

the requirements of § 75.209. Section 75.209 provides technical requirements for ATRS systems, which are installed on virtually all roof bolting machines. The ATRS provides the miner with an additional level of protection during roof bolting operations. This final section is unchanged from the proposed rule. No comments were received concerning this provision.

*D. Subparagraph 75.362(d)(3)(ii).*

This subparagraph of the final rule requires the roof bolting machine to have a permanently mounted methane monitor. The subparagraph is unchanged from the proposed rule. MSHA believes that a methane monitor on the roof bolting machine is an effective method of testing for methane at a potential principal ignition source during roof bolting operations, and is consistent with the NIOSH study determinations.

The subparagraph further requires that the methane monitor complies with the requirements of existing §§ 75.342(a)(4), 75.342(b) and 75.342(c). Section 75.342(a)(4) establishes maintenance and calibration requirements, requires training for miners who perform this maintenance and calibration, and establishes recordkeeping and records retention requirements for the calibration tests. While this final rule allows an alternative method for making methane tests, it also requires the methane monitors on the roof bolting machines to be properly maintained at all times, and thus does not allow the use of a methane detector and probe in lieu of a poorly maintained or inoperative methane monitor on the roof bolting machine. Section 75.342(b) requires the methane monitor to give a warning signal when the air-methane concentration reaches 1.0 per cent, and further requires this warning signal to be visible to someone who is able to de-energize the machine to which the monitor is mounted. Section 75.342(c) requires the methane monitor to automatically de-energize the machine to which it is mounted when the methane-air mixture reaches 2.0 per cent or when the monitor is not operating properly. The warning signal and automatic de-energization capability provide an additional measure of protection to miners.

Although methane monitors can be magnetically mounted on roof bolting machines, this subparagraph requires that they be permanently mounted for reliable operation and to assure that the sensor remains in an effective location. Although MSHA does not anticipate that permanently mounting the methane

monitor on the ATRS would require recertification of the ATRS by the manufacturer, certification issues may be avoided by using clamping brackets, steel strapping, or high-strength adhesives to permanently mount the methane monitor to the ATRS. MSHA anticipates that equipment manufacturers and rebuilders will incorporate provisions into the ATRS design to accommodate the permanently mounted monitors. Additionally, 30 CFR part 18 requires MSHA approval before changes are made to approved equipment to ensure that permissibility of the equipment to operate in a gassy atmosphere has not been compromised. Section 18.81 outlines the requirements and application procedure for MSHA approval of this field modification.

*E. Subparagraph 75.362(d)(3)(iii).*

This subparagraph of the final rule sets requirements for the position of the methane monitor sensor on the ATRS. The sensor must be mounted in a protected position near the inby end of the ATRS support; it must be within 18 inches of the longitudinal center of the ATRS; and it must be positioned at least 12 inches from the roof when the ATRS is fully deployed.

MSHA's requirement to mount the sensor near the inby end of the ATRS is based on the NIOSH study. In that study, NIOSH found the highest statistical correlation to be between face methane concentration and a point which would be near the downwind end of the ATRS. The requirement to position the methane sensor near the longitudinal center of the ATRS is intended to protect the methane sensor from damage during the mining cycle. Finally, the requirement for the methane sensor to rest at least 12 inches below the roof when the ATRS is deployed reflects the standard practice of measuring methane at least 12 inches from the roof to obtain a result representative of the general environment being measured. MSHA believes this distance achieves a balance between effectiveness and practicality.

The proposed rule would have required the methane sensor to be mounted "on the inby end and within 18 inches of the longitudinal center of the ATRS." One commenter expressed a concern that this wording could be interpreted to mean requiring the methane sensor to be mounted on the front of the ATRS itself, where it would be subject to damage and would be isolated from potential methane accumulations nearer to the drill assembly. The language from the proposed rule has been modified to address this concern by requiring the

sensor to be mounted "near the inby end and within 18 inches of the longitudinal center of the ATRS support." The rule provides some flexibility in the position of the sensor with the intent of placing the sensor at a location where it will be protected from damage while providing effective detection of methane near the most likely ignition source at the drilling assembly.

The continuous methane monitor mounted to the roof bolting machine, together with the probe used to sweep inby for methane, comprise a two-element system for methane detection. MSHA believes this two-element system is effective in detecting methane in the zone containing the most likely ignition source.

*F. Subparagraph 75.362(d)(3)(iv).*

This subparagraph of the final rule specifies the frequency of manual methane tests, and is consistent with § 75.362(d)(1)(iii), which in turn is derived from the statutory provision requiring methane tests to be made at least every 20 minutes while electrically powered equipment is operated (Mine Act, section 303(h)(1)). Additionally, the subparagraph specifies the location of the qualified person making the test.

In addition to the existing provisions contained in the final rule, the proposed subparagraph included the statement, "The manual methane test must be made immediately before the roof bolting machine enters the working place unless the last test was made within 20 minutes." Two commenters disagreed with this provision. One of these commenters suggested that the wording was inconsistent with 30 CFR 75.362(d)(1). This commenter further discussed several examples of how the wording of the proposed rule could introduce confusion and how miners could tend to assume that test had been made. MSHA agrees with these commenters, and has removed this provision from the final rule. However, this test may be made using the 16-foot minimum inby sweep, as described in the above analysis for subparagraph 75.362(d)(3). The combination of the 16-foot minimum sweeps and the continuous methane monitor on the roof bolting machine ensures an accurate determination of the methane levels present during roof bolting. A further consideration is the rate of methane liberation during roof bolting. That is, methane liberates from the coal at a higher rate during the time that the coal is being cut. During that time, ventilation is directed toward the face, with the tubes, curtains, or other ventilation devices positioned behind