

of § 75.362(d)(2) to clearly show that this option follows.

B. Paragraph 75.362(d)(3)

This final subparagraph allows an alternative method of compliance with subparagraph (d)(2) during roof bolting. This section remains unchanged from the proposed rule. The required methane tests may be made by using a probe or other acceptable means to sweep not less than 16 feet in by the last area of permanently supported roof, provided certain requirements are met, as outlined in subparagraphs 75.362(d)(3)(i) through (vi). MSHA believes that testing at the 16 foot in by minimum distance provides protection equivalent to the current requirement and does not diminish safety. The probe extends a sufficient distance into the unsupported area to test for methane which may be accumulating in by the roof bolting machine.

Certain difficulties exist in actually making the tests under the current standard. The longer probe arrangements required to reach the face of a deep cut can be unwieldy, and therefore difficult to position accurately at the face. Methane tests at the face currently must be made with the detector positioned at least 12 inches from the roof, rib and face.

The NIOSH study determined that:

Compliance with the methane standard would be easier if there were alternative sampling locations out by the face. Out by sampling locations closer to the bolting operation could also provide better measurements of methane when the primary liberation is the drill hole.

The study further determined that:

The primary way to assure that methane concentrations are not ignitable is to monitor methane levels near the drill hole. Measurements must also be taken during bolting to determine methane concentrations at the face.

Prior to the 1996 rulemaking on ventilation standards, methane tests were made at the last permanent roof support, unless the approved ventilation plan required the tests to be made closer to the working face by using extendable probes or other acceptable means. When MSHA published the proposed revisions in 1994, some commenters expressed concerns about possible higher accumulations of methane in the deep cuts, particularly at the face area, where the freshly exposed surfaces allow more methane to liberate. These commenters wanted the methane tests to be made as close to the working face as practicable without endangering the miner. MSHA agreed with these comments. Additionally, data from

research done by MSHA and the former Bureau of Mines during the prior 25 years, such as Bureau of Mines Report of Investigation 7223, "Face Ventilation in Underground Bituminous Coal Mines," published in 1969, suggested higher methane concentrations near the face area. The final rule published in 1996 required that methane tests be made at the face area.

The existing requirement to make all methane tests at the face area was intended to provide adequate testing in extended cuts. However, as stated above, the ignition hazard during roof bolting is not necessarily at the same location as during cutting, that is, the face area. The conditions required for an ignition may be present at the drill head when the miner drills into the roof. Methane tests made at a minimum distance of 16 feet in by the last area of permanently supported roof, augmented with the continuous methane monitor on the ATRS, provide adequate assurance that hazardous levels of methane are not present or accumulating either in the cut or around the roof bolting machine at the time the roof bolter is drilling. The alternative testing method does not diminish safety and provides at least equivalent protection by supplementing methane tests in by the area where roof bolting takes place with continuous monitoring at the roof bolting machine where methane ignitions have occurred at the time that drilling is occurring. This optional compliance method may only be used if the conditions of subparagraphs § 75.362(d)(3)(i) through (vi) are met, as discussed below.

Several commenters suggested that the 20-minute methane tests should be made either by sweeping a shorter distance, e.g., two rows of bolts or ten feet, or by using a handheld methane detector to make the test at the last area of supported roof. Two of these commenters suggested that testing with the shorter probe or the hand-held methane detector at more frequent intervals, such as before or after the roof bolting machine advances, would ensure protection.

One commenter stated that there was no reason to select a distance of 16 feet. MSHA believes that the combination of 16-foot minimum sweeps to test for methane accumulating in the cut and continuous methane monitoring at the site where drilling occurs provides the level of protection that is equivalent to the current requirement and does not diminish safety. As discussed above, methane liberates at higher rates from the freshly exposed surfaces at the face area than from outby areas. In addition, ventilation controls ordinarily do not

extend substantially beyond the roof bolting machine. Accordingly, it is prudent to perform methane tests to ensure that bodies of methane are not accumulating in the cut. Testing with a shorter probe or with a hand-held detector, as suggested by these commenters, would not provide adequate assurance that methane is not accumulating further in the cut. Finally, the joint recommendation of labor and industry, which was based on the NIOSH study, identified 16 feet as an appropriate testing distance. For these reasons, MSHA has not revised the testing distance in the final rule. However, based on the conditions at a particular mine, an operator may, as a mine procedure, specify that testing in addition to the requirements of this final rule would be of value.

Other commenters suggested that the probes required for a 16-foot sweep would be unwieldy, thereby compromising the accuracy of the test. MSHA notes that 20-foot probes have been used in the coal industry for many years. Therefore, MSHA concludes that the probe arrangements required to sweep 16 feet in by are manageable and do not present any hazards to miners.

One commenter suggested that the methane tests made during roof bolting should be made between six and twelve inches from the roof, at the roof bolting machine, immediately before each row of roof bolts is installed, noting that the likely ignition source would be close to the roof. The commenter added that the potential hazard during roof bolting is not the same as that presented during mining (and addressed by testing at the face). MSHA believes that the in by methane hazard during roof bolting is comparable to that found in by during the mining process. Testing for methane at a minimum distance of 12 inches from the roof has been an MSHA requirement for a number of years, and the procedure has proven to be effective. Therefore, this provision remains unchanged.

A commenter recommended expanding the rule to allow dual methane monitors mounted on the continuous mining machine as an alternative method to test for methane while the continuous mining machine is operating. This recommendation has not been addressed because this change is beyond the scope of the proposal.

C. Subparagraph 75.362(d)(3)(i)

This subparagraph of the final rule requires the roof bolting machine to be equipped with an integral automated temporary roof support (ATRS) system if the alternative testing method is used, and further requires the ATRS to meet