

**Testimony of James L. Weeks, ScD, CIH**  
**Consultant Industrial Hygienist to the United Mine Workers of America**  
**before the US House of Representatives,**  
**Committee on Education and Labor,**  
**Subcommittee on Workforce Protection**  
**on the matter of**  
**S-MINER Act (HR 2768 and Miner Health Enhancement Act (HR 2769)**  
**Washington, D.C., July 26, 2007**

Mr. Chairman and other members of the committee, my name is Jim Weeks, I am a consultant industrial hygienist for the United Mine Workers of America. Thank you for inviting me to testify concerning this legislation and more important, thank you for providing the leadership to improve the health and safety of miners. Mining, unfortunately, remains the most dangerous industry in the US and mines in the US remain the least safe of mines in other technologically and economically advanced countries. There is lots of room for improvement and this legislation should make a big difference for miners and their families.

I wish to speak to two aspects of the proposed legislation: First, revision of the dust standard from  $2.0 \text{ mg/m}^3$  to  $1.0 \text{ mg/m}^3$  for a ten hour work-shift and second, use of the personal dust monitor (PDM) for measuring exposure to respirable dust. If both of these measures are adopted and implemented, we can prevent black lung.

Over the past five years, several clusters of black lung cases have been identified among miners who started their mining careers well after the  $2 \text{ mg/m}^3$  standard became effective.(Antao et al. 2005; MMWR 2006) Many of these cases were of the more advanced form, progressive massive fibrosis, the condition that allows for an automatic entitlement for federal black lung benefits for total disability. Miners with PMF suffer and die early. Medical treatment can alleviate some of the symptoms but there is no cure.

We do not know the names of these miners, we do not know the mines where they worked, there is no specific event that caused these tragedies. The cases occurred because of exposure to too much dust day after day after day after day, for decades, in a slow motion tragedy. These cases resulted from systemic failures. These lives will not end with a bang but with a whimper. Before black lung kills, it tortures its victims with breathlessness and suffering. And it is all entirely preventable.

They did not occur, however, because we (“We” means the entire industry: operators, the Union, mine workers, MSHA, and NIOSH) do not know how to control dust. Effective and feasible dust controls are well known and available throughout the industry..(Kissell FN 2003) It was the failure to use these controls and the failure to enforce dust exposure limits – not the absence of knowledge – that caused these cases.

In 1995, NIOSH recommended that the dust standard be reduced from 2.0 mg/m<sup>3</sup> for a work shift to 1.0 mg/m<sup>3</sup> for a ten hour work shift. (NIOSH 1995). This recommendation was based on a comprehensive review of the scientific literature concerning coal workers’ pneumoconiosis (CWP) and was based on data gained for U.S. miners over the past thirty years. The previous standard was based on research done in the UK where dust concentration is measured differently and which has required adjustments of measurements in the US to conform to the British dust measurements, the so-called MRE-equivalent dust level. A standard based on experience with US miners and using instruments developed in the US is a substantial improvement.

This study is scientifically sound and was thoroughly reviewed by NIOSH and by other agencies in the Centers for Disease Control and by an international panel of external reviewers for its validity and the reliability of its findings. It was reviewed also by MSHA’s Advisory Committee on dust control which recommended that MSHA “. . . consider revising the dust standard..” based on the NIOSH Criteria Document. (p 50-54) The principal source of hesitation on the Advisory Committee was whether such a limit was feasible and not whether the science was valid.

There are several important technicalities in the proposed legislation. First, the 1 mg/m<sup>3</sup> limit is expressed as a ten hour average. The current limit of 2 mg/m<sup>3</sup> is an average over a “shift,” assumed to be eight hours. That was the convention when the coal mine act of 1969 was adopted. Miners now work longer shifts and when they do, they inhale more dust. Consequently, we need to adjust the exposure limit so that it is proportionately lower for longer shifts to make it, as stated in the legislation, equivalent to 1 mg/m<sup>3</sup> for ten hours. This is a common problem in industrial hygiene addressed by “Haber’s Rule.” (Armstrong TWA et al. 2005)

A second technicality is that current MSHA practice is to add an error factor to the exposure limit before they issue a citation for non-compliance. In effect, this raises the exposure limit. The reason they do this is so that they have a “high degree of confidence” that exposure is, in fact, above the exposure limit. The problem with this approach is that errors in measuring dust concentration can occur as an under-estimate as well as an over-estimate of true concentration. By only considering an over-estimates, they give the benefit of doubt to mine operators at the expense of miners’ health. This legislation, the Advisory Committee, and the NIOSH Criteria Document all recommend against this practice (Advisory Committee 1996;NIOSH 1995).

This is not a trivial matter. Based on dust exposure data for longwall sections in 2003, if MSHA issued citations for measured dust concentration over 2 mg/m<sup>3</sup> rather than their Criterion Threshold Value, they would have issued 36% more citations than they in fact did. (Weeks JL 2006)

Let me now turn to the Personal Dust Monitor (PDM). I first became involved in mining dust issues in mining in 1978 and the concern then was with a direct-reading dust instrument much like the PDM. Unfortunately, thirty years later, the hopes engendered by developments then remain unfulfilled. The PDM is a significant improvement over the current method for measuring dust concentration. (Volkwein JC et al. 2004) The current method uses a battery operated pump to collect respirable dust on a pre-weighed filter. This filter and supporting data are mailed to MSHA which weighs it and reports

the concentration back to the mine operator. This process takes one to two weeks from the time the sample is taken to the time the information is returned to the mine operator. During this time, mining advances and conditions change. The information is practically useless for the purpose of finding dust sources and controlling exposure. It is also expensive. Cost per sample by the PDM is approximately one tenth of the cost per sample using the pump and filter.

The PDM, on the other hand, provides real-time data at the time and place where it is most useful. It measures dust concentration and displays it on a screen for the mine operator and the miner so that dust sources can be identified and controlled and so that the miner could take the necessary steps to prevent his or her own over-exposure. Information can be down-loaded at the end of each shift and made available to all. The instrument has been tested in mines and is reliable and accurate. The manufacturer is ready to begin production.

One of the important benefits of the PDM is that by identifying dust sources in a timely manner and with precision, it makes it entirely feasible for mine operators to reduce exposure to below the proposed  $1 \text{ mg/m}^3$  exposure limit, thus removing concerns about whether it is feasible to reduce exposure below the  $1 \text{ mg/m}^3$  standard.

The Union and a group of mine operators have been meeting over the past couple of years in order to identify some common ground so that that we could support the use of the PDM. We have come to agreement on a number of important matters. These are that the PDM should be used for two purposes: compliance determination and surveillance (to identify sources), that MSHA should do all compliance sampling (agreeing with the Advisory Committee), that the PDM should be the single approved instrument for measuring dust exposure, and that MSHA should purchase and mine operators should maintain these instruments. Remaining areas of disagreement include how to determine non-compliance and how to evaluate dust exposure for extended work shifts.

There have been some important changes in the industry in recent years. On the negative side, fires, explosions, and respirable dust continue to take their toll. Work shifts have become longer. On the positive side, technological developments such as the PDM enable a much higher degree of control over dust concentrations, enabling us to reduce exposure and prevent black lung. The proposed legislation goes a long way to address these developments and I welcome it. I will be happy to answer any questions you have here and now or later, as these bills make their way through the process. Thanks again for your invitation.

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