



Reports

Browder Mine

--:-- E X P L O S I O N --:--

A T T H E

Browder

~~LOWDER~~ or WICKLIFFE MINE

DRAKESBORO, MUHLENBURG COUNTY, KENTUCKY

February 1, 1910.

B Y

J. J. RUTLEDGE

LOCATION: The Lowder Mine of the W. A. Wickliffe Coal Company is located about one mile south of the town of Drakesboro and about the same distance north of the village of Lowder, both being in Muhlenburg County, Kentucky. Both places are located on the Owensboro and Nashville Division of the Louisville and Nashville Railroad - a spur track about one mile in length connects the mine with the railroad.

At the time of the explosion, the mine had either already been transferred or was about to be transferred to a new company, which had also purchased several of the other mines in the vicinity. This resulted in the anomalous condition of the mine possessing two sets of owners and two managements at the same time, as both the old and new owners were on the ground.

CHARACTER OF THE PLANT: The coal is reached by a vertical shaft about 200 feet in depth. A frame tippie and screening plant is built over the shaft mouth and there are several leading tracks beneath it.

The hoisting apparatus consists of double, first motion engines

made by Crawford and McCrimmon. There is also a battery of three boilers and an electric generator, and engine to operate same. The surface equipment is such as is usually found at small mines in that section of the country, being quite cheaply constructed and designed to handle only a very moderate output.

COAL SEAM: The coal seam worked is known as No. 11. It varies in thickness from 5 to 7 feet, and lies fairly horizontal under an excellent roof, which is dark shale at some points, and at other points limestone. The coal is quite hard and makes but little dust while being mined or hauled. Seam No. 9 is also worked from the same shaft as No. 11, an inclined raise being driven up to No. 9 at a point adjacent to a fault which has displaced the two seams. The vertical distance between No. 11 and No. 9 seams is about 26 feet. No examination was made of No. 9 seam, as the explosion did not extend to that seam.

METHOD OF WORKING MINE: The mine is opened up and worked by the method of pillar and room and double entry. No pillars are robbed. Coal is undercut by means of electric chain mining machines. Haulage on the side entries is by mules, and on the main entries by electric motor.

RESULTS OF EXPLOSION: The explosion caused the death of 34 men and the serious injury of 2 boys; these boy's injuries may or may not prove fatal. From evidence given by the survivors, the explosion occurred at about 12:00 o'clock February 1st. Peter Kelly, the Mine Foreman, was on his way to a point on the East side of the shaft where some road men were at work. The motorman had just brought his motor to the shaft bottom and was attempting to pull a mine car out of the sump. At the instant of the explosion, he had stepped over to the West side of the shaft bottom for some purpose, and his brakeman had at once climbed on to the motor. A man assisting in

hoisting the car from the sump was leaning over the sump at the time of the explosion. This man was blown into the sump and presumably drowned. The brakeman, who is one of the two injured boys, was blown off the motor and suffered a fractured skull. The motorman, who was on the West side of the shaft, was uninjured. Fortunately, the greater violence of the explosion was confined to the Southeast quarter of the mine and the fan, cage and shaft were uninjured, so it was possible to at once begin the work of rescuing those miners still alive and recovering the bodies of those killed. As the fan was uninjured, it was kept going and a rescue party speedily formed. This party found 8 men uninjured, and brought them to the surface. These men were not in the precise area of the explosion, but were shut up in the face of an entry by after-damp.

Mr. How. D. Jones, District Mine Inspector, Central City, Kentucky, in whose district the mine is located, came immediately to the mine from Central City, about 8 miles North of Drakesboro, and took very efficient charge of the work of restoring the ventilation and recovery of the bodies of those who had been killed. He was joined later by Mr. T. O. Long, District Mine Inspector, Earlington, Kentucky, and so rapidly was the work prosecuted that by 1:00 o'clock on the morning of the 2d, some 30 bodies had been recovered. Professor C. J. Norwood, Chief Mine Inspector, and the writer arrived on the evening of the 2d, and on the morning of the 3d began an examination of the explosion area and a search for the body of Peter Kelly, the Mine Foreman, which had not yet been found. Mr. Kelly's body was found about 4:00 o'clock p. m. while the writer was on the surface demonstrating the rescue apparatus to the miners.

EXPLOSION AND RESULTS: The explosion, which occurred at about noon on February 1st, was confined to the Southeast quarter of the mine, and was in the work-

ings in No. 11 seam entirely. A Main Entry is driven off the shaft bottom in an Easterly and Westerly direction, and from this Main Entry, cross entries are driven at right angles. The only working entries on the East side of the mine were those turned to the South, and the greatest violence appeared to have been confined to the 2d and 3d South entries. There was a lye on the 2d South entry opposite No. 7 Room, which room was driven through to the 3d South. On this lye there were seven or eight mine cars, some partially loaded and others empty. All were thrown about and damaged considerably by the force of the explosion. One mine car was thrown a distance of 40 feet from the lye on the 2d South entry into No. 7 Room. A dead mule, still attached to the mine car, was found lying among the cars. The body was neither burned nor disfigured. Coked coal was found in the neck of No. 8 Room on the 2d South. A mine car loaded with "bug dust" was found at the face of the 2d South. The dust and car had not been disturbed by the force of the explosion. A second dead mule was found near the face of the 2d South, but it had evidently died of suffocation, as the body was neither burned nor disfigured. A room neck had been turned inside the last breakthrough on the 2d South, but no shots had been fired in it. The 2d South Entry was undercut, but not drilled. Not nearly as much coke was found on the ribs near the face of the 2d South as there was on the ribs of this entry just inside the lye. Some loose coal was found at the face of the 4th South. Two bodies had been found at this point. These men had evidently been suffocated while loading their car, as there was nothing to show the presence of violence at this point.

In No. 19 Room on the 4th South entry, the first party found a powder box on fire with the burning end pointed toward the entry. This

box was open and there was in it an empty keg of powder. In the breakthrough opposite No. 18 Room on the 4th South, the plank brattice was blown toward the 4th South and the neck of No. 18 room was quite well coked. On this same entry, near No. 18 Room, an empty 25 pound powder keg was found, the side seam of which had been bursted open from the interior for a distance of about 6 inches. A mail order house catalog was found lying next to the keg, but the paper was not burned.

Many of the plank brattices or stoppings between the two entries were blown out by the violence of the explosion, and this probably allowed the force of the explosion to "short circuit" itself, and in this way confined the energy of the explosion to the 2d, 3d and 4th South entries. Since some of the rooms were run through from one cross entry to the other, the explosion found an easy path from one pair of cross entries to the other, and it was difficult to locate its precise place of origin. The explosion may have originated from an ignition of gas and have been spread by coming into contact with black blasting powder. The presence of coke on the ribs testified to the presence of flame as also did the burning powder box. This coal does not make any great amount of dust, and the dust is not finely divided; hence, any general dust explosion is improbable.

CONCLUSION: The mine is reputed to be quite gaseous. Black powder was taken into the mine in 25 pound kegs, and apparently was usually kept in locked powder boxes. Rooms were "turned ahead of the air", notably in the 2d South entry. Coal was worked by pillar and room, double entries, and about 60 percent of the coal was mined, no pillars being worked. The old rooms do not appear to have been efficiently ventilated, and it was possible for there to have been an accumulation of gas in them. The coal is quite

hard and makes but little dust, and there was no general dust explosion. The explosion found its way from one pair of cross entries to the other by means of the rooms which had been driven from one pair ^{of} cross entries to the other. There was no good map of the mine available.

The evidence seems to point to an ignition of gas with the resulting local explosion spread by the flame coming into contact with black powder.

Respectfully submitted,

J. J. Rutledge
Mining Engineer.

Knoxville, Tenn.,
February 19, 1910.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
PITTSBURGH, PA.

Abstract of Report on
Explosion at

Browder Mine, W. A. Wickliffe Coal Co.
Drakesboro, Ky.

Feb. 1, 1910.

Report by J. J. Rutledge.
Abstract by W. J. Gene.

Mine: Browder. Operator: W. A. Wickliffe Coal Company.

Location: One mile south of Drakesboro, Muhlenburg County, Kentucky, on the Nashville Division of the Louisville and Nashville Railroad.

Date of Disaster: February 1, 1910 - 12:00 noon.

Investigator: J. J. Rutledge.

Date of Investigation: February 3, 1910.

* * * * *

Number killed: 34, injured 2.

Ignition due to: Unknown.

Propagation due to: Gas and black powder.

Extent of Propagation: Along 2nd and 3rd south entries.

Primary cause of disaster: Ignition of gas by unknown means, the flames coming in contact with black powder, which further propagated the explosion.

NATURAL CONDITIONS

Output: Men employed:

Coal bed: No. 9 and No. 11 seams worked. The explosion occurred in No. 11 seam. No. 11 seam varies from 5 to 7 feet thick. Roof is of dark shale and limestone.

Moisture:

Gas: This is distinctly a gaseous mine.

Dust: The coal is quite hard and makes but little dust.

Ventilation:

System of Mining: The mine is opened by a shaft 200 feet deep, working Seams No. 9 and No. 11 from the same shaft. Room and pillar system of mining used. Coal is undercut with electric chain machines.

Explosives: Black powder used.

Power Plant: A first motion Crawford & McCrimmon hoisting engine, three boilers and electric generator.

Haulage: Mule haulage on side entries and electric locomotive haulage on main entries.

Lighting: ---

Drainage: ---

STORY OF THE EXPLOSION.

The explosion occurred about noon February 1, 1910, resulting in the death of 34 men and the serious injury of two boys. The exact cause of the explosion is unknown, but evidence seems to point to an ignition of gas with the resulting local explosion spread by the flame coming in contact with black powder.

The greater violence of the explosion was confined to the Southeast section of the mine, and the fan, cage and shaft were uninjured, so it was possible to at once begin the work of rescuing the miners still alive and recovering the bodies of those killed. All the bodies except one were recovered by 1:00 o'clock on the morning of the 2nd. The missing body, that of the mine foreman, was recovered about 4:00 o'clock P. M.

Evidence: The greatest violence appeared to be confined to the 2nd and 3rd south entries. No great damage was done except for blown out stoppings and a few wrecked mine cars. Some evidence of coking was found along 2nd south entry.