



Reports

Stearns #1 Mine

--:-- E X P L O S I O N --:--
AT MINE OF
STEARNS COAL COMPANY
NEAR STEARNS, WHITLEY COUNTY, KENTUCKY
FEBRUARY 8, 1910.

LOCATION OF STEARNS: Stearns is in the southwestern part of Whitley County, Kentucky, about 20 miles from the Kentucky-Tennessee boundary, and is located on the Queen and Crescent Railroad - a branch line of standard gauge railroad, about ten or twelve miles in length and known as the Kentucky and Tennessee Railroad, extends from Stearns to Oz in a westerly direction. There are four mines located at various points along this branch line of railroad and about five hundred miners are employed and a daily output of 1100 tons of coal produced.

MINE No. 1: Mine No. 1, in which the explosion occurred, is about four miles from Stearns at the village of Barthell, Whitley County, Kentucky.

MINE MANAGEMENT: The Stearns Coal Company, Limited, is composed of Detroit, Michigan capitalists. Mr. J. S. Stearns is Chairman, Mr. W. T. Culver, Secretary, and Mr. R. L. Stearns, Treasurer. The latter is in active local charge of the company's affairs. A large saw mill is located at Stearns operated by the Stearns Lumber Company. Mr. J. E. Butler is Superintendent of Mines, with Mr. Thomas Reynolds, Contractor, in charge of the mine or Foreman of the mine in the "eyes of the law" of Kentucky.

CHARACTER OF MINE: The mine is known as Mine No. 1 of the Stearns Coal Company, and is a drift opening lying about 100 feet above water level. There is several hundred feet of cover of the coal and the bed lies fairly horizontal. Coal is run to a tipple almost on the same level as the mouth of the mine. When in full operation, the mine employs about 200 men and produces about 400 tons of coal daily, all being "railroad coal" or run-of-mine. The mine is said to be free from gas. Many of the working places are wet and the coal is rather moist, generally speaking.

COAL SEAM: The coal seam worked is known locally as the "Top Seam" or No. 1, and averages about 3 feet 9 inches in thickness. The coal is quite hard and does not make fine coal dust readily. There is a dark hard shale roof, of very good character, and about 1-1/2 feet of this slate is brushed.

METHOD OF WORKING: The coal is opened up and mined by pillar and room, double entry, and, so far as could be learned, no pillars were pulled. There was very little attempt made to split the air by means of overcasts or doors, and the various pairs of cross-entries were not kept isolated from each other, but rooms were holed from one pair of cross entries to the other with very little evident regard for consequences. All coal was blasted off the solid, but the coal seemed well suited to such a method of producing coal, and those shots seen were all safe ones and well proportioned. An electric motor was used for haulage, voltage being 220. All entries were brushed to a height of five feet. Board stoppings were almost universal, though at several points they were reinforced by walls of slate built outside the boards. Some of the cross entries are driven about 20 feet in width to allow of the slate, yielded by brushing the roof, being gobbed in them. The

Main Entry and parallel air course were about 12 feet in width and contained no gob; apparently all the slate yielded in brushing these entries was removed from the mine.

HISTORY OF THE EXPLOSION: About 6:00 p. m., Tuesday, February 8th, seven miners and a driver went into Mine No. 1 of the Stearns Coal Company, at Barthell, Whitly County, Kentucky, to shoot coal for the following day, and also to shoot slate shots. One of the miners and the driver left about 9:00 p. m., leaving the six miners still in the mine. At this time four men were working in the 6th Left and two men in the Main Entry and Air Course. When about to leave the mine entrance, the driver heard a sound, but thought that it was caused by a railroad train at the mine tipple nearby. About the same time, a miner passing along the railroad track near one of the crop openings, felt a shower of small stones and dirt fall upon him, but, assuming that it was caused by the railroad train shaking the ground, he did not investigate the matter.

About 2:00 a. m. on the morning of the 9th, Cowpton's wife awoke Field, who boarded with Cowpton's family, and sent him into the mine to ascertain why Cowpton had not returned from the mine. Field found Cowpton's and King's bodies on the Main Entry, opposite the 6th Left, and also encountered the after-damp. The mine foreman, Mr. Reynolds, was aroused, and a rescue party formed. After using canvas to brattice up the breakthroughs and restore the circulation of air, the bodies were all recovered by 7:00 a. m. of the 9th. The fan was not injured nor was the mine damaged seriously; neither were there any falls of roof. One of the investigating party was overcome by after-damp at the face of the 6th Left on the morning of the 9th, but was easily revived.

CONDITION OF BODIES: The bodies of Fred. Cowpton and Daily King were found on the Main Entry at the mouth of the 6th Left. Cowpton's Ingersoll watch was still running when his body was found. Both bodies were badly burned, though not as much mangled as those on the 6th Left. Four bodies, those of Ed. Thresher and Albert Thresher, brothers, and Eli Grundy and Richard Grundy, also brothers, were found on the 6th Left Entry at the mouth of the 3d Room, which was broken through to the 4th Left. All these bodies were severely bruised and burned. Albert Thresher's Waltham watch had stopped at 9:30 o'clock. All had evidently been instantly killed as their limbs were broken, skulls crushed, and all bodies were severely burned, those on the 6th Left suffering the most injury.

THE EXPLOSION: The shots in Mine No. 1 are fired by shot-firers, in compliance with the instructions given by the District Mine Inspector. Seven miners and one driver went into the mine at 6:00 p. m. on February 8th, the shot-firers having finished their work an hour or two previous. These miners went in to prepare coal for the following day and to shoot slate in the headings, as was customary, on account of this work being more easily performed when the mine was not in operation. The driver accompanied the miners to haul the slate away from the face of the headings, as this was necessary in some of the headings. The 6th Left miners gobbed their slate, but there was slate to load out on the Main East Entry, and on its parallel Air course.

The driver left the miners about 9:10 p. m., having hauled all the slate required. As he was coming out of the mine, he heard a noise, but thought it was made by a train on the railroad. The seventh miner, whose name was Fields, fired a shot in the 3d crosscut from the face of the

6th Left Entry and left the mine at about the same time as did the driver. At this time the 6th Left Entry men, Thresher Brothers, were gobbing slate, and all shots on this entry, viz. Field's shots and the one in the last room on the 6th Left, Grundy Brother's shots, had been fired. The miners in the Main Entry had slate to load, and coal to shoot in the Air course. It was customary for the miners on the Main Entry to await the firing of the shots in the 6th Left before firing the shots in the Main Entry and Air Course, as the 6th Left was on the return air. The Main Entry men always retreated to the mouth of the 6th Left to await the explosion of their shots, and the 6th Left Men usually came about half way up their entry when firing their shots. The bodies of the men in the 6th Left, it will be noted, were found about half way out this entry at a point to which they were accustomed to retreat when firing their shots, and those of the men working in the Main Entry were found on the Main Entry at the mouth of the 6th Left, their usual place of retreat when firing.

THE INSPECTION OF THE SCENE OF THE EXPLOSION: Prof. C. J. Norwood was making an examination of the mine at the time the writer arrived. Later Mr. T. J. Barr, the District Mine Inspector, arrived and the writer accompanied him on an independent examination of the area covered by the explosion. Thos. Reynolds, the Mine Contractor and Foreman, and a miner made up the remainder of the party.

As the progress was made along the Main (East) Heading or Entry, several plank brattices were found replaced by canvas, but there had been no disturbance along the Main between the mouth of the mine and the mouth of the 6th Left Entry. Two dead bodies, those of Fred Cowpton and Dailey King, had been found at the mouth of the 6th Left on the Main Entry. The

ribs were quite coked at this point and there was dust on the floor, and a broken door lay on the Main Entry. It was thought best to inspect the 6th Left Entry first. No. 1 Room (to the right) off 6th Left extended through to the 7th Left, and from appearances, the explosion evidently came through it to the 6th Left. There were some 20 pound steel rails blown across the track on the 6th Left at the mouth of No. 6 Room.. The plank brattice between the 6th Left and Air Course (to the left) just inside the mouth of No. 6 Room was only partially demolished, and three canvas curtains inside No. 6 Room and between the 6th Left and the Air Course were not damaged nor burnt. A gob wall at the mouth of No. 10 Room was blown out onto the 6th Left roadway. There was an empty car on the 6th Left near No. 10 Room, which was not disturbed. The canvas curtain in the Third break-through from the face of the 6th Left, and between it and the Air Course, was almost entirely burnt by fire. At this point, a 25 pound can was found containing about three or four pounds of black powder.

The last room on the 6th Left Entry was driven in to a distance of about 50 feet from the entry, and a shot had been fired directly in the center of the face. The drill hole, 14 inches of which still remained, was thought to have been 6 feet in length, and part of it had been kicked off. It was not a badly placed shot, and had done good execution. This hole was about the ~~center~~ middle of the coal bed, which measured four feet in thickness, and was drilled in such a direction across the face of the room that it was about parallel to the course of the 6th Left Entry. The floor of the room was covered with water to a depth of about one foot, and this water extended up to the neck of the room. Mr. Reynolds informed us that the room had always been wet, and that no pumping had been done for

several days past. In the right side of the neck of this room, there was found an uninjured powder box and two unopened full 25 pound kegs of black powder in the box. On the left side of the neck were two fresh rolls of blasting paper and about half a coil of fuse. Neither showed any trace of fire. The shot in the face of the room was 4 feet 7 inches wide. The face of the entry had about one foot of water in it. There was a slate shot in the entry and slate from this shot had been gobbled on the right side of the entry, but there was no coal shot.

Ed. Thresher and Albert Thresher worked in the 6th Left Entry. Eli Grundy and Richard Grundy worked in the last room. A cartridge pin, found in the neck of the last room, was 3 feet 4 inches long, and 1-3/4 inches in diameter.

After examining the 6th Left Entry, the party proceeded to the Main (East) Entry. The first plank brattice between the Main Entry and Air Course inside the 6th Left Entry, was found intact. A gob wall built against the second plank brattice on the Main Entry side had been blown away from the plank, but the plank was not broken or displaced. The third plank brattice was out on the Main Entry. There was about 6 inches of water on the Main Entry about 200 feet from the face. There was no coal shot in the Main Entry, but there had been a slate shot. Burnt dust was found on the floor and some coking of the ribs was observed. In the Air Course to the left of and parallel to the Main Entry, and about 50 feet distant, there were evidences that two shots had been fired in the coal at the face of the Air Course. One was a rib shot on the right rib, of which only slight traces remained. The other was a "buster" shot in the center of the face at the road head. There was very little loose coal

at the face, but there was some about 50 feet back from the face on the break-through to the Main Entry. This "buster" shot was not a bad shot, so far as could be seen from what remained of the drill-hole. Of course no estimate could be had as to the size of the shot, for all the coal constituting the shot had been blown away from the face. Both shots had pulled the coal entirely. Mr. Reynolds informed us that it was contrary to rules for a miner to bring a full keg of powder into the mine. The miner corroborated him in this statement, but added that the full kegs were often brought in surreptitiously. The rule as to employment of shot firers is not general, apparently being left to the discretion of the District Mine Inspector.

CONCLUSION: Seven miners and one driver went into the mine about 6:00 p. m. February 8th. The miners went in for the purpose of firing both coal and slate shots, the driver was required to haul the slate from the men in the Main Entry and Air Course. The driver and one miner left the others about 9:10 p. m. As he was about to leave the mine entrance, the driver heard a noise which he thought was made by a railroad train outside. The miner reported that previous to his departure, 5 men had fired and were waiting on the 6th, and that all the shots in the 6th Left had been fired. Usually the Main Entry men retreated to the mouth of the 6th Left when they fired, and the 6th Left men were about half way down their entry when found. The course of the explosion was evidently from the Main Entry to the 6th Left, as all the Main Entry brattices were blown to the right, and all the 6th Left brattices were blown to the left. The force came from the 4th Left to the 6th Left by means of the 3d Room, which was driven through from

the 6th to the 7th. The coke was on the side of the props facing the Main Entry, the dust on the 6th Left side of the props.

The men who were killed on the 6th Left were found opposite the room which ran through to the 7th. Strange to say, the force of the explosion was against the return air. The explosion came from the highest point of the mine and progressed toward the lowest, as several previous explosions are said to have done. The explosion seems to have been caused by a blown-out shot, but it is difficult to conceive of two such apparently reasonable and safe shots, as those in the Air Course appeared to have been, causing such a violent explosion and intense flame as undoubtedly traversed the Main Entry and Air Course and 6th Left Entry. The flame may have met with a quantity of powder when it passed through the 3d Room off the 6th Left, which was driven through to the 7th Left. This is not improbable, as the discovery of two full kegs in the last room on the 6th Left, only about 50 feet from the shot shows.

One of the causes of the extension of the explosion was the room broken through from one pair of cross entries to the other. This condition of affairs, in the writer's estimation, also accounts for much of the damage and destruction of life wrought by the Drakesboro explosion.

In the regular double entry, pillar and room system of working, and in which no pillars are drawn, if the cross entries are provided with separate splits and each pair is kept isolated, and stoppings and overcasts are built light enough to collapse under any sudden, violent pressure, such as an explosion, but yet strong enough to resist the pressure of the ordinary ventilating current, it is not likely that an explosion of powder in the face of one of the entries will yield a force great enough to proceed

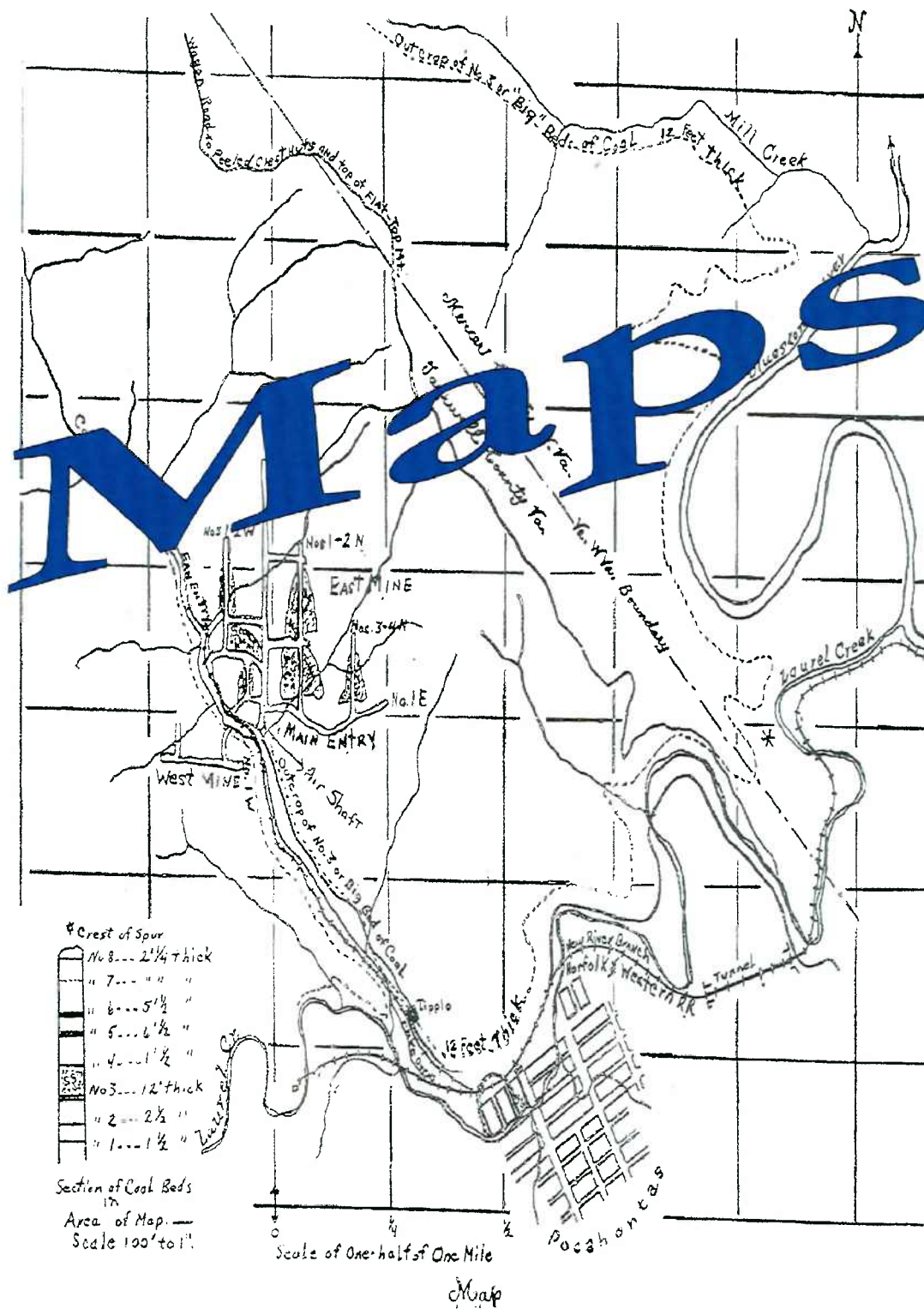
beyond the two entries in which it originated, for, if the stoppings between the entries, and the over or under casts collapse, as they should do, if properly constructed, the explosion will "short-circuit" itself and die out in the two entries in which it originated.

Respectfully submitted,

J. J. Rutledge
Mining Engineer. 

Knoxville, Tenn.,
February 19, 1910.

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