

Mine operators filing a petition for modification under § 75.350 generally request the use of belt air to ventilate active working places dependent upon the installation of an AMS with CO sensors for early-warning fire detection in the belt entry. AMSs are also currently used for other reasons. Some mine operators petitioned the Agency under Section 101(c) of the Mine Act to install an AMS with CO sensors to comply with the requirements of § 75.1103 (Automatic fire warning devices). Existing regulations have also used an AMS as an optional choice for specific functions, such as monitoring for methane, CO, and smoke.

Mandated petition requirements and existing regulations have placed a greater reliance on AMSs' performance. Typically, an AMS is composed of a central control station that includes a computer with data storage, software, a display, a printer, etc.; a communication network or telemetry system that includes signal conditioning equipment, multiplexers, drivers, repeaters, data line, etc.; and transducers or sensors that measure the value of a given physical parameter.

The Advisory Committee recommended that MSHA should move forward with the development and promulgation of approval schedules for early-warning fire detection systems, such as AMSs. In lieu of adopting this recommendation, we propose to require that components of the system's sensors be listed or certified by a nationally recognized testing laboratory (NRTL) or approved by the Secretary. The standards used by the NRTLs to list or certify the sensors are American National Standards.

As specified in § 75.1103-2(a), MSHA currently requires that components of automatic fire sensors in belt entries be listed or certified by a NRTL or approved by the Secretary. We propose to expand this listing or certification requirement to include methane

sensors. We also propose that the components can be approved by the Secretary, allowing MSHA to accept new or unique technology that has not yet been approved by a NRTL. This would help assure that new technology can be introduced into mining without delay. The current program for Evaluation of Mine-Wide Monitoring Systems and Barrier and Sensor Classifications described in MSHA's Program Circular PC-4003-0 would remain in effect. A copy of this program circular can be obtained from the Approval and Certification Center in Triadelphia, West Virginia.

Currently, an AMS must comply with the 1967 National Fire Alarm Code (§ 75.1103-2; Automatic fire sensors approved components; installation requirements). In this proposed rule, MSHA is soliciting comments on whether AMS components and the aforementioned automatic fire sensor systems should comply with appropriate sections of the 1999 National Fire Alarm Code. The National Fire Alarm Code is also an American National Standard.

Reportable Belt Entry Fires

In developing this proposed rule, MSHA reviewed the history of reportable belt entry fires to evaluate the effectiveness of various types of detection methods and the causes of these fires. Section 50.2(h)(6) of 30 CFR requires that mine operators report mine fires that are not extinguished within 30 minutes of their discovery. We are aware that fires of less than 30 minutes in duration occur. Where documentation, such as official reports or memoranda, could be found about these short-duration fires, we also considered them in developing this proposed rule. Often slightly different circumstances in these short duration fires would have resulted in a potentially serious reportable fire.

Since 1970, 75 reportable mine fires have occurred in belt entries. Seventeen

of these occurred in mines where belt air ventilated working places (23%). A review of the accident reports for these 17 fires showed that nine occurred in mines that used only an AMS with CO sensors for fire detection; two occurred in mines that used only point-type heat sensors (PTHS) for fire detection; and two occurred in mines using both an AMS with CO sensors and PTHS for fire detection. Reports of the remaining five fires did not state the type of fire detection system in use. However, based on the dates of the fires (1972–1974) and the fact that CO systems were not in use before 1975, four of these mines probably used PTHS for fire detection.

The first reportable belt entry fire in a mine equipped with an AMS occurred in 1983 at the Jim Walters No. 7 Mine. Since then, we have investigated 16 belt entry fires in AMS equipped mines (10 in mines that used air in the belt air course to ventilate working places and 6 in mines that did not). Two of these mines had both AMS and PTHS installed in the belt entry. Of the 16 fires occurring in belt entries equipped with an AMS, the AMS detected all of the fires. Instances occurred when the AMS was not properly utilized or responded to by mine personnel (e.g., alarms were disconnected or were ignored). Sometimes, although the AMS functioned as intended and provided notification of a fire, the fire was detected by sight or smell before detection by the AMS.

The first reportable belt entry fire detected with a PTHS system occurred in 1980 at the Peabody No. 10 Mine. From 1970 to date, 43 fires occurred in belt entries of mines equipped with PTHS. This includes the two mines with both AMS and PTHS. Of the 43 fires occurring in belt entries equipped with PTHS, the PTHS reportedly detected only six fires. Table 1 lists the reportable belt entry fires included in this analysis.

TABLE 1.—REPORTABLE CONVEYOR BELT ENTRY FIRES, 1970–2002

	Mine name	Date	Sensor type	Fire detected by . . .	Alert & alarm (PPM)	Belt air in working place	Belt running
1	Geneva	1/20/70	No Record	Sight and/or Smell .....	.....	No	Yes
2	Kermit No 1	8/7/70	No Record	Sight and/or Smell .....	.....	No	No
3	Rainbow No 7	10/25/70	No Record	Sight and/or Smell .....	.....	No	No
4	Castlegate No 4	12/14/70	No Record	Sight and/or Smell .....	.....	No	No
5	Jones Fork	12/27/70	No Record	Sight and/or Smell .....	.....	No	No
6	Kenilworth	7/13/71	No Record	Sight and/or Smell .....	.....	No	No
7	Pioneer	12/26/72	No Record	Sight and/or Smell .....	.....	Yes	No
8	Colver	8/22/73	No Record	Sight and/or Smell .....	.....	Yes	Yes
9	Bethlehem, No 31	10/29/73	No Record	Sight and/or Smell .....	.....	Yes	No
10	Feds Creek, No 2	11/20/73	PTHS	Sight and/or Smell .....	.....	No	No
11	Wentz No 11	6/29/74	No Record	Sight and/or Smell .....	.....	Yes	No
12	Jewell Ridge No 1	4/8/76	PTHS	Sight and/or Smell .....	.....	Yes	No
13	Alpine	12/9/76	PTHS	Sight and/or Smell .....	.....	No	No