

COAL FATAL

REPORT OF A FIRE AT NO. 41 MINE
BARRACKVILLE, WEST VIRGINIA
MAY 11, 1935 - 6 KILLED

(From Bureau of Mines report by J.J. Forbes and M.J. Ankeny)

At about 11:30 p.m., May 11, 1935, a fire occurred in the main hoisting shaft of the No. 41 mine, Barrackville, W.Va., severely burning 11 men. 5 of whom died in the hospital a few hours afterward, and the sixth victim died four days later. Two other men who were in the mine at the time escaped without injury. Of the 11 men who were burned, 10 escaped to the surface without assistance. One of the men who escaped uninjured assisted in the rescue of the other injured man without the aid of protective breathing apparatus.

The 13 men involved, together with the cager at the bottom of the manway shaft, were the only men in the mine at the time of the disaster. The men were burned by a burst of hot gases which suddenly issued from the bottom of the main hoisting shaft when they were preparing to prevent the spread of the fire by means of hose and water from the shaft to the coal bed.

The mine is opened by three vertical shafts approximately 300 feet deep. The man-shaft has three compartments, one of which is used for hoisting materials or men, the second a manway equipped with stairs, and the third for ventilation. The air shaft is a single-compartment shaft with an exhaust fan mounted at the top. The hoisting shaft is provided with two hoisting compartments which are fitted with self-dumping cages, and an air compartment which contains a large lead-covered armored cable, carrying 2,300 volts alternating current, suspended from the top and extending approximately centrally down the shaft, a 275-volt direct-current feeder line in a pipe conduit, attached to the shaft are on the intake and the air shaft is an upcast. These three shafts are in direct line with each other at intervals of about 250 feet. The shafts are lined with wood timber sets which were installed in 1925.

The fire was discovered at 11:40 p.m., by a pumper, who went on shift at 10:30 p.m., relieving the other pumper. When he entered the mine at 10:45 he thought he smelled smoke in the intaking air, but went about his business of visiting a pump. After visiting the pump, he decided to investigate the source of the smoke and discovered the fire in the main hoisting shaft at 11:40 p.m. He immediately notified the switchboard operator on the surface, by telephone, who spread the general alarm.

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After giving the alarm, the pumper remained underground and shortly after midnight he was met by the company safety inspector, and the master mechanic. These men were unable to reach the bottom of the hoisting shaft due to the smoke backing up into the entries from the fire. Upon retreating they were joined by the mine foreman, who decided to go back outside to get some help to lay hose lines to the hoisting shaft underground.

Upon arrival at the surface, the fire was issuing from the shaft to a distance of 20 feet above the top of the head frame, completely enveloping it. A crew of men proceeded to run a hose line down the man-shaft, after which the foreman and thirteen others entered the mine and started to lay two hose lines from the bottom of the man-shaft toward the main hoist shaft.

The mine superintendent, arrived on the scene at approximately 5 minutes after 12 and, upon looking into the shaft, could see that the shaft was afire about two-thirds of the distance from the collar, but with very little smoke coming out of the shaft. He immediately arranged to connect up four hose lines to the water hydrants and proceeded to turn water into the shaft. The fire suddenly started to burn violently, thus enveloping the head frame of the shaft about five minutes after water was introduced into the shaft.

The mine superintendent stopped the fan to prevent the fire from being drawn into the mine and igniting the coal. The hoisting shaft became a strong upcast.

The sudden blast of flame which issued from the shaft for a period of over 20 minutes was due partly to the stoppage of the fan and to the disturbances and ignition of the coal dust which had been deposited on the mine timbers during the normal operation of the mine. The disturbances of this dust was caused by the application of water from the fire hoses at high velocity, and later by falling timber and debris in the shaft.

When the party entered the mine to lay the hose lines from the foot of the man-shaft to the hoisting shaft, it was found that the atmosphere had cleared up and that they were able to reach the foot of the hoisting shaft without any difficulty from the smoke. Thirteen men were in this party that entered the mine and their objective was to prevent the fire from spreading into the coal bed and mine workings by means of water. Ten of them approached to within 40 feet of the foot of the hoisting shaft and from that position they could see that the timbers in the shaft were afire at a distance of about 30 feet from the bottom. they did not approach nearer because the danger from falling material was anticipated. The water was then turned on and was being played on the coal surfaces about the bottom of the shaft. Burning embers were coming

down the shaft at this time. Another man (the one farthest away from the shaft who was burned) was about 100 feet from the shaft, and two others had retreated a distance of about 300 feet and had just completed pulling up some slack in the hose when they heard a dull rumble. Immediately a dust cloud was forced past them through the entries. A heavy fall had occurred in the shaft, forcing hot gases through the openings connecting the shaft bottom. One of the men came back from the shaft bottom and he was assisted to the surface by the two men who were not affected. While a crew was making preparations to re-enter the mine to determine the fate of the others, nine of them reached the bottom of the man-shaft and returned to the surface by way of the cage, leaving one man, who was lying on the "tight" side along a trip of cars. They succeeded in bringing him to the surface alive.

Five of these men died within five hours and another died four days later. The others completely recovered.

The flames subsided as suddenly as they started and it is believed that the sudden quenching of the flame was due to a fall of debris which closed off the bottom of the shaft, obstructing ventilation, and that this was coincidental to the blast of hot gases which burned the men on the bottom.

About two railroad carloads of rock dust was used, a portion of it being thrown into the shaft, after which the shaft was sealed off at the surface. Arrangements were made to provide for the spraying of water into the top of the shaft after it was sealed. Rock dust was applied in large quantities on the hot material at the bottom of the shaft, and openings leading to the bottom of the shaft were sealed off. The sealing operations were completed on Tuesday afternoon, May 14.

As no significant change took place in the atmosphere behind the seals during the next few days, it was decided to reventilate the area and start to load out the debris in the openings leading to the hoisting shaft bottom. This was done without trouble and subsequently the shaft was cleared of debris and completely retimbered.

While it is likely that the exact cause of this fire which has cost the lives of six men will never be known, this occurrence should forcefully bring to the attention of the industry the fact that too little attention has been given to safety in shafts, particularly from the standpoint of fire and explosions.

It is the general practice in well rock-dusted and watered mines to combat the coal-dust explosion hazard starting to the bottom of the shaft and ending at the working faces. Little or no attention has been given to the dust hazard within the shaft, particularly within hoisting shafts that are intake air. The same, or even greater, precautions as are taken in the mine should be taken in such shafts.

The use of rock dust in fighting this fire was exceedingly helpful in preventing further progress of the fire in the shaft and in at least one of the openings leading to the shaft bottom. In the light of experience gained from fighting this fire in its initial stages, it would seem that the best procedure would be to use rock dust instead of water, especially where large quantities of coal dust are likely to be dislodged or where there is a likelihood of the water stream coming into contact with live electric conductors.