

make no adjustment to the parameter(s) prior to verification sampling. Under the second option, final approval of the plan parameters would be contingent on the operator incorporating in the plan the maximum quantities of parameters measured during verification sampling. If verification samples were collected on a shift when a plan parameter exceeded 115 percent of the quantity specified in the plan, then (assuming none of the verification samples exceeded the critical values) that parameter quantity, as measured, would be incorporated into the plan parameters ultimately approved by the district manager.

If an operator chooses to sample multiple shifts, they would not have to be consecutive shifts as under the previous bimonthly sampling program. The operator would be required to submit for processing all samples collected by the operator, regardless of the operating conditions under which verification sampling was conducted.

The number of shifts that the operator would need to sample to verify the adequacy of the plan parameters depends on two factors: First, the actual operating conditions in effect during the shift being sampled; and, second, the individual sample results. As discussed earlier, for a respirable dust sample to be valid for verification purposes, the amount of material produced by the MMU must equal or exceed the VPL, and the dust control parameters must be at levels not exceeding 115 percent of the quantities specified in the plan. Therefore, the number of shifts depends largely on how quickly and consistently the operator would be able to achieve these operating conditions. The operator may need to sample several shifts before the production level on any single shift qualifies for verification purposes. The operator could verify the adequacy of the plan parameters based on this single shift—but only if all sample results are at or below the critical values listed in Table 70–1 that correspond to the number of shifts sampled. This would demonstrate the adequacy of the plan parameters at a high level of confidence. If any of the sample results exceed the appropriate critical value, then the operator would need to collect verification samples taken on one to three additional shifts, depending on the concentrations measured on those shifts. Since these additional shifts would also need to meet the production criteria, and use only the dust control parameters specified in the plan, some operators would need to sample a total of more than four shifts.

Assuming that the operator makes no special effort to meet the VPL during verification sampling, there is a 67-

percent probability that a randomly selected production shift would not meet the VPL. Consequently, if the operator made no special effort to achieve the desired production, there would be a 13-percent chance the operator would need to sample more than five shifts and a 1.7-percent chance the operator would have to sample more than 10 shifts.⁹ On the other hand, again assuming no special production effort, there would be a 98-percent chance the operator would need 10 or fewer shifts and a 70-percent chance that the operator would need to sample three or fewer shifts.¹⁰ This assumes that the sample results for each shift do not exceed the critical value corresponding to the number of shifts sampled. If the operator should make a concerted effort to achieve the VPL on the sampled shifts and meet the other criteria, then sampling of fewer shifts would be needed to verify the adequacy of the dust control parameters.

Section 70.207 Approval of Dust Control Parameters by District Manager; Revocation of Approval

This proposed section establishes the criteria or “critical values” that the district manager would use to determine whether the operator’s dust control parameters should be approved or denied. These critical values, which differ according to the number of shifts sampled by the operator, are listed in Table 70–1. Appendix A explains how the critical values were derived. When verification sample results do not exceed the applicable critical values, the district manager can be confident that the dust control parameters in use during verification sampling successfully prevented overexposures at the sampled locations.

The district manager would approve the operator’s plan parameters when the amount of material produced is at or above the VPL, the parameters and other measures in place during verification sampling do not exceed 115% of the quantities specified in the plan, and no equivalent concentration measurement exceeds the applicable critical values corresponding to the number of shifts sampled.

⁹ Assuming no special production effort, the probability of needing more than n shifts to be sampled before meeting the minimum production level required to verify the plan: $P(X > n) = (.667)^n$; for example, the probability of more than 10 shifts being needed, $P(X > 10) = (.667)^{10} = 1.7$ percent.

¹⁰ Assuming no special production effort, the probability of needing n or fewer shifts to be sampled before meeting the minimum production level required to verify a plan: $P(X \leq n) = 1 - P(X > n)$; for example, the probability of 10 or fewer shifts being needed, $(1 - (.667)^{10}) = 98$ percent.

TABLE 70–1.—CRITICAL VALUES FOR DETERMINING COMPLIANCE WITH VERIFICATION LIMITS.

[The result of each verification sample collected must be less than or equal to the applicable critical values.]

Number of shifts meeting criteria for verification sampling	Critical value for coal mine dust (mg/m ³)	Critical value for quartz dust (µg/m ³)
1	1.71	87
2	1.85	93
3	1.93	97
4 or more	2.0	100

The proposed criteria would allow the district manager to base approvals on a reasonably small number of sampled shifts, while maintaining a high level of confidence that approved dust control parameters adequately prevent excessive dust concentrations on individual shifts.

The following two examples illustrate how the district manager would apply the proposed criteria or “critical values” to determine if the operator’s plan parameters for a MMU should be approved.

Example 1: Suppose valid verification samples were taken on two shifts. According to Table 70–1, the district manager would approve the operator’s dust control parameters if all coal mine dust and quartz measurements obtained on the two shifts were less than 1.85 mg/m³ and 93 µg/m³, respectively. On the other hand, if one roof bolter sample indicated a quartz concentration of 95 µg/m³, then the district manager would not approve the operator’s plan parameters based on these two shifts alone. Instead, at least one additional shift of sampling would be needed. Valid verification samples from only one additional shift would be sufficient if none of the coal mine dust measurements on that shift exceeded 1.93 mg/m³, and none of the quartz measurements exceeded 97 µg/m³.

Example 2: Suppose valid verification samples were taken on four or more shifts. The district manager would approve the operator’s plan parameters as proposed if no measurement taken over those four or more shifts exceeded 2.0 mg/m³ of coal mine dust or 100 µg/m³ of quartz dust.

The district manager may revoke approval of the dust control provisions if either MSHA samples or operator samples collected in accordance with proposed § 70.215 indicate that miners are being overexposed to respirable coal mine dust.

Section 70.208 Follow-up Action When Either Verification Limit Is Exceeded

This proposed section would require the operator to take certain actions when a verification sample exceeds either the respirable coal mine dust or quartz verification limit. The operator