

A number of parts of holes that had been fired, were found measuring from one to five feet in depth, drilled into the solid beyond the line of face and drilled at such angles that it was impossible for the charge to do more than blow out the tamping, or a small part of the coal from the muzzle of the holes. The firing of dependent shots was very much in evidence. Holes were found tamped beyond the point where the bodies of the shot firers were found. The number of shots fired each day ran from 80 to 100. Shot firers were supposed to enter the mine at 2:00 P. M. or two hours before quitting time for the purpose of examining the shots to be fired later in the day. They probably tamped all the shots that were ready on this trip. They were supposed to start firing at 5:00 P. M., one hour after quitting time, provided all men were out of the mine.

I am reliably informed that the shot firers were home by 7:00 P. M. nearly every evening. The time taken to fire the number of shots above mentioned is entirely insufficient to do the work properly, as required by law. I was also informed that some of the miners were in the habit of staying at work after quitting time. Because of this practice and the failure of the mine officials to see that all employes, except the shot firers, were out of the mine before shots were fired, Hamidy, Sharp and Patrick lost their lives.

The explosion, in my opinion, was a dust explosion, caused by one or more blown out or overcharged shots, assisted by explosions of black powder in different parts of the mine. The initial point may have been either K & L slopes, M & N slopes, or main or back south entries. The explosion covered practically all of mine No. 2 and part of No. 1 mine. The slopes of mine No. 2 into and including K & L are connected with the third level of No. 1 mine. The forces apparently traveled towards No. 1 mine, spending itself before reaching the rock tunnel connecting the two mines.

The responsibility for the explosion is placed upon the shot firers and the mine foreman. The former for firing of impractical and unlawfully placed shots and the later through his failure to prohibit the firing of such shots.

(Signed) JAMES DALRYMPLE.

REPORT ON THE SATANIC MINE DISASTER

The Satanic mine is operated by The Colorado Collieries Company, at Mount Morrison, Jefferson county, Colorado. It is a vertical shaft opening, about 200 feet in depth. The seam being operated, lies at an angle of eighty-five degrees with the horizontal, dipping to the east. The shaft is located on the west side of seam, rock tunnels being driven through the measures at different levels to the coal seam. The exits or escapeways are driven in the coal seam to the surface at an angle of forty-five degrees. There are two

levels, one at One hundred feet and one at Two hundred feet, and are connected at different points. On the south side of the shaft, where the fires occurred, there are several openings to the surface.

On the morning of December 3rd, 1921, smoke was seen coming up through some of these openings, apparently coming from a fire in the upper level. Men were put to work at once to fill in the openings from which the smoke was coming for the purpose of smothering the fire. On the morning of the 10th inst., smoke was discovered coming from the southern-most opening, which is the main air course for the south workings. Upon investigation by Mr. Ream and Superintendent Dunn, fire was discovered at room 14, on south entry, lower level. Preparations were made at once to build a concrete stopping at mouth of south entry, and was completed on the night of the 11th, or early on the morning of the 12th inst. On the afternoon of the 12th, Supt. Dunn, sent Wm. Jones and Louis Golob, two of the deceased, over to the south air-shaft to cover it and to leave only a small hole, which was carried out. Shortly after the disaster, and before all of the bodies were out of the mine, Mr. Baxter and Mr. Alden, two employes, went to the air-shaft and found an opening six to twelve inches in diameter. They enlarged this opening to the full size of the shaft. This was done to give the fumes in the mine a chance to recede, so that the bodies could be reached.

On the forenoon of the 13th inst., Supt. Dunn entered the mine by an opening known as the forty-five degree slope to the upper level and advanced to a point where a concrete stopping was to be built for the purpose of isolating the entire south side workings from the north side workings. Upon his return from this inspection, just before noon, he reported to the men that were to assist him in building the stopping that everything was all right. Immediately after dinner, accompanied by Wm. Jones, E. Bovie, Jr., Louis Golob, and Louis Daregetti, he went into the mine to build the concrete stopping. About two hours afterwards the men on the outside heard some one call from the inside, and thinking help was needed, two of them entered, one of them lost his life trying to save his son, who was in the mine.

I was in Trinidad, Colo., when notified of the disaster. I immediately notified Deputy Inspector Wm. H. James, of Walsenburg, who met me on the first train, arriving in Denver the next morning. We arrived at the mine before noon, made some investigation, and after due consideration determined not to enter the mine until early the next morning. The reason for this postponement was that the mine depends entirely upon nature for ventilation, that is the atmosphereic pressure has to be greater at one opening than it is at the other to create a volume of air. This pressure is subject to reversal by a change in outside temperature, and very liable to happen especially during the midde of the day in warm weather. A reversal may also occur through a change in the direction of the wind on the outside. It was about noon when we arrived, and it was warm, hence the delay.

Early next morning, accompanied by Manager Ream, and two State Deputy Inspectors, I entered the mine and advanced fifty feet beyond the point where the concrete stopping was to be built, and where deceased lost their lives. The atmosphere was clear and no signs of temperature. While it is evident from the above statement that the mine foreman had laid out the work in an effort to seal off the fire, I believe his judgment was in error to attempt this work during the day, under the weather conditions existing at the time, in a mine depending on the elements for air and governing the direction of its travel. He also neglected to notify the State Inspection Department at the time the fire was discovered, as required by Section 51 of the Coal Mining Laws. Had this been done, it is my opinion that the loss of life would not have occurred. Owing to the frequency of fires in the Lignite Mines of the State and mine managers having constantly to face this condition, do not look upon this as seriously as could be wished, and often do not report them until they have made every effort to control them, and it is obvious that Mine Foreman Dunn had taken this course. The deceased lost their lives from inhaling fumes from fire carried to them either by sealing off of air-shaft or by a reversal of the air current. All of the employes directly engaged in sealing off the fires having lost their lives, my opinion is based upon the statements made under oath and otherwise by Mr. Ream, General Manager of The Colorado Collieries Company, some of the employes working in the mine at the time of the disaster, and upon my knowledge from experience in coal mines dependent upon natural ventilation.

The Satanic Mine was inspected four times by State Deputy Inspector Henry P. King, in 1921, prior to the accident. Dates of inspection are: January 17th, April 5th, August 17th, and November 5th, and in none of these reports is a fire mentioned. The first information the State Coal Mine Inspection Department had of the fire was through the press on the evening of and after the disaster. Section 120 of the Coal Mining Laws, requires that all mines shall be equipped with fans. Deputy Inspector King, on April 5th and August 17th, recommended that a fan be installed. The company being in financial straits to the extent that the employes took over the operation on a basis of eighty cents on the dollar, in an effort to get their back pay and have work, the fan was not installed. Had a fan been in operation and the work of sealing off the fire been done as it was done, the result would have been the same, because of building of the stopping in the main south intake, thereby making it impossible to ventilate the south side of mine through this entry.

There are several openings from the south upper level to the surface, and the lower south level is connected with the upper south at different points. The southernmost connection being at room 17, upper level, and continued to the surface, which was the main air course for south side of mine and with this opening and the main sealed, there was only one direction left for the fumes to travel,

which was towards the openings between the main shaft and the main south air course. The forty-five degree slope which the men entered to build the stopping is one of these openings. It appears to me that if the fumes had approached the men gradually, the safety lamp would have indicated their presence in time, so that at least some of them could have reached a point of safety. A considerable area was standing open on both sides of room 14, lower south level, and it is possible a cave took place sending the fumes back over the deceased at a high velocity.

On the day after the accident I made two tests with the Carbon Monoxide Gas Detector. The first at the main south return and the other at one of the openings between main shaft and main return. The first test showed over one per cent and the other three-tenths of one per cent C O, (Carbon Monoxide).

REPORT OF DEPUTY INSPECTOR JAS. W. GRAHAM, ON
FIRE OF TIPPLE AT THE MONARCH NO. 2 MINE, AT
BROOMFIELD, COLO., ON NOVEMBER 15, 1921.

A fire occurred at the Monarch No. 2 mine, at Broomfield, Colo., on November 15, 1921, about 9:00 P. M., which destroyed tibble, head frame, platform of railroad scales, and also did more or less damage to the outside equipment. By strenuous efforts the fire was kept away from the engine and boiler house.

Tibble house and head frame were enclosed with corrugated iron. The tibble house was steam heated. Mr. Sidle said that he was at the fire shortly after it was discovered, which started at or near the tibble scale, this was very near to the head frame. A wind was blowing from the South and East, which prevented the fire fighters from getting on the tibble, as the stairway which leads to it was situated on the north side. When the fire could not be reached from the inside, and very little could be done from the outside, the fire fighters devoted their time to keep the fire from spreading to other buildings.

At the time of the fire there were six men in the mine. Fire Boss Richards went down the ladder at the air-shaft and informed the men what was taking place. They at once returned to the surface by climbing the ladder, which is about 300 feet straight up.

The main shaft was damaged but very little, owing to it being on the return. This kept the flames from being drawn into the mine.

The local management, fire fighters, and Fire Boss Richards, are to be commended for their efficient work performed in keeping the fire from spreading to other buildings. Fire Boss Richards is to be further commended for his voluntary service in going into the mine to warn his fellowmen, when they were in danger.

It will probably take the company to repair the damage the balance of this year, and before they will be ready to resume operations.