

crystalline silica, hereafter referred to as "quartz."

According to NIOSH,

By means of criteria documents, NIOSH communicates these recommended standards to regulatory agencies (including the Occupational Safety and Health Administration (OSHA) and MSHA) and to others in the community of occupational safety and health \* \* \*. In addition to transmitting these documents to the Department of Labor, NIOSH also distributes them to health professionals in academic institutions, industry, organized labor, public interest groups, and other government agencies. (NIOSH, 1995, p. iii).

Pursuant to the Mine Act, MSHA was required to issue a public response to this criteria document within 60 days. The statutory deadline for MSHA's response fell on January 7, 1996. In the fall of 1995, there was a lapse in funding for the Federal government, and the Department of Labor was unable to take timely action on this matter (61 FR 731). On April 25, 1996, MSHA published its response to the Criteria Document in the **Federal Register** (61 FR 18308) stating it would develop its regulatory response to the Criteria Document in conjunction with its response to the outcome of the Dust Advisory Committee. (See section II.F.).

Some commenters criticized the earlier proposed rules for not addressing all the recommendations of the Criteria Document. During the August 2000 hearings when these comments were made, a NIOSH representative stated, " \* \* \* strong steps are necessary \* \* \* oftentimes they do need to be incremental in nature." Among the relevant recommendations from the Criteria Document raised by commenters were the following:

- Sampling should be conducted with a device that operates in accordance with NIOSH Accuracy Criteria Document, using the international definition of respirable dust.
- Single-shift measurements should be used to determine noncompliance.
- The exposure limit for respirable coal mine dust should be limited to 1.0 mg/m<sup>3</sup> as a time-weighted-average (TWA) concentration for up to 10 hours per day, during a 40-hour workweek.
- There should be a gravimetric standard for silica of 0.05 mg/m<sup>3</sup> as a TWA for up to 10 hours per day, for a 40-hour workweek.
- Sampling goals should include determining the effectiveness of a dust control system and determining compliance with exposure limits to ensure that exposure conditions are comparable between shifts which are sampled and those which are not.
- Engineering controls and work practices should reflect reasonable

efforts to reduce exposures to respirable coal mine dust below the exposure limit.

- MSHA should not make an upward adjustment of the exposure limit to account for measurement uncertainties (*i.e.*, citation threshold values (CTV)). (See section III.A.4.a.).

- Continuous monitoring devices should be developed for use in sampling respirable coal mine dust.

- Sampling frequency should be enough that a significant and deleterious change in the contaminant generation process or exposure controls is not permitted to persist.

MSHA has carefully considered the applicability of each NIOSH recommendation to reduce miners' exposure to respirable coal mine dust, and the agency has integrated these recommendations into our programs, policies, and promulgation of standards. The proposed rule published today are, in part, responsive to NIOSH's recommendations.

For example, the single sample rule, for which the record is reopened in today's **Federal Register** notice is responsive to the Criteria Document. This rule was jointly developed with NIOSH.

The two recommendations regarding exposure limits for respirable coal mine dust and quartz dust are beyond the scope of either the single sample or plan verification proposed rules.

MSHA and NIOSH agree that the level of "coal production significantly affects the amount of airborne respirable coal mine dust" (NIOSH 1995, p. 86). NIOSH recommended that "The mine operator, therefore, should establish a production-level threshold to ensure that exposure conditions are comparable between sampled and unsampled shifts" (NIOSH, 1995, p. 86). NIOSH recommended that, for a production shift to be considered a normal production shift, it must produce at least 80% of the average production, over the last 30 production shifts.

Through this plan verification proposed rule, MSHA would require operators to design their ventilation plan to be effective in controlling respirable coal mine dust at or above the "verification production level" (VPL). The VPL is defined as the tenth highest production level recorded in the most recent 30 production shifts. This quantity generally exceeds the production criteria recommended by NIOSH by a substantial amount.

In addition, for MSHA to approve an operator's mine ventilation plan, the plan's dust control parameters must be shown to be effective in meeting the verification limits of 2.0 mg/m<sup>3</sup> for

respirable coal mine dust and 100 µg/m<sup>3</sup> for respirable quartz dust, under typical mining conditions. MSHA expects that most ventilation plans will be verified at or below those values. Therefore, for most mechanized mining units (MMUs), engineering controls will be in place that can control respirable coal mine dust at or below the exposure limit. (See chapter IX. Costs in the Preliminary Regulatory Economic Analysis (REA) for details).

Citation threshold values (CTV) are calculated to ensure that citations are issued only when a single sample measurement demonstrates, with at least 95-percent confidence, that the applicable dust standard had been exceeded.<sup>2</sup> Thus, before issuing a citation, the Secretary requires a high level of confidence that there has been an overexposure. Even so, a dust concentration measurement that falls between the applicable dust standard and the corresponding CTV does not demonstrate that the sampled environment is in compliance. MSHA would identify such environments for further sampling to determine if engineering controls are adequately protective.

As mentioned earlier, several commenters to the 2000 proposal expressed concern that, under MSHA's proposed sampling program, the number of shifts to be sampled would be less than under the current operator and MSHA sampling programs combined. Although MSHA will sample fewer shifts than what was recommended by the Dust Advisory Committee, the number of compliance determinations per MMU will not decrease. Under the existing sampling programs, each MMU averages 10 compliance determinations per year.<sup>3</sup> Each of these compliance determinations is based on the average

<sup>2</sup> CTVs are listed in Table 70.2

<sup>3</sup> Currently, six of the ten compliance determinations are based on the average of five operator, "designated occupation" (DO) exposure measurements. Each of these measurements is collected on a different shift within a bimonthly cycle. The remaining four determinations are based on the average of five inspector samples taken quarterly on different occupations from a MMU. Since the publication of the earlier proposed rule, the number of yearly MSHA sampling inspections at each MMU was reduced from six to four. This was the result of the impact on Agency resources due to a decision by the Federal Mine Safety and Health Review Commission that violations of the applicable dust standard must be based on samples taken on multiple shifts. Prior to that decision, MSHA compliance decisions were based on multiple samples taken on a single-shift. Accordingly, there has been a need to increase the number of shifts of MSHA sampling at MMUs where overexposures are found on the first sampling shift. This results in fewer sampling inspections being available at other MMUs.