one -- one point of participation in the study. Is there something different? And I think it's important to the interpretation of the data.

How many small mines were in operation during each round of the surveillance? I think we could get a lot more succinct information out to help interpret that data. What's the ratio of small participating mines to large mines in the surveillance? And then what is the ratio of participation at the small mines compared to non-small or larger mines in each round of the surveillance?

Here I'll talk a little bit about the silica publication, the same author. It's Laney. Here they were trying to see if silica may be a

factor in the increased prevalence and increased progression of disease. More I just want to point out they focused a lot on Virginia, West Virginia and Kentucky, the states with the largest number of mines and small mines, and most -- 50 percent of participants were from those three areas.

So the results indicated that only miners in Virginia, West Virginia and Kentucky experienced this increase in CWP category 2 and 3, and only miners in those states experienced increase in the prevalence of PMF. So here these three states are accounting for half the miners in that study, and they're reporting the higher proportion. So if we looked at how the mine size and the participation rates, et cetera, have been evaluated in these three regions versus the other regions in the study.

Okay. I'm going to wrap up here. This is just back to what I started saying was my outline, that I wanted to talk about the design and the work of Coal Workers' Health Surveillance Programs. I highlighted a few of the findings of those programs. I spent a lot of time talking about the cross-sectional study design, and then I provided you a list of questions about the design and analysis of those programs that I think have to be looked at in

order to interpret the data that you have.

And I point out the need for, I think, more transparency and more analysis in the presentation of these data, more acknowledgment of limitations and the need for more research aimed at designing a better standard, a more effective standard, given the resources we have for -- leaning towards safety.

Medical monitoring and surveillance are very important tools for early detection, and it's essential for helping to develop effective standards, safety programs and getting workers the attention and treatment they need or perhaps a change of exposure.

This needs to -- the monitoring surveillance really could use an update and revision to give better quality data. A study that you could track miners instead of just sample at mines would be helpful. Using better scientific sampling methods would also be helpful. So if we could try to implement cohort or case-controlled designs to characterize key risk factors, I think that would take us a long way in improving our understanding of the risks.

We need to understand better the reliability of the prevalence rate measures in the

context of low participation. As I said, it would be good to see more transparency in the study protocols, recognition of data limitations and keeping in mind in cross-sectional studies we need to be cognizant of the limitations with this approach.

As I mentioned earlier, maybe -- given the different trends going on between different regions, maybe the one-size-fits-all might not be the best approach, and you might think of ways to more effectively target areas and apply health prevention efforts.

The standard also proposes fairly complex and burdensome exposure monitoring. I think this is going to be costly and difficult to implement and analyze. Just from personal experience of seeing some of these meters, there's breakdowns. They take half an hour to get up to speed. Sometimes they just don't work, and you have to reboot them. So you have delays, and people don't want to use them. So you really have to look at the complexity and if there's better ways to get the information that we need for exposures and for monitoring workers and for understanding risks.

And I'd point -- I think the World Health Organization, as noted in one of your documents, has

adopted a more regional approach to -- that considers CWP risk by regions, type of coal and other factors. Did MSHA consider that approach, and should that approach be adopted perhaps in the United States?

Thank you very much.

DR. WAGNER: Thank you very much for your extensive presentation.

I'm going to turn to the panel first for questions.

MS. OLINGER: I would just repeat if you could provide us an electronic copy, that would be very helpful, and thank you for your comments.

MR. ROMANACH: I have a few questions. Javier Romanach with the Office of the Solicitor.

Did you publish a paper pursuant to your study on which the presentation is based?

DR. KELSH: No, I have not.

MR. ROMANACH: So the only written report that you have based on your study is the PowerPoint that we saw today?

DR. KELSH: That's what we have so far. We're in the process of preparing more extensive comments that we'll submit in May with more details and probably more specifics. I haven't finished that yet.

MR. ROMANACH: Is there a list of the studies upon which you base your PowerPoint?

DR. KELSH: A list?

MR. ROMANACH: Yeah, a list or -- you mentioned various studies that were conducted. Is there -- do you have a separate listing of all the studies that you reviewed to make your PowerPoint presentation?

DR. KELSH: We have that list. I didn't prepare the list here. I'll submit it definitely in my comments. We looked at, you know, all the U.S. studies, a lot of the stuff published -- also published by NIOSH as well as studies in Europe, Britain, primarily.

MR. ROMANACH: And will you be able to provide us with such a listing of all those studies?

MR. KELSH: Yes.

MR. ROMANACH: Have you ever conducted, prior to this particular study, any study on coal mines or coal mine -- coal miner exposure to respirable dust?

DR. KELSH: No. I hadn't worked specifically on coal mines. It was more -- some of my earlier studies were on surface miners and also a study on beryllium mines, but I haven't done

specifically a coal mine study.

My points, I think, are general in nature of epidemiologic methods, and so I used my general experience in occupational health to apply and, you know, critique and evaluate the strengths and limitations of the studies.

MR. ROMANACH: Would you be providing us with an educational -- your educational background and any publications which you have conducted and any publications which you have performed -- published -- I'm sorry -- prior to the PowerPoint presentation?

DR. KELSH: Sure, yeah. I've published over 50 studies. And I'll submit my CV with my comments, and you can see what they are.

MR. ROMANACH: Prior to this study, have you ever conducted any studies for -- for Murray Corporation?

DR. KELSH: No, I have not.

MR. ROMANACH: Prior to this study, did you ever conduct any other studies for any other coal mine operators?

DR. KELSH: No, I have not.

MR. ROMANACH: I have no further questions.

MR. THAXTON: I just have a couple

questions I'd like to clarify with you.

You indicated in your slides when you were going through, around slide 15, that it was difficult to achieve the new lower levels, you had made that determination.

Can you provide us with what information and what data you've analyzed to determine it would be difficult to achieve these new lower levels?

DR. KELSH: Well, I've seen from the monitoring reports, you know, a certain percentage of exceedances in terms -- especially more in small mines in reference to that in published studies. Even, you know, achieving current 2 milligram standards are not always successful. So I'm basing it kind of on the historical, where we're at right now.

MR. THAXTON: Can you still, though, provide your analysis of the data that you looked at to come to that conclusion?

DR. KELSH: Sure.

MR. THAXTON: In addition, you indicated that you have data indicating that the exposure data was not representative of miners' exposure.

Can you provide the information and analysis that you performed that resulted in that

determination that the data is not representative of miners' exposures?

DR. KELSH: I don't think I recall saying exposure data. I was referring more to the surveillance data, as far as surveillance. I don't recall saying "exposure." I didn't --

MR. THAXTON: It was in relation to your slide 16 when you were talking about the exposure data, increase in cumulative dust exposure, exposure to silica dust, inadequate, inconsistent compliance with the respirable coal mine dust standard. At that point you indicated that the data was not necessarily representative of people's actual exposure.

Can you provide us the information that you relied on and the data and the analysis that you performed to come to that conclusion, please?

DR. KELSH: Okay. I mean, I can comment on the fact that when you use the cross-sectional design and you're asking the miner, you know, where he's working at now, we don't know if that's representative of his entire history, so that all that information in reports that have been published to date I haven't seen that counting in many of the studies. Some of them have. So that, in a sense, I'm saying, could -- may not be representative

because it's a snapshot now, of a point in time now, rather than the complete historical history this guy has of working in different mines and how long he worked there and what kind of conditions were there. So in that context I can discuss that.

MR. THAXTON: So you're making that assertion now it's in relation to individual miners' exposure as opposed to what the exposure data itself shows over the last nearly 40 years?

DR. KELSH: Correct, in the context of how it's used in the studies, like I said.

MR. THAXTON: The last question I have is in relation to when you were on slide 32. You were talking about the respirable coal mine dust proposed rule involves complex and burdensome exposure monitoring, costly and difficult to implement and analyze.

Can you provide what data was used for this analysis that gave you that conclusion, that this would be costly and difficult to implement and analyze, please?

DR. KELSH: Yes, I can, and I think from observation, it's that you have to have someone monitoring it and the quantity of data and --

MR. THAXTON: If you can provide us --

DR. KELSH: Sure.

MR. THAXTON: -- your analysis, what it's based on so that we actually can take a look at the specifics, please?

DR. KELSH: Okay.

MR. THAXTON: Thank you.

MR. ROMANACH: I have one more question I forgot. You mentioned an article by McCunney. Which article was that?

DR. KELSH: It's McCunney 2009. Let me give you the title. It's -- it's entitled "What Component of Coal Causes Coal Workers' Pneumoconiosis," Robert McCunney, Peter Morfeld, Stefan Payne, and it's published in the Journal of Occupational and Environmental Medicine, November -- No. 4, April 2009.

MR. ROMANACH: Thank you.

MR. THAXTON: Are you providing copies of those documents to the court reporter since you referred to them during your presentation?

DR. KELSH: Sure. I can provide this one. These are just all articles that I'm sure you're familiar with, and we'll provide them with the final comments.

MR. THAXTON: As a part of the record, if

you have them available to provide in this part of the record, it would be appreciated.

DR. KELSH: Okay.

DR. WAGNER: I have a few questions as well. Thanks again for your presentation and the current focus of your issues.

I wanted to start with did you give this presentation to Murray Energy Corporation as well before you came here?

DR. KELSH: I didn't give it to them. I showed them the slides to show what I'd be talking about.

DR. WAGNER: And did they provide any comments to you on this?

DR. KELSH: General comments. They didn't say, Let's do this, let's do that. They asked me for clarification, What are you saying here, understanding and, you know, questions of that nature.

DR. WAGNER: Your focus was primarily upon a limited number of recent studies in the data from the surveillance program, and you gave a critique of the -- some limitations of cross-sectional studies.

Did you take a look at any of the longitudinal studies on which the NIOSH criteria

document was based and that were integrated into consideration for the current proposed rule?

DR. KELSH: We're currently looking at those. I can't say that I reviewed every one. I think there are studies from the UK, and there's some earlier NIOSH studies that attempted to be longitudinal. For instance, Attfield's, I think, '95 article's a more longitudinal study that took the initial cohort of people who participated, which is still a selection process, but then tried to follow that same group through time. So that was a stronger study than the ones that just, say, take another group, another new group each survey so we're not following the same set of workers. So a stronger epidemiologic design tries to follow the same set of workers, which Attfield did in 1995.

DR. WAGNER: So we'll look forward to learning your specific analyses and critiques for the longitudinal studies as well.

In your experience as an epidemiologist, can you describe some other occupational groups where there's more extensive information upon which to base health protective standards than you find with coal miners?

DR. KELSH: Well, the area that I've

worked in where I think there's quite a bit is the magnetic field exposure that the utilities have done, electric utilities. They've done quite extensive studies with monitors on workers and cohort analysis types of approach to evaluate what -- what the levels of exposures are in those groups and determine risks.

DR. WAGNER: You've expressed concern about cross-sectional studies. Some of the recent reports include indications of progression or what NIOSH calls rapid progression of disease in individuals over a defined period of time. They've participated more than one time in the x-ray surveillance program.

How would you describe, evaluate and credit those studies?

DR. KELSH: In part they're still cross-sectional. They're selected volunteers, and then you follow up in a group of those who -- you know, it's more a case analysis than comparative analysis with other -- other groups.

You know, depending on how you -- it's more a case series of sentinel event monitorings with those involved, and they have tracked individuals in time and showed a rapid progression. So I'd characterize them as case series reports. Sentinel

event monitoring is how they labeled it.

DR. WAGNER: Are there any -- you note the concerns about participation rates in the x-ray surveillance program and tended to focus on the possibility of low participation resulting in an overestimation of disease.

Are there any circumstances where low participation rates would result in an underestimation of disease?

DR. KELSH: I think there could be, yeah. You could have situations where -- you know, we call it the healthy worker effect, so you have workers still working are the ones being monitored, and those who are sick may have left, those who retired early, or whatever. And that's the value of following that group, and that's the limitation. You just don't know what's happened. Maybe they left because they got a different job. Maybe they left for health reasons. I think those kinds of issues need to be addressed.

DR. WAGNER: If workers who became aware that they had an abnormality on chest x-ray from other healthcare were concerned about the confidentiality of their information, the impact that it could have on their future employability, what

kind of impact could that have on participation?

DR. KELSH: It could -- if you're saying workers who knowingly have an x-ray abnormality not participating, it would lower your prevalence rates, if that's a phenomenon that's occurred.

DR. WAGNER: Is it plausible that it could happen that people who knew from other circumstances might just not participate in this program?

DR. KELSH: You know, a lot of things are possible. They might also participate just to see how they progress, so it could even more likely. It could go either way. It's hard to predict, you know, in individual circumstances.

DR. WAGNER: You talked about the latency before CWP shows up on x-ray. In your experience and your knowledge of the literature, about what is that latency before you would expect to find abnormalities?

DR. KELSH: That I haven't actually seen a lot of precise data on. I've heard it's long term, 20 years. I don't think we have -- and that's another limitation in the research, is getting a good handle on what the latency is because that would help us identify the important exposure period.

DR. WAGNER: So I actually found your use

of chart 10 a bit confusing because it cuts out at 20 years of coal mine tenure, which you're suggesting might not even achieve the latency level that is often reported in the literature.

DR. KELSH: Right. And the focus was that, you know, here you have the short-term, fast-acting thing in this group, what's happening in this group. It's a short-term, fast-acting event that these data would show is happening in that regard.

DR. WAGNER: You brought up the question of the healthy worker's survival effect and the impact that this could have on data. You also noted that the x-ray surveillance program only applies to active, currently working miners.

Could you tell us again what the likely impact of not doing disease surveillance on retired miners would be?

DR. KELSH: Not doing disease surveillance?

DR. WAGNER: Yeah.

DR. KELSH: You just don't know their health status. It's unknown in terms of early onset coal miner pneumoconiosis. We're not measuring that in retired workers.

DR. WAGNER: So it's possible that you would be missing disease in people who actually had it because they aren't being included in this type of a program?

DR. KELSH: Right, it's possible, and I think that's just the point, we don't know. So we should try to answer those questions and not assume either way because you can sit and argue your assumptions and who has better assumptions. I think it's best to answer the question.

DR. WAGNER: So since you're cutting out people who are no longer choosing to work or able to work, is it likely that -- what you note on slide 14, that the participants in this surveillance program are likely to be older? Does that make sense?

DR. KELSH: I'm sorry. Which slides are you on?

DR. WAGNER: 14. You note that the participants might be older or sicker than nonparticipants.

DR. KELSH: I think I give that as a possibility. We don't know. I'm not -- I'm not asserting that they are.

DR. WAGNER: I see.

DR. KELSH: So that's what needs to be

measured and reported and addressed in the analysis so that we can better interpret the data. So these are potentials that -- that -- I think, you know, the research questions can partially be addressed in the data they have and we just haven't seen all that data provided.

DR. WAGNER: On slide 16 you list a number of potential explanations for a reported increase in CWP and PMF. Are there other potential explanations that you've thought about or that you've identified in the literature?

DR. KELSH: At the moment, no. I'm not saying there couldn't be others, I just haven't -- this is what I've thought about to date --

DR. WAGNER: Well, as you prepare your remarks, I'd appreciate it if you come up with other potential explanations. In particular, I know that the question of longer shifts has been raised and the question as to whether or not the coal mine dust exposures that are reported are actually reflective of the exposures that individuals have and how that would play into this.

DR. KELSH: Those are good points.

DR. WAGNER: You raise on slide 19 a methodologic issue that I'm not sure that I fully

got. The first bullet says, Was cumulative or lifetime dust exposure assumed to average 2 milligrams for all miners?

Talk a little bit about what that point is.

DR. KELSH: Yeah. What we have in the current cross-sectional analysis is that you work at this mine and you've worked at this mine for certain periods. So we don't have long-term measurements on this particular individual, or often we won't have them on that mine, so let's assume that their exposure -- I think the implicit assumption is they have, you know, an average of 2, or maybe this mine has more or less. But it's just not factored into the analysis. So I'd like to know, in making conclusions and then the author's conclusions and in MSHA's interpretation of this data, do you -- do you take this to say their average is 2 or their average is 5, or how do you average that?

DR. WAGNER: Okay. Actually, perhaps when you complete your analysis of some of the studies, you'll see that that assumption was not made in many of the studies that have been reported. And thanks for explaining.

I'm going to ask again whether anyone else

on the panel has further questions?

Thank you once again for your time. We'll look forward to getting your specific comments, written comments, later as well as the data on which you relied and reached your conclusions. Thanks a lot.

DR. KELSH: A quick question of procedure. Can I, then, e-mail these copies? Would that be more efficient? Or who would I e-mail that to?

MS. OLINGER: I can give you mine.

DR. KELSH: Okay.

DR. WAGNER: Okay. If you'll stick around for that. Thank you very much.

DR. KELSH: Thank you.

DR. WAGNER: Janet Torma-Krajewski has also signed up to speak.

DR. TORMA-KRAJEWSKI: I also have a presentation.

DR. WAGNER: I think I'll ask Susan's question for her. Would you let us keep the presentation electronically as well?

DR. TORMA-KRAJEWSKI: Yes.

DR. WAGNER: Thank you very much.

Okay. If you could give us your name and organization, please.

DR. TORMA-KRAJEWSKI: My name is Janet Torma-Krajewski, and it's spelled, T-o-r-m-a-hyphen-K-r-a-j-e-w-s-k-i. And I work for a company as a consultant. The name of the company is Industrial Ergonomics, Incorporated.

I have over 30 years of experience in occupational safety and health, including ergonomics, and have been a certified professional ergonomist since 1993. My experience includes working for the NIOSH Office of Mine Safety and Health Research in Pittsburgh. And additional information about my qualifications has been provided in the attached curriculum vita that I provided to MSHA earlier today.

I would like to state that I was asked to independently review available research studies, including NIOSH publications, related to ergonomic aspects of wearing the CPDM, Industrial Ergonomics, Inc., received funding from Murray Energy Corporation to conduct this independent review and that the opinions and comments presented here are mine and reflect an independent scientific assessment and are not necessarily those of Murray Energy Corporation.

The purpose of my testimony today is to tell this panel about my concerns that the proposed

rules are very likely to result in an unintended outcome of increasing the incidence of musculoskeletal disorders, or MSDs, as well as potential falls among those miners who would be required to frequently wear continuous personal dust monitors, or CPDMs. However, MSHA does not appear to have considered this issue in its proposed rulemaking.

And recent reviews of MSHA injury and illness data indicate that MSDs are problematic for the mining industry. From 2000 to 2007, 35 percent of nonfatal, lost-time injuries occurred while handling materials, such as lifting, pushing and pulling. 43.5 percent of reported injuries were sprains and strains. 40 percent of reported illnesses were MSDs associated with repetitive motion. 21.5 percent of all lost work time involved injuries to the back, and the back was the most frequently reported body part injured.

We also note from MSHA data that as mine workers get older, they experience higher rates of MSDs. For miners age 35 to 55, 40 percent of all injuries are MSDs, and older mine workers experience three times as many lost-time workdays as the younger workers. In 2006 Porter and others reported that 52

.3 percent of mine workers were 45 years or older.

And, also, with increasing age, people experience declines in muscular strength and physiological capacity past the age of 35 years, and they often develop various conditions, diseases that affect work output such as arthritis, low back disorders, low back pain and musculoskeletal disorders past the page of 50 years. So, thus, the population of current mine workers would be expected to have an increased risk of experiencing MSDs based on the type of work task performed as well as their age.

And with this population the need for reducing the risk factor exposures is quite apparent. Requiring miners to carry an additional weight of a CPDM on a daily basis is contrary to addressing the needs of the older miners.

Okay. As proposed underground standard, Part 70, Mandatory Health Standards For Underground Coal Mining, is currently written, miners in designated occupations will be required to wear the CPDM every day for all shifts. Miners in other designated occupations will be required to wear the CPDM for 56 days per year for all shifts. This would be, yearly, one-fourth of their work year days.

And the CPDM is designed to be worn on a miner's belt. It weighs 6.7 pounds and is 9.57 inches by 3.42 inches by 6.75 inches. The CPDM comes equipped with a cap light and battery which does replace the need to wear a separate cap light and battery.

Miners typically use their mine belts to carry several pieces of equipment, including a self-contained self-rescuer, a tool pouch and tools, cap lamp battery, multi-gas meter, nail pouch and an anemometer. The total weight can vary depending on the pieces of equipment needed by miners to do their job tasks and the type of SCSR, cap lamp battery and tools provided to them.

The total weight of the typical items carried by a continuous miner operator, for example, plus the belt weight plus the CPDM weight would be approximately 29 pounds. And the photo shows a continuous miner operator.

Okay. Because it is difficult to carry both a CPDM and tool pouch on the miner's belt because of limited space on the belt and needing accessibility to both, individual tools are sometimes carried by the miner operator adding to the weight carried. Other miners will carry the SCSR, the tool

pouch and the CPDM on their belt. And in this situation the CPDM is placed on the back side of the belt, limiting the ability of the miner to read the monitor.

Okay. No research studies have been conducted that have specifically evaluated either the physiological or the biomechanical effects of carrying the loads on the miner's belt and the attached equipment while performing mining-related work tasks. Also, no studies have been completed that evaluated the physiological or biomechanical impact of carrying a CPDM.

However, there have been a few studies that evaluated conditions such as asymmetrical loading and carrying methods, which can provide some insight into potential issues regarding the use of the miner's belt for carrying equipment.

I'd like to give just some brief summaries of some of the studies that I reviewed for these comments. In 1993 [sic] Wells and others found that letter carriers experienced excess shoulder, neck and back disability as compared to workers who did not carry a load or who did not either walk or carry a load.

And in two studies by Lin and others and

Dempsey and others, the lowest L5-S1 compressive forces, postural deviation and pressure on the shoulders and the most balanced force production [sic] between the feet occurred when the load was carried in two pouches symmetrically positioned on the right and left hip with two shoulder straps that cross diagonally on the chest and a waist belt. However, these benefits only occurred when the load was symmetrically loaded in the pouches, and this condition generally does not occur with the equipment that a miner carries.

Significant differences in increased flexion of the hip and the knee at heel contact and midswing were observed for all loads carried around the waist by Arellano and others.

Grifahn and others demonstrated that an increase in weight carried and resultant increase in cardiac strain could be compensated by a redistribution of the weight towards the middle and lower back.

And then, finally, Qu and Nussbaum in nineteen -- or, in 2009 demonstrated that increasing loads and loads placed superior to the center of mass led to less postural control and greater risk of loss of balance or falls.

The above studies provide substantial evidence that carrying a load can result in both physiological and biomechanical changes, discomfort, higher rates of MSDs and increased risk of falls. Consequently, it's easy to see that the load carried by miners could have similar effects, which would be worsened with the additional weight of a CPDM.

In 2008 NIOSH published IC 9501 titled "Miners' Views About Personal Dust Monitors." This document provided limited insight into ergonomic issues associated with wearing a CPDM. The main objective of this document was to document coal miners' reactions to using the CPDM and how they would use the information provided by the CPDM.

In evaluating the use of the CPDM in reducing coal dust exposures, the authors of this report followed the health belief model described by Janz and others in 2002. According to this model, perceived negative features or barriers could affect an individual's actions regarding the use of the CPDM to assess and reduce his or her dust exposures. The author stated that,

> "It is important to minimize discomfort or inconvenience miners experience while wearing PDMs."

And for this report 30 miners at four underground coal mines were interviewed, but the only questions they asked regarding discomfort or inconvenience were, "Did you have any problems using the new PDM," and, "Can you think of any reasons why miners would not want to wear the new PDM?" Specific questions related to experiencing physical discomfort, interfacing with equipment and wearing the CPDM were not asked.

Although some issues were identified in the two questions asked, it's likely that a more comprehensive set of issues and problems would have been identified if more specific questions would have been asked.

These are the three topics that -- or issues that were identified by the NIOSH document. In terms of the size and weight of the CPDM, several miners stated that the CPDM felt heavier and bulkier than the cap lamp battery.

Some miners reported issues with sitting in equipment due to the limited space in operator compartments and with the CPDM getting bumped when working in confined areas.

Light cord and sample hose: Some miners reported that cord/hose was too long and got caught

when working.

And regarding the CPDM's attachment to the miner's belt, when the CPDM was attached to the belt with no clips, it sometimes falls off the belt. When pouches were provided to hold the CPDM, sometimes there wasn't enough room on the belt for the pouch because of the other pouches already divided on the belt.

In this document no information was provided regarding the number or percentage of workers or miners who identified these problems.

To build on the information that was published in IC 9501 and to obtain an analysis of ergonomic issues regarding the use of the CPDM, 11 miners who had worn the CPDM completed a questionnaire. This questionnaire was distributed by safety managers at several mines operated by Murray Energy. Murray Energy is continuing to solicit additional participation, so these results may change when final comments are submitted.

82 percent of respondents experienced problems with the CPDM. Problems included discomfort, the weight was too heavy, it's difficult to wear on the miner's belt, it was in the way when interfacing with equipment, and many errors occurred.

82 percent of responders experienced discomfort when carrying the CPDM. 55 percent experienced neck discomfort. 55 percent experienced hip discomfort, 36 [sic] experienced lower back discomfort, and 9 percent experienced shoulder discomfort. 64 percent of responders reported a greater level of fatigue while carrying the CPDM. 55 percent of respondents reported problems with reading the monitor like twisting the torso to read the monitor. 55 percent reported problems with their balance while walking and carrying the CPDM, and 27 percent of respondents reported problems with their balance while standing and carrying the CPDM.

Okay. 73 percent of respondents also reported that the CPDM interferes with operating equipment. Examples included hitting levers, getting caught on the seat, interfering with miners, the miner controls and getting on and off equipment. 82 percent reported problems with sitting in equipment when wearing the CPDM. 91 percent reported problems with the cord pulling on their hard hat. 91 percent reported problems with the cord catching on equipment, and 82 identified other problems with the cord.

When asked for any other information about

the CPDM, the comments -- five comments were provided. This is an example of one of them:

> "The hook-up on the machine is not very friendly. The unit makes my neck hurt. I can't wear the unit on the mantrip, and it costs me more time to hook it up to my belt. More added accessories than I need hanging around my waist. At the end of the shift my neck hurts and my upper back hurts. My waist hurts as well due to having the unit, tool pouch and rescuer. Afraid that I'm going to break my unit as well. The cords are in my way when lacing cable on the miner and taking them off. The cord is in my way when I'm backing up. The cord pulls on my neck hard when hanging curtain and cable."

Now, these results certainly demonstrate that the statement made by the NIOSH IC 9501 that, "it is important to minimize discomfort or inconvenience miners experience while wearing PDMs," has not been achieved by the current design of the CPDM.

Okay. From the information obtained from the above research studies, the NIOSH interview results and the questionnaire results obtained from Murray Energy miners, it is clear that research

studies are needed to determine the full impact on miners of carrying the CPDM. This research should answer the following questions:

What is the maximum weight acceptable to miners that can be worn on the miner's belt?

What is the maximum weight that should be worn on miners' belts from a biomechanical and physiological perspective for both low and high coal seam?

And what is the most appropriate configuration of equipment, including the CPDM, that is carried by miners to perform job tasks from a biomechanical and physiological perspective?

Do shoulder straps reduce impact of the object weight worn on a miner's belt in both high and low coal seams from a biomechanical and physiological perspective?

Will wearing the CPDM on the miner's belt on a daily basis result in the development of discomfort and/or MSDs?

Some additional questions include:

Will attaching the CPDM sampling tube and light to the miner's cap on a daily basis result in the development of discomfort and/or MSDs of the neck and upper back?

Will repeated twisting of the neck and back to read the CPDM screen result in the development of discomfort and/or MSDs?

Will wearing the CPDM on the miner's belt on a daily basis result in the development of greater fatigue levels?

Will wearing the CPDM on the miner's belt on a daily basis result in the development of balance problems while standing or walking?

Will wearing the CPDM on the miner's belt on a daily basis result in the development of gait problems while walking?

And, finally, Will wearing the CPDM on the miner's belt interfere with sitting in any mining equipment, operating any mining equipment and/or getting on and off any mining equipment?

So, in short, MSHA's desire to use the CPDM as the Agency has proposed may have the unintended consequence of increasing the prevalence of MSDs in underground coal mines. To avoid this outcome, MSHA should delay the mandate for massive deployment of CPDMs in the proposal until the important research tasks noted above are completed.

Are there any questions?

DR. WAGNER: Thank you very much for your

presentation and your reliance upon data. That's great.

Susan, can you start?

MS. OLINGER: Will you be providing any other written comments to MSHA in the future?

DR. TORMA-KRAJEWSKI: Yes. I will be providing a more detailed written document.

MS. OLINGER: And can you also provide some of the studies that you relied on that you cite in your presentation?

DR. TORMA-KRAJEWSKI: Yes, I can.

MS. OLINGER: Also, given your research and some of the questions that you presented towards the end, have you identified some specific optimal design and configuration improvements for the CPDM in answer to some of your questions regarding what you would recommend as to the weight and the configuration to avoid MSDs and falls and other injuries?

DR. TORMA-KRAJEWSKI: Well, unfortunately, there are very limited research studies available, and none of these are related to what a miner carries on their belt. Most of the research studies, when they studied placing weight around the waist, it was symmetrically placed and not really representative

truly of what a miner carries. So at this point in time, I cannot provide recommendations because the research just has not been done.

MS. OLINGER: Thank you.

MR. ROMANACH: I am Javier Romanach from the Office of the Solicitor. I have a few questions about the Murray Energy survey.

Who -- who conducted that survey for Murray Energy?

DR. TORMA-KRAJEWSKI: It was distributed by the safety managers at a couple mines that they have.

MR. ROMANACH: Do you know who drafted that particular survey?

DR. TORMA-KRAJEWSKI: I did.

MR. ROMANACH: You did?

DR. TORMA-KRAJEWSKI: Yes.

MR. ROMANACH: And what mines were involved?

DR. TORMA-KRAJEWSKI: I think one was the New Future Mine. There were three mines, but I don't recall their names.

MR. ROMANACH: Were they all underground or all surface or --

DR. TORMA-KRAJEWSKI: They were

underground mines.

MR. ROMANACH: And how many miners were involved in the survey?

DR. TORMA-KRAJEWSKI: There were 11.

MR. ROMANACH: A total -- 11 total?

DR. TORMA-KRAJEWSKI: Yes, at this time.

MR. ROMANACH: And any -- were there more surveys distributed or only 11 responded?

DR. TORMA-KRAJEWSKI: I don't know how many were distributed since I didn't do that.

MR. ROMANACH: Were there any particular occupations for which -- that were involved in the survey?

DR. TORMA-KRAJEWSKI: I believe there were some continuous miner operators, shuttle car operators. I believe there was a roof bolting operator, and there were also -- some of the dust technicians wore the CPDM.

MR. ROMANACH: Do you know how long they wore the CPDM, for how long they wore it?

DR. TORMA-KRAJEWSKI: It varied. Some of them -- one person, I believe, had worn it for one shift, and another person, I believe, had worn it up to 30 shifts, so it varied in terms of the number of times they had worn it.

MR. ROMANACH: Would the surveys -- the responses to those surveys, did they indicate how long they wore the CPDM, for how long they wore the CPDM?

DR. TORMA-KRAJEWSKI: Yes. I did ask how many shifts they had worn the CPDM, and I do have that information.

MR. ROMANACH: Had the respondents to the survey worn the CPDM prior to the survey being conducted?

DR. TORMA-KRAJEWSKI: Well, I would say yes. Maybe the person who had only worn it one shift may have not, but the person who had worn it 30 shifts would have. They were -- when I provided the survey to Murray Energy, I received the results within one week.

MR. ROMANACH: Do you know if they were -- if they were trained prior to wearing the CPDM?

DR. TORMA-KRAJEWSKI: I do not know.

MR. ROMANACH: Were they rank-and-file miners or management involved in the -- were the respondents management or rank-and-file?

DR. TORMA-KRAJEWSKI: I believe some -- that they were both.

MR. ROMANACH: Do you know out of the 11

how many were management and how many were rank-and-file?

UNIDENTIFIED SPEAKER: We can't hear in the back the questions, Javier, that you're asking.

MR. ROMANACH: I appreciate it. I'm sorry.

Do you know how many of the respondents -- of the 11 respondents were management and how much were rank-and-file miners?

DR. TORMA-KRAJEWSKI: I would think it was maybe, like, 60/40, 60 percent being rank-and-file.

MR. ROMANACH: And when was the -- this particular study conducted? Survey. I'm sorry.

DR. TORMA-KRAJEWSKI: It was conducted from January 3rd, or about that time, to maybe January 15th.

MR. ROMANACH: Of --

DR. TORMA-KRAJEWSKI: Of this year.

MR. ROMANACH: Of this year?

Did you write a report based on the results of that survey?

DR. TORMA-KRAJEWSKI: No, I did not.

MR. ROMANACH: I have no further questions.

MR. THAXTON: I have just a couple of

questions for you, if you don't mind.

In relation to following up on Javier's comments in relation to the Murray Energy survey results, will you be able to provide us a summary of all that data that you've received from that survey?

DR. TORMA-KRAJEWSKI: Yes, I will.

MR. THAXTON: And how many CPDMs does Murray actually have available to be used right now that this was based on?

DR. TORMA-KRAJEWSKI: I do not know.

MR. THAXTON: And Javier asked if there was training provided.

Was there training -- do you know if they were trained in relation to what the requirements of the proposed rule was?

DR. TORMA-KRAJEWSKI: I do not know.

MR. THAXTON: You made a comment in relation to your survey results that -- and it's listed here, that it was indicated that there was an interference with use of the miner controls, that they hit the miner controls.

Are you talking about individual mine machines that are specific, or are you talking about the continuous miner?

DR. TORMA-KRAJEWSKI: I assumed it was --

I think that person was a continuous miner operator, so I think it was with the continuous miner.

MR. THAXTON: That the continuous miner machine --

DR. TORMA-KRAJEWSKI: Yes.

MR. THAXTON: Can you indicate whether it was operated by remote control? Since essentially every continuous miner that's in use right now is run by remote control, how that unit actually interfered with the operation of a remote controlled unit?

DR. TORMA-KRAJEWSKI: I didn't receive any specific information. Since I didn't personally interview the individual, I didn't get any more specific information than what I've provided here.

MR. THAXTON: Okay. In -- in relation to the concerns and results that you have here in relation to interference and problems with it, it would be most helpful if you could provide the specifics as to what the interference was or the problems that they encountered so that we can actually evaluate and address that.

The other thing I have is one simple question: In relation to your analysis and evaluation of this weight that the CPDM's caused the miners to be worn around -- about their waist, do you

have any concerns with the amount of material and equipment and weight that miners are currently carrying without the CPDM?

DR. TORMA-KRAJEWSKI: Yes, I do.

MR. THAXTON: Okay. Thank you.

DR. WAGNER: Could you describe for us both the strengths and limitations of the survey that was conducted?

DR. TORMA-KRAJEWSKI: Well, I think if you look at the limitations, it's not a very large sample. It's 11 miners. Another limitation was that it was not -- it was administered by several different people, so there could have been some differences in how they approached the miners to get the information.

I think the strength is that it does support the information that was already provided in the NIOSH document, but I think it went a little bit -- a step further and asked information on discomfort, so I think it rebuilds some other potential issues. And I think the strength of it is that it is an indicator that there are issues from an ergonomics perspective of the CPDM that have not been addressed before.

DR. WAGNER: Is there anything about the

survey methods that might impact participation, that might impact the accuracy of the information? Do you know about whether confidentiality was offered and assured and what methods were used to do that? Any other methodological issues when you're dealing with a workplace survey like this that is -- clearly provides useful information?

DR. TORMA-KRAJEWSKI: I think the purpose of the survey was just to try and get information from the users. It wasn't set up as an actual research study. And why -- you know, the recommendation of my presentation is that research studies do need to be done where there are more effective controls on gathering the information from workers.

DR. WAGNER: Thank you. That's very helpful.

I'm not sure whether Javier asked this, but in your looking at the CPDM and your knowledge of other equipment that miners are using, have you come up with any specific design change recommendations that would make this piece of equipment more useful and pose less risk?

DR. TORMA-KRAJEWSKI: From an ergonomics perspective, always less weight is better in terms of

carrying or lifting. I think the study by the -- on the mail handlers where the -- they found that, you know, carrying the weight on the waist was better than other options available to them, but it had to be symmetrically distributed. So if there is a way to look at, in total, what the mine workers are carrying so that it's symmetrically distributed would be important as well.

But I think there's just -- at this point in time there really isn't enough information from research studies to come up with specific designs.

DR. WAGNER: Any other questions before we move on?

MR. NIEWIADOMSKI: I have one question. I know you focused on ergonomic issues, but in the surveys that were conducted, the questions that were posed to miners, were any questions focusing on the benefits of knowing what the dust concentrations are in the miner's environment?

DR. TORMA-KRAJEWSKI: No. The survey only addressed ergonomic issues.

MR. NIEWIADOMSKI: Thank you.

DR. WAGNER: Then thank you very much. We'll look forward to your written comments and appreciate your input as well.

Right now I do not have any more people whose names are listed as having signed up to provide testimony this morning. I'd like to see whether there's anyone currently in the room who would like to be able to provide testimony.

(No response.)

DR. WAGNER: If no one else wishes to make a presentation, I again want to say that the Mine Safety and Health Administration appreciates your participation at this public hearing. I'd like to thank all three of our presenters from today and to the rest of you who are in the room who did not present but clearly have a significant interest in this rulemaking.

I want to emphasize that all comments must be received or postmarked by May 2, 2011. MSHA will take your comments and your concerns in developing the Agency's final rule.

I'd like to encourage all of you to continue to participate throughout the rulemaking process.

And I'm going to look one more time if anyone else has anything to say.

(No response.)

DR. WAGNER: Seeing not, this public

hearing is concluded. Thank you very much.

(The hearing was concluded at 11:15 a.m.)

REPORTER'S HEARING CERTIFICATE

STATE OF UTAH)
) ss.
COUNTY OF SALT LAKE)

I, Susette M. Snider, Certified Realtime Reporter, Certified Shorthand Reporter and Registered Professional Reporter, do hereby certify:

That said proceedings were taken down by me in stenotype on January 25, 2011 at the place therein named, and were thereafter transcribed, and that a true and correct transcription of said proceedings is set forth in the preceding pages;

I further certify that I am not kin or otherwise associated with any of the parties to said cause of action and that I am not interested in the outcome thereof.

WITNESS MY HAND this 30th day of January, 2011.

_____
Susette M. Snider, CRR, CSR