

air course to other air courses. Sometimes providing additional air to the belt air course to increase air velocity in the belt entry is necessary to maintain the needed air velocity to assure that the contaminants reach the sensors. Although we acknowledge that point-feeding may be necessary, we think that the number of point-feed regulators should be kept to a minimum to maintain the integrity of the primary escapeway. Because the point-feed regulator is a permanent ventilation control, the point-feed regulator must be constructed according to the requirements of existing § 75.333(e)(1) (Ventilation controls) which states the method and material requirements for the construction of permanent stoppings and regulators.

#### *Section 75.350—Belt Air Course Ventilation*

This proposed rule would revise existing § 75.350 that prohibits air coursed through belt entries from ventilating working places. As used in the existing standard, the term 'belt entries' refers to the belt air course. Under the proposed rule, the belt air course could be used to ventilate working sections, if the mine operator meets specified safety precautions. The term 'working sections,' and not 'working places,' is used in the proposed rule to include the area in by the loading point. Existing § 75.380(g) requires separation of the primary escapeway from the belt entry beginning at the working section to the escape facilities or the surface. Thus, if the mine operator wishes to course belt air in by the end of the separation of the primary escapeway from the belt, the safety precautions of this proposed rule would apply.

The proposed rule also would permit belt air to be used to ventilate equipment setup or removal areas if the mine operator meets the same specified safety precautions. If intake air passes through a belt entry where the belt is not operating, and is coursed onto a setup or removal area, the specified precautions would not apply. For example, during longwall setup, stoppings are removed to access the belt entry at certain locations. If the belt cannot be operated, the specified precautions are not required. However, if any of the air that passes through the belt entry has passed over a belt that is being operated or has been operated within the previous four hours, the specified requirements would apply.

Separation of the belt entry from the primary escapeway entry is required by existing § 75.380(g). Under the current regulations, the belt air course must be

separated with permanent ventilation controls from return air courses and from other intake air courses. Section 75.350(a) of the proposed rule would require separation of the belt air course from return air courses and other intake air courses with permanent stoppings. It requires that the belt air course cannot be used as a return air course. It also requires that belt air cannot be used to ventilate the working sections or setup or removal areas except as specified in proposed § 75.350(b). When the mine operator meets the conditions specified in § 75.350(b), separation of the belt air course from intake air courses, other than primary escapeways, would not be required.

Since existing § 75.321 requires that the oxygen level in areas where persons work or travel be no less than 19.5 percent, we have not included a minimum oxygen requirement in this section. Also, existing § 75.323(b) limits the methane in intake air courses, including belt air courses, to 1.0 percent, so we have not included this requirement in proposed § 75.350.

Existing § 75.350 requires that the air velocity in the belt entries be limited to the amount necessary to provide an adequate supply of oxygen in these entries and to assure that the air contains less than 1.0 percent methane. We have not included in the proposed rule the provision in existing § 75.350 that limits the air velocity in the belt entry. The intent of this restriction was to reduce fanning and propagation of flames in the event of a fire. Donald Mitchell, a mine fire expert, commented in written testimony to the Advisory Committee that limiting the velocity in the belt entry actually does not produce the intended results. Research has shown that higher velocities have a cooling effect on developing fires, and higher quantities reduce concentrations of volatile gases. In effect, the restriction of velocity creates additional potential hazards of smoke rollback, methane and hydrogen layering, and development of fuel-rich fires. We agree with Mr. Mitchell's conclusions and have not retained the requirement limiting the velocity in the proposal.

For mines using an AMS with CO sensors for fire detection in the belt entry, proposed § 75.351(e)(3) would require a minimum velocity of 50 feet per minute (fpm) in the belt entry unless the spacing is reduced to 350 feet between CO sensors, in which case, the velocity can be lower. Our experience shows that for an AMS with CO sensors to function properly as an early-warning fire detection system, the products of combustion must be transported to the sensors. This method of transport is the

ventilation air current. The Advisory Committee concluded that a minimum air velocity of 50 fpm is necessary to ensure timely transport of combustion products to sensors. However, more recent research conducted by the National Institute of Occupational Safety and Health (NIOSH) indicates lower velocities can be used if sensor spacing is reduced. In zero-flow conditions, NIOSH has found sensor spacing of 105 meters (344 feet) to be effective for early-warning fire detection (Edwards *et al.* 1997). We recognize that mines will have some air flow within the belt entries. Therefore, we are requiring that maximum sensor spacing be reduced to 350 feet in areas where less than 50 fpm is maintained to provide adequate fire protection capabilities.

Proposed paragraph § 75.350(b) addresses the safety requirements that would apply when belt air is used to ventilate a working section or a setup or removal area. Proposed paragraph (b)(1) would require that the mine operator equip the belt entry with an AMS installed, operated, examined, and maintained as specified in proposed § 75.351. The Advisory Committee concluded that if installed, calibrated, and maintained properly, an AMS with CO and/or smoke sensors can perform satisfactorily. This conclusion is consistent with our experience with AMSs.

Proposed paragraph (b)(2) of the proposed rule would require the training of all miners annually in the basic operating principles of the AMS, including the actions required in the event of activation of a system alarm. This training may be conducted as part of a miner's part 48 new miner training (§ 48.5), experienced miner training (§ 48.6), annual refresher training (§ 48.8), or training conducted as part of the approved program of instruction, § 75.1502. The training should include the purpose of the system, the type of information that it provides, and what responses are necessary to specific signals from the AMS. We are aware that the effectiveness of any hazard warning system depends not only on the reliability of the system but also on the trust that the miners have in the system. A system that continually provides alarms when no hazard is present is of little value. The Advisory Committee concluded that if miners do not understand how the AMS works or do not trust the signals produced, the effectiveness of the AMS is reduced. Consequently, the Advisory Committee recommended, and we are proposing, that miners must be trained in how to respond to AMS signals when an AMS