

reported that 12 percent of approved cases to receive benefits within the Black Lung Program were identified as cases of PMF based on chest radiographs, while 64 percent had simple CWP based on chest radiographs (ESA, 1986). For miners who stopped working in coal mines after 1969 and for whom DOL can establish that the miner worked for the same operator for at least one calendar year, and that miner had at least 125 working days in that year, that operator is financially responsible for the miner's black lung benefits payments. If a responsible operator cannot be identified for an eligible miner, benefits payments are made by the Black Lung Disability Trust Fund.

To the extent that the proposed single sample and plan verification rules reduce overexposures to respirable coal mine dust (which includes quartz), there should be fewer Black Lung Program cases. Therefore, over time, the associated financial outlay by responsible operators through either payments made into the Black Lung Disability Trust Fund, insurance premiums, or direct payments of black lung benefits should be lower than would otherwise occur. A decrease in black lung beneficiaries could help reduce the financial obligation of the Black Lung Program (see discussion in Chapter IV of the accompanying PREA for details: <http://www.msha.gov/FLEX.HTM>). In fiscal year 2000, 386 claims for Black Lung Benefits were accepted as new cases; 71 percent (273 cases) are the financial responsibility of coal operators (ESA, OWCP 2000 Annual Report).³⁸

MSHA's quantitative estimate of benefits demonstrates and qualitative discussions punctuate that these proposed rules will have a significant positive impact on the health of the nation's coal miners when promulgated. Yet, due to the limitations in these data, MSHA believes its benefits estimates are likely to understate the number of cases of simple CWP and PMF that would be prevented over an occupational lifetime. As discussed in the significance of risk sections of the previously published single-shift sample (65 FR 42068) and plan verification (65 FR 42122) notices and as revised in the plan verification NPRM, the data used to estimate the average overexposure which will be prevented may not represent typical environmental conditions and the associated respirable coal mine dust

exposure levels in underground coal mines.

The degree to which the exposure level of respirable coal mine dust on sampling shifts may not be representative of typical exposure levels is affected by the following factors:

(1) There exists a positive relationship between coal production and generation of respirable coal mine dust. While other factors may mediate the amount of airborne respirable dust, such as ventilation and water sprays, on average, higher production is correlated with increased quantities of airborne respirable coal mine dust (Webster, *et al.*, 1990; Haney, *et al.*, 1993; O'Green, *et al.*, 1994);

(2) Current sampling procedures permit sampling measurements to be taken at the mid-range of the distribution of the level of production—MSHA sampling measurements must be taken on shifts with production at least 60 percent of the average production during the last 30 days and the operator must have at least 50 percent of average production for the last valid set of five bimonthly samples for MSHA and operator samples, respectively;

(3) Miners have reported, and MSHA data have demonstrated lower levels of production on sampling shifts versus non-sampling shifts;³⁹

(4) On some sampling shifts, miners have reported that more engineering controls may be engaged than on other shifts, thus reducing the measured amount of respirable coal mine dust;

(5) MSHA analyses have demonstrated, even when controlling for production, in mines with fewer than 125 employees, on continuous mining MMUs, respirable coal mine dust exposures were much higher during the unannounced Spot Inspection Program (SIP) sampling shifts than on shifts operators sampled—this is consistent with the effect of increasing engineering controls on shifts during which bimonthly samples are conducted compared to the level of use of engineering controls on shifts for which the operator does not expect sampling to be conducted, given the same production level;⁴⁰

(6) Across mine size, designated area samples have had greater dust levels for shifts on which unannounced compliance sampling occurred compared to operator sampling shifts—in one study they differed by at least a factor of 40 percent in large mines and 100 percent in the smallest mines;⁴¹

(7) Existing MSHA technical information indicates that some reduction in production levels occurs during some sampling periods on longwalls (Denk, 1990);

(8) Longer work hours increase miners' cumulative exposure to respirable coal mine dust, which includes quartz, beyond what was assumed in our risk estimates ("Length of Shift" survey, MSHA Office of Coal Mine Safety and Health); and

(9) Because of heavy, physical work, some miners may have higher breathing rates and inhale more respirable coal mine dust, including quartz, than other miners exposed to the same airborne dust concentrations.

Although the effects cannot readily be quantified, to the extent that these rules will also reduce the cumulative exposure to respirable coal mine dust among some miners working in those MMUs currently not exhibiting a pattern of overexposures, it is reasonable to expect an incremental benefit among that sub-population of coal miners. Likewise, to the extent that the cumulative exposure to respirable coal mine dust affects other adverse health outcomes, such as silicosis and chronic obstructive pulmonary disease, it is reasonable to expect a reduction in the number and/or severity of cases for these diseases among underground coal miners.

Further, MSHA firmly believes that non compliance determinations based on single-sample measurements will significantly improve working conditions for miners because overexposures will be more readily identified and appropriate corrective action will be taken to reduce respirable dust levels. This is because individual sample results will not be masked due to the averaging of multiple samples. The health effects of individual shift overexposures was addressed in *Consolidation Coal Company versus Secretary of Labor* 8 FMSHRC 890, (1986), *aff'd* 824 F. 2d 1071, (D.C. Cir. 1987). In that case, the Commission found that each episode of a miner's overexposure to respirable dust significantly and substantially contributes to the health hazard of contracting chronic bronchitis or coal workers pneumoconiosis, diseases of a fairly serious nature.

Since the proposed single sample rule would also apply to surface coal mines, it is reasonable to expect that the cumulative exposure of some surface coal miners would also be lowered, providing them with increased health protection.

As indicated elsewhere in this preamble, three significant studies have been published in the last 10 years that examined the current federal program to control respirable coal mine dust in U.S. mines. They include the MSHA Respirable Dust Task Group Report, NIOSH's Criteria Document on Occupational Exposure to Respirable

³⁸ The OWCP 2001 report is not representative of current trends because of recent changes to rules governing OWCP proceedings effective January 20, 2001 (Peed, September 12, 2002). Therefore, MSHA used information from the OWCP 2000 report.

³⁹ Mine Safety and Health Administration. "Report of the Statistical Task Team of the Coal Mine Respirable Dust Task Group." September 1993.

⁴⁰ Mine Safety and Health Administration. "Report of the Statistical Task Team of the Coal Mine Respirable Dust Task Group." September 1993.

⁴¹ Mine Safety and Health Administration. "Report of the Statistical Task Team of the Coal Mine Respirable Dust Task Group." September 1993. Pp. 211–212.