

dust standard. If a MMU, DA, Designated Work Position (DWP) at an underground mine, or Part 90 miner is already on a reduced standard, a new applicable dust standard will be established by averaging the results of the first two MSHA samples, taken under the revised procedures, with the quartz percentage associated with the reduced standard in effect. If fewer than two MSHA samples are taken, the existing reduced standard will continue to remain in effect.

Assume a MMU is on a 1.0 mg/m³ standard (10 percent quartz). If the first MSHA sample contains 7.2 percent of quartz, the existing standard of 1.0 mg/m³ would continue to remain in effect. If, however, the next sample contains 16.1 percent, the average quartz percentage would be 11.1 percent $[(10.0\% + 7.2\% + 16.1\%) / 3 = 11.1\%]$, resulting in a 0.9 mg/m³-standard (10 11.1% = 0.9 mg/m³). For any MMU, DA, DWP, or Part 90 miner not on a reduced standard, MSHA will collect and analyze three samples for quartz to determine if a reduced standard is warranted.

Under the revised procedures, if the newly-established standard is lower than the one in effect, the new standard will become effective seven days after the date of the notice informing the mine operator of the change in the applicable dust standard. However, if it is higher than the current standard, the newly-established applicable dust standard will become effective on the date of the notice.

As published elsewhere in today's **Federal Register**, MSHA is proposing to take enforcement actions on the basis of single-shift sample measurements. For entities on reduced standards, MSHA would delay enforcement action until the sample is analyzed for quartz. If an exposure measurement significantly exceeds the existing standard and the quartz content of that sample would

cause the standard to be lowered below the existing reduced standard, the operator will be cited for violation of the applicable dust standard currently in effect. On the other hand, if the quartz content of the sample would cause the applicable dust standard and the corresponding citation threshold value (CTV) to increase so that the single-shift sample measurement would no longer indicate noncompliance, no citation will be issued. This is illustrated by way of the following example.

For example, suppose that the MMU is on a 1.3 mg/m³ standard and a single-shift sample measurement of 1.6 mg/m³ is obtained. Since this measurement exceeds the CTV value, the operator is in violation of the standard. However, analysis of the DO sample shows that the sample contained 5.6 percent quartz which, if averaged with the previous two MSHA quartz levels, would result in a 1.7-mg/m³ standard. This indicates that the quartz level in the environment of the DO has changed, indicating that the current standard is no longer valid. Therefore, since the original measurement of 1.6 mg/m³ is less than the 1.7-mg/m³ standard that could have been in effect for the shift sampled, a citation would not be issued.

Since MSHA samples are viewed to be more representative of the respirable dust concentration to which miners are exposed, MSHA is proposing to revise section 70.101 to clarify that the Secretary will determine the quartz level by sampling. Operator samples would no longer be submitted to determine the applicable dust standard. It is our belief that the procedures being proposed today for setting reduced standards will be more protective for the miners than those in effect at this time. The revised approach provides for stringent monitoring of miners' exposure to quartz which is consistent with the Dust Advisory Committee's recommendation that MSHA increase

surveillance and reduce exposure to this serious health hazard.

As under the current program, if operating conditions change following establishment of a lowered applicable dust standard and affect the level of quartz in the working environment, MSHA intends that mine operators or miners' representatives will be able to request MSHA to conduct a quartz reevaluation.

2. *Validity of Averaging Percentages*

The average quartz percentage that MSHA intends to use to set the applicable dust standard for a particular sampling location or area of a mine would be determined in accordance with accepted mathematical procedures for arriving at an average value from a set of values (*i.e.*, adding together the individual quartz percentages and dividing by the number of analyses that are in the set). MSHA believes that this is the most appropriate method to use.

One commenter who responded to a draft 1999 program policy letter (November 23, 1999, 64 FR 65671) concerning this issue contended that MSHA's approach of arriving at the average quartz percentage was mathematically incorrect. This commenter recommended that, to more accurately reflect the true quartz concentration, the average quartz percentage be calculated by dividing total mass of quartz in micrograms by the total mass of dust collected (based on three samples in the example submitted). In the commenter's example, the average percentage obtained using MSHA's proposed averaging method was larger than that obtained using the commenter's approach.

The following two scenarios in Table III-1 clearly demonstrate that MSHA's intended averaging method does not always result in a larger average quartz percentage value.