

Proposed § 75.351(d)(2) specifies that operators not install sensors in abnormally high areas or in other locations where air flow patterns do not permit products of combustion to reach the sensors. This proposed requirement was developed based on work conducted by the former U.S. Bureau of Mines (USBM) and Agency experience with existing belt air petitions. This work has shown that during both smoldering and open combustion fires, the products of combustion stratify. The highest concentrations are found near the mine roof. Accordingly, the former USBM recommended installing sensors near the roof of the entry to take advantage of this stratification. Our experience shows that when operators do not properly position sensors, heatings or fires can go undetected or their detection can be delayed. For example, sensors that are positioned behind posts or equipment will not be exposed to the products of combustion contained in the air stream.

Proposed paragraph (d)(3) requires that methane sensors be installed near the center of the entry at least 12 inches from the roof, ribs, and floor. Existing § 75.351(b)(2) failed to specify the location of the sensor in relation to the roof, ribs, or floor. This proposed paragraph adds this requirement paralleling the requirement of § 75.323(a) for conducting methane tests. Section 75.323(d)(1)(ii) requires the use of an AMS when using the return air split alternative. The proposed rule also requires installation of methane sensors near the center of the entry in a location that would not expose personnel working on the system to unsafe conditions.

Proposed paragraph (e) specifies the locations along the belt entry where the operator must install sensors to monitor for CO or smoke. Paragraph (e)(1) requires a sensor at or near the working section tailpiece. This sensor is to monitor the belt and it is not intended to monitor the section tailpiece or feeder. The tailpiece area is visited frequently and a sensor hung over the loading point would be subject to being damaged. The sensor must be installed in the air stream ventilating the belt entry. In longwall mining systems using belt air to ventilate the working section, proposed paragraph (e)(1) requires that the sensor near the tailpiece be located in the belt entry at a distance of no more than 150 feet upwind from the mixing point where intake air is mixed with belt air at or near the tailpiece. This requirement would monitor the belt up to the point that intake air flows into the belt entry mixing with belt air. It is not intended to monitor the stage loader

since the tailpiece is often attended by miners, therefore, miners would be in the area and aware of any sign of a fire.

Proposed paragraph (e)(2) requires that a sensor be located immediately upwind, a distance of no greater than 50 feet from the point where the belt air course is combined with another air course or splits into multiple air courses. This would require placing a CO or smoke sensor in the belt entry (*i.e.*, main belt entry) just before the air stream splits to ventilate another belt entry (*e.g.*, a panel belt). Also, if two belt air splits join, this paragraph would require a sensor in each air split immediately prior to joining. These sensors are required to promptly identify the location of a fire in either air split and would more precisely show the location or air split where the fire originated.

Proposed paragraph (e)(3) would require sensors to be installed at intervals not to exceed 1,000 feet along each belt entry in areas where air velocities are maintained at 50 feet per minute or higher. The 1,000-foot spacing is consistent with the Advisory Committee recommendation, Agency experience under the petition process, and research conducted by NIOSH and the former U.S. Bureau of Mines. Also, in areas where air velocities are maintained at less than 50 fpm, the sensor spacing must not exceed 350 feet. In areas where the air velocity in the belt entry is maintained at less than 50 fpm, the sensor spacing must be reduced to 350 feet.

Proposed paragraph (e)(4) requires a sensor be placed not more than 100 feet downwind of each belt drive unit, each tailpiece transfer point, and each belt take-up. If the belt drive, tailpiece, and/or take-up are installed together in the same air course they may be monitored with one sensor located not more than 100 feet downwind of the last component. This requirement is consistent with current petitions. It is intended to monitor the drive area, a potential fire source because of dust accumulations and electrical equipment.

Proposed paragraph (e)(5) would allow the district manager to require additional sensors as mine conditions warrant. As belt drive configurations often require altering the belt entry, additional sensors may be required in this area. Also, other areas may require additional monitoring due to unusual entry shape or air flow patterns. The location of additional sensors must be specified in the mine ventilation plan. The Advisory Committee recommended the installation of a CO sensor at the inby end of the section track if the belt

and track are in separate entries of the same air course. However, we are proposing to allow the district manager flexibility in determining the appropriate location for placement of the sensors. Paragraph (e)(5) would allow the district manager to require additional sensors in any entry that is part of the belt air course.

Paragraph (f) specifies the location of sensors in the primary escapeway. If used to monitor the primary escapeway under § 75.350(b)(4), CO or smoke sensors would be located in the primary escapeway within 500 feet of the working section and within 500 feet inby the beginning of the panel. The point-feed sensor required by § 75.350(c)(1) may be used as the sensor at the beginning of the panel if it is located within 500 feet inby the beginning of the panel. Under this situation, only one sensor would be required to comply with both of the requirements.

Paragraph (g) specifies the location of sensors in return air splits. Proposed §§ 75.351(g)(1) and 75.351(g)(2) retain the requirements in existing §§ 75.351(b)(1) and 75.351(b)(2) for monitoring return air splits using an AMS. Monitoring in returns where auxiliary fans are used is addressed in proposed § 75.351(g)(2). Proposed paragraph (g)(2) would require an AMS to monitor the mine atmosphere for percentage of methane at two locations. Proposed § 75.351(g)(2)(i) states that in the return air course opposite the section loading point, or, if exhausting auxiliary fan(s) and tubing are used, in the return air course no closer than 300 feet downwind from the fan exhaust and at a point opposite or immediately outby the section loading point. Proposed § 75.351(g)(2)(ii) would require that the mine atmosphere be monitored immediately upwind from the location where the split of air meets another split of air or immediately upwind of the location where the split of air is used to ventilate seals or worked-out areas. Placing methane sensors at these locations monitors the methane concentration near the beginning and the end of the immediate return. The AMS must provide an alarm when either sensor reaches 1.5 percent methane. This is the concentration specified in proposed § 75.351(i)(1) that corresponds to the methane action level specified in the existing § 75.323(d)(2) and provides adequate monitoring of the return.

Proposed § 75.351(h) retains the requirement of existing §§ 75.340(a)(1)(ii) and 75.340(a)(2)(ii). Existing § 75.351(c) addresses AMS monitoring of underground electrical