

Informational Report of Investigation



Underground Coal Mine Explosion and Fire

U.S. Department of Labor
Mine Safety and Health Administration
1989

Consol No. 9 Mine
Mountaineer Coal Co.
Division of
Consolidation Coal Co.
Farmington,
Marion County,
West Virginia

November 20, 1968

[REDACTED]

In September 1969, the mine was reopened and operations to recover the remains of the 78 miners were begun and continued until April 1978. Damage to the mine in the explosion area was extensive, requiring loading of rock falls, replacement of ventilation and transportation facilities, and in some cases new mine entries to bypass extensively caved areas. Investigative activities were continued, in cooperation with the Company, State, and United Mine Workers of America (UMWA) organizations, as mine areas were recovered. Between 1969 and 1978, the bodies of 59 victims were recovered and brought to the surface.

Recovery operations ceased and all entrances to the mine were permanently sealed in November 1978, leaving 19 victims buried in the mine and leaving some areas of the mine unexplored. The recovery and investigation lasted 10 years during which time organizational changes occurred in the four organizations involved in the recovery. Continuity of knowledge was therefore difficult, especially when considering the scope of the recovery. Lessons learned during early evaluation of this disaster were incorporated into the Federal Coal Mine Safety and Health Act of 1969 (P.L. 91-173). However, the investigation was not completed and the actual cause of the explosion could not be determined. Specific recommendations have therefore not been made in this report.

Despite the fact that the investigation could not be completed due to the extent of the damage to the mine, MSHA has received a number of requests for a report on the accident. This report is issued to accommodate those requests, and to make information available which may be of help in preventing future mining accidents.

[REDACTED]

plans called for erecting a main fan installation at the return side of the shaft. He stated that at the time of the explosion on November 20, 1968, the Mahan shaft was "checked off" at the bottom and that only a small amount of air, sufficient to keep the area around the bottom of the shaft clear of methane, was permitted to intake through this shaft. The Mahan shaft, according to Casseday's testimony, was not contributing to the mine ventilation system at the time of the explosion. The shaft did, however, provide an escape route for the eight miners working in the 7 South section who otherwise would have perished along with the other 78 victims of the explosion.

A Femco Supervisory Control System, which was designed to provide continuous monitoring of the four fans, was located in the lamp house at the Llewellyn shaft portal where a responsible person was always on duty while the mine was operating. The Femco System was also designed to deenergize the entire mine power system, in a predetermined time period of 18 minutes, in the event of an outage of either fan. However, the investigation revealed that the mine power cutoff system was inoperative at the time of the explosion, as well as at several other times prior to the explosion. Jimmie Herron stated at the official hearing that on the morning of the explosion neither he, nor any member of his crew, knew that an explosion occurred underground until he and his crew arrived on the surface at approximately 7:00 a.m. He stated that they continued to mine coal in the A Face section until they received orders by telephone to leave the section and come to the surface immediately. He also stated that he then disconnected the power from the electric equipment and the section and left the section on foot.

According to testimony of Dana E. Harris, Sr., shuttle car operator, retired, and Joseph Duda, continuous mining machine operator, it was a practice to load out the loose coal from behind the continuous mining machine and move the machine from the face area after the crew had received word that a main fan was down. Harris also stated that 2 or 3 months before his retirement on March 7, 1968, one of the main fans went down on the 4 p.m. to midnight shift and the miners were withdrawn from the mine. The following two shifts (midnight to 8 a.m. and 8 a.m. to 4 p.m. shift) did not work because of the fan outage. He stated that his shift (4 p.m. to midnight) reported for work the next day but the miners refused to enter the mine to work because a signaling device (blinking lights indicating fan operations) located in the lamp house showed that two fans were not in operation. Harris stated that he brought this matter to the attention of Foster Turner, superintendent, and K.K. Kincell, who were in the lamp house at that time. He stated that Turner advised him that only one fan was down and that the monitoring system on the other fan was blocked out, but the fan was actually operating. Harris stated that the 8 a.m. to 4 p.m. and 4 p.m. to midnight shifts worked the following day with one of the main fans not in operation.

CONCLUSION

An explosion in extensive mine workings, such as the west side of the Consol No. 9 Mine, is a complex phenomenon which cannot be totally comprehended or explained. The point of origin and the igniting agent of the first explosion on November 20, 1968, could not be determined because of the subsequent explosions, massive roof falls, water accumulations, and areas not explored. The subsequent explosions and fires were a result of the first explosion.

Federal investigators believe that the first explosion resulted from inadequate ventilation and/or an ineffective bleeder system. Low barometric pressure, inadequate rock-dust applications, inadequate methods of controlling fine coal dust created during mining operations, accumulations of loose coal, coal dust, and float coal dust, and insufficient testing for methane were contributing factors.

The explosion was propagated throughout the north side of the mine between 3 North and 8 North by coal dust and methane from the abandoned gob area. Propagation throughout the greater part of the west side of the mine was by coal dust. Propagation was possibly aided by methane that may have accumulated over the extensive roof falls in the airways.

Some areas, 3 Right 7 North, 4 Right 8 North, 3 Right 7 South Parallel, 1 Right 6 North, and 7 South sections were eliminated as possible ignition sources of the first explosion for the following reasons:

1. The miners working in the 3 Right 7 North, 4 Right 8 North, and 3 Right 7 South Parallel sections traveled outby from the working faces to distances ranging from 1,800 to 2,600 feet after the explosion occurred.
2. Little evidence of flame was observed in the 3 Right 7 South Parallel section, and no mining activities were being conducted in the 4 Right 8 North section at the time the explosion occurred as the continuous mining machine was found in a crosscut outby the face with a broken tram chain.
3. Coal was not being mined in the 1 Right 6 North section at the time the explosion occurred as the continuous mining machine was found in the No. 2 entry outby the last open crosscut.
4. Testimony of eyewitnesses verified that the first explosion did not originate in the 7 South section.