

-:- THE GREENO MINE EXPLOSION -:-

GREENO, WISE COUNTY, VIRGINIA.

DECEMBER 14, 1910.

BY J. J. RUTLEDGE

NAME OF COMPANY AND OWNERS OF PROPERTY:

The company operating the mine is known as the Bond Coal Company; Mr. R. P. Bruce, an attorney of Wise, Virginia, is President, and Judge W. H. Bond, also of Wise, Virginia, is Secretary and Treasurer.

LOCATION:

The mine is located on the Clinch Valley Division of the Norfolk and Western Railway, at a flag stop and siding known as Greeno, in Wise County, Virginia. Greeno is 96 miles southwest of Bluefield, West Virginia, and 8 miles northeast of Norton, Virginia. The town of Tacoma is one mile southwest of Greeno.

PREVIOUS EXPLOSION:

On March ¹⁰ 11, 1907, there was a previous explosion in this mine at

which time 6 men were killed; 4 men survived the explosion and walked out of the mine. There was also a small ignition of gas about 6 months previous to the explosion under discussion but no fatalities resulted, although it was reported that several men were slightly burned.

PRESENT EXPLOSION:

The explosion occurred at 9:10 a.m., Wednesday, December 14, 1910, and the last bodies and living men were out of the mine by 2:00 a.m. of December 15. Eight men were dead and four were living; one of the living being rather badly burned about the face and hands. Five of the eight dead were burned; three were not. Two of the living men were on the Main Slope, and two on the entries to the left of the Main Slope.

NAMES OF DEAD:

James Bearrowman, Superintendent,
William Ritchie, Mine Foreman
Arch Leslie, Driver
Gussie Ritchie, aged 15, driver,
Lee Rowland, Trip rider
George Miller, Miner, Slavishman,
Charles Whittaker, Company Man,
Charles Williams, Miner.
Total of 8 dead.

NAMES OF LIVING AND RESCUED MEN:

John "Swede", alias Roden, Miner.
James Rosenberg, badly burned on head, face and hands. Company man
John Ritsky, Slavishman, Miner.
G. E. Lehman, Miner.

All of the men were Americans, except where otherwise stated. All the four rescued, except Rosenberg, are in good health at present.

DESCRIPTION OF MINE:

The mine has a slope entrance opening out on the railroad at about tipple height. The slope follows the dip of the coal seam which is quite variable. At the mouth, the slope has a dip of about 15 degrees while at several places between the mouth of the slope and the face, the dip is probably as great as 30 degrees. The entire length of the slope is about 2900 feet, and a single air course parallels the slope and is on the west side of it or on the left going inbye, with a pillar of about 30 feet in width between. This air course is said to be partially closed in places.

THE EXPLOSION:

The explosion occurred at 9:10 a.m., Wednesday, December 14. Pat Ramey, one of the rescue party, was standing at the door of the blacksmith shop about 60 feet east of the mouth of the slope and directly at right angles to it. He states that he heard a dull report, followed at once by small pieces of coal rattling on the tipple roof, and he concluded that an explosion had occurred in the mine. He ran at once toward the slope mouth, but before he had reached that point, a second report occurred. A rescue party was formed and went into the mine at 10:30 a.m., December 14, and by 7:30 p.m. had recovered 8 bodies and 2 living men. The two living men were found on the Main Slope about 300 feet apart.

The rescue party found the body of Supt. Bearryman, badly burned, in the 7th East about 20 feet from the mouth. About 20 feet inbye of Mr. Bearryman's body was the body of Chas. Whitaker, company man, also

badly burned. At about 25 feet inbye the body of Mr. Whittaker the body of William Ritchie, the Mine Forman, was found, also badly burned. The body of Mr. Bearryman was lying face downward and the back was burned to the bone.

Several men from the Clinchfield Corporation's mines at Dante, Va., with four rescue apparatus, arrived at the mine at about 1:00 p.m. on the day of the explosion. Two of the helmets were used at a time and the men made two trips and assisted in bringing out some of the living men and bodies. These apparatus were worn not by the men who had brought them from Dante but by volunteers from Tom's Creek, Va. They had not previously used the apparatus.

The bodies and living men were found as designated on the sketch map accompanying this report.

The explosion evidently started in the 7th East Entry. Mr. Rosenberg, the man who was burned, was in the Main Slope going after a shovel with which to work in the 7th East when the explosion took place. He had been sent to that place by Supt. Bearryman who desired him to do some cleaning up work in the 7th East preparatory to resuming work in that entry. Mr. Rosenberg was found, living but rather badly burned, on the the Main Slope, about 75 feet outbye of the mouth of the 7th East and about 20 feet outbye of him Lee Rowland, the Trip Rider, was found dead. Mr. Rowland's body was burned and badly mangled and one leg was broken. The three men in the 7th East were burned and mangled.

A second rescue party of 12 men went into the mine about 10:00 p.m. of December 14. On their way inbye they left 7 men at the mouth of the 1st

West while the remaining 5 went down toward the face of the slope to search further. While the 7 men were sitting at the mouth of the 1st West, they were surprised to see John Swede come walking out of the 1st West, his naked lamp on his head.

Charles Williams and Arch Leslie were found dead at the point indicated on the map about 40 feet outbye Room No. 1. Mr. Lehman was found at the point indicated, partially conscious. Williams and Leslie could have saved themselves had they taken the same route as John Swede and Lehman, or had they cut the 1-inch rubber hose connected with the compressed air pipe; this hose was only a yard away from the place where their bodies were found, and the compressor was running all the time. Presumably John Swede, Lehman, Williams and Leslie found a leak in the air line which enabled them to exist when the after-damp filled the entry immediately after the explosion, but in the darkness became bewildered and lost the location of the leak in the air line. Lehman and John Swede, who were in the 1st West with Williams and Leslie, saved themselves by going down a room which was driven through to the entry below. The four talked with each other after the explosion and shook hands with each other in the darkness before they separated. Williams and Leslie were evidently too much exhausted to follow John Swede and Lehman. The room down which these two went to the No. 2 Room or Parallel Heading was opposite No. 2 Room on the 1st West, and they remained there until the movement of the trip on the slope, while the bodies were being removed from the mine gave them a small supply of fresh air. Gussie Ritchie, the 15 year old driver, was found 60 feet inbye of the door across the Main Slope Air-course which door was about 16

feet inbye of the 1st West. This door opened up the slope or outbye and was not injured by the force of the explosion.

John Ritisky passed Gussie Ritchie as he was making his way out toward the fresher air on the Main Slope beyond the door, and the boy was fast being overcome by the after-damp and was crying for assistance. John Ritisky was found alive at the pump on the Main Slope, his face lying in a small stream of water which was running down the slope. The water doubtless assisted in saving his life.

A dead mule was found inbye the door on the 1st West, which door opened inbye and prevented his escape to the slope. The mule had been pawing the door in an effort to escape.

The rescue party found a dead Slavish miner (Miller) at the bottom of the "6th East Hill" on Main Slope at a point about 20 feet inbye of the small pump where Ritsky was found alive.

The helmet men from Dante, Va. arrived about 2:00 p.m. on the day of the explosion. The party in which they were came out about 7:00 p.m. of the day of the explosion. Another rescue party went into the mine about 10:00 p.m. and came out about 2:00 a.m. December 15. Messrs. Brown and Owen from the Knoxville Station arrived a short time later, but after all the bodies and men had been recovered.

Messrs. Brown and Owen made an inspection of the mine on the 15th and then returned to Knoxville. They were no helmets, I was told, as it was not necessary, since ventilation had been partially established.

EXAMINATION OF MINE:

Two young men, Pat Ramsey and Mat Hall, both of whom were in the

rescue parties which entered the mine immediately after the explosion, accompanied me when I made the examination of the mine on December 20, 1910. We used closed lights entirely and found about one dozen safety lamps of various patterns in the mine commissary, among which were the Davis, A. H. G., Ackroyd & Best, and Pieler; none of them were in the best of condition, probably due to the fact the unsuitable oil had been used in them. Messrs. Ramey and Hall carried the Ackroyd & Best lamp and I carried the Wolf. Mr. Hall stated that he had been working in the slope until a few weeks before the explosion but that when the weather became cold and the "sweat" or drops of moisture left the roof of the mine workings, he had left the mine as he did not then consider it safe.

No traces of the explosion were visible to the eye on the tippie or at the mouth of the slope which was timbered with square sets. The weather was quite cold and several inches of snow lay on the ground about the mouth of the slope. A strong current of cold air was entering the slope which was the intake, as was the case when the explosion occurred, and several inches of ice covered ^{the} floor of the slope in places.

We advanced down the slope from the mouth, finding a very fair current down to a point about 600 or 800 feet from the mouth where the air appeared to be short-circuited. On entering the 7th East Cross Entry several partially loaded cars were seen on the lye, which cars had been partially derailed by the violence of the explosion. At a point about 200 feet from the mouth of the 7th East the Wolf lamp showed a 3/4 inch cap, and on proceeding a short distance farther, the gas fired in the lamp and further progress in that direction was impossible, since we had no

helmets or electric lamps. This entry is said to be 450 feet in length and goes rapidly to the rise from the lye inbye and would be such a place as would be favorable to the accumulation of a large body of gas. Moreover, it is reported that the roof is as high as 18 feet at one point and this condition prevails for a distance of 150 to 200 feet. This cavity in the roof of the entry was caused by the falling of the roof and was said to be full of gas at all times. This entry had not been working for two weeks previous to the explosion and was without any ventilation. All the ventilation which the entry had, it was stated, was that derived from the compressed air pipes and this was cut off when the entry was not in operation.

A puncher machine was found lying in this entry. Two men were said to have been burned but not fatally in this entry 6 months previous to the accident by brushing out gas from the face of the entry by means of the compressed air pipe, the nozzle having become turned against the roof and blowing the gas down on their naked lamps.

There was a line brattice extending back about 60 feet from the face of the slope, and considerable water directly at the face. A rock drill, which had been used in drilling through a fault, was dismantled and lying near the edge of the water. Considerable gas was present over the water in the face of the slope. There was a quantity of 40 percent dynamite, with caps and fuse, in the crosscut about 50 feet from the face of the slope, which had been used in blasting rock. These explosives had not been disturbed by the explosion.

The force of the explosion, as shown by the displaced gob and

steppings, came across the Main Slope from the 7th East and caught Gussie Ritchie, the boy driver, ^{the explosion} and ~~killed him,~~ but did not knock down the door which was about 10 feet outbye of him. The door opened up the slope or outbye, and was in good order on the day of the examination. It was a free swinging door.

The 2d West, on which Mr. Lehman was found alive, was quite dry and dusty, but there was so much shale dust mixed with the coal dust that it was harmless. The coal dust in this entry resulted from the previous use of puncher machines there. There was no evidence that the violence of the explosion extended to the west of the slope.

All of the rooms on the west side of the slope went rapidly to the rise and in several of them considerable gas was found.

VENTILATION:

A small fan placed as shown in the sketch of the mine workings was used for ventilating purposes. This fan was run exhausting, the Main Slope being an intake and its parallel air course the return. There was but one air current and this traversed the entire mine workings. A wooden overcast was observed extending over the main slope at about 400 feet from the mouth of the slope, but this was not in use. I was told that the entire current was about 27,000 feet per minute. At the time of making the examination, there was a very good current of air going down the slope to a distance of about 500 feet, but this did not find its way into the workings on account of the doors and brattices being destroyed in many instances. It was not possible to obtain a measurement of the quantity of air circulating.

COAL SEAM:

The coal seam worked is the Imboden Seam which here has quite a variable dip and is cut up by numerous erosion faults. A very prominent one is seen near the present face of the Main Slope. Horizontally lying lenses of sand rock cut out the coal in places and render mining operations difficult. These lenses of rock are quite thin on the edges but often increase in thickness to as much as 8 or 10 feet, and sometimes cut out the coal entirely. In several places the coal was observed to have been mined from above and below these rock lenses for a considerable distance, the mass of the rock being meanwhile supported by short props. By reason of these rock lenses entering the seam, the thickness varies from 4 to 14 feet, but of course only about one-half of the entire thickness is merchantable coal. Were it not for the fact that the Imboden Seam furnishes coal of rather superior quality, it would be rendered unprofitable by the presence of these rock lenses.

The removal of the irregular masses of coal and rock and in places the subsequent falling of the shale roof leaves pockets in the roof which are quickly filled by gas which is not readily removed by the ordinary ventilating appliances. By reason of the above mentioned conditions, the mine is extremely difficult to ventilate.

SYSTEM OF WORKING:

Coal is developed by a slope driven directly down the rather steep dip of the seam to a distance of about 3000 feet. An air course is driven parallel to the Main Slope and on the east of it or left going inbye, cross

entries and rooms are turned directly off the Main Slope and air course. The pillar and room method of mining was used, but the work was not well projected nor executed. There was no map of the mine available and a rough sketch was made which is herewith submitted; it is not drawn to scale but shows the mine workings and ventilation system clearly.

All coal was shot off the solid, I was informed, though puncher machines had been used at one time and one was found in the 7th East. Black blasting powder was used in blasting the coal.

CONCLUSIONS:

The explosion was a local gas explosion, originating in the 7th East and probably caused by the naked light of one of the three men whose bodies were found in that entry igniting the gas in the pocket in the roof. The primary cause may have been the blowing of the gas in the cavity in the roof down onto the naked lights of the men below in an effort to brush the gas out of the entry by means of a compressed air hose or pipe. This practice should be forbidden by law. I have know~~l~~^e of one gaseous mine in which the explosion was undoubtedly started through this practice, and in another recent explosion, there is strong evidence that the same practice caused the initial explosion.

The explosion came across the slope from east to west as was shown by the stoppings blown down from right to left across the Main Slope. There was little or no coking of coal or dust since the Main Slope was quite wet and the explosion had ^{little} no pure coal dust to feed and propagate it.

Five of the bodies were burned and mangled; three were suffocated.

Had it been possible to reverse the fan, Williams and Leslie might have been saved and possibly Gussie Ritchie and the Slavishman just inbye of the pump on the Main Slope. Williams and Ritchie would undoubtedly have saved their lives had they cut the air pipe only one yard away from them.

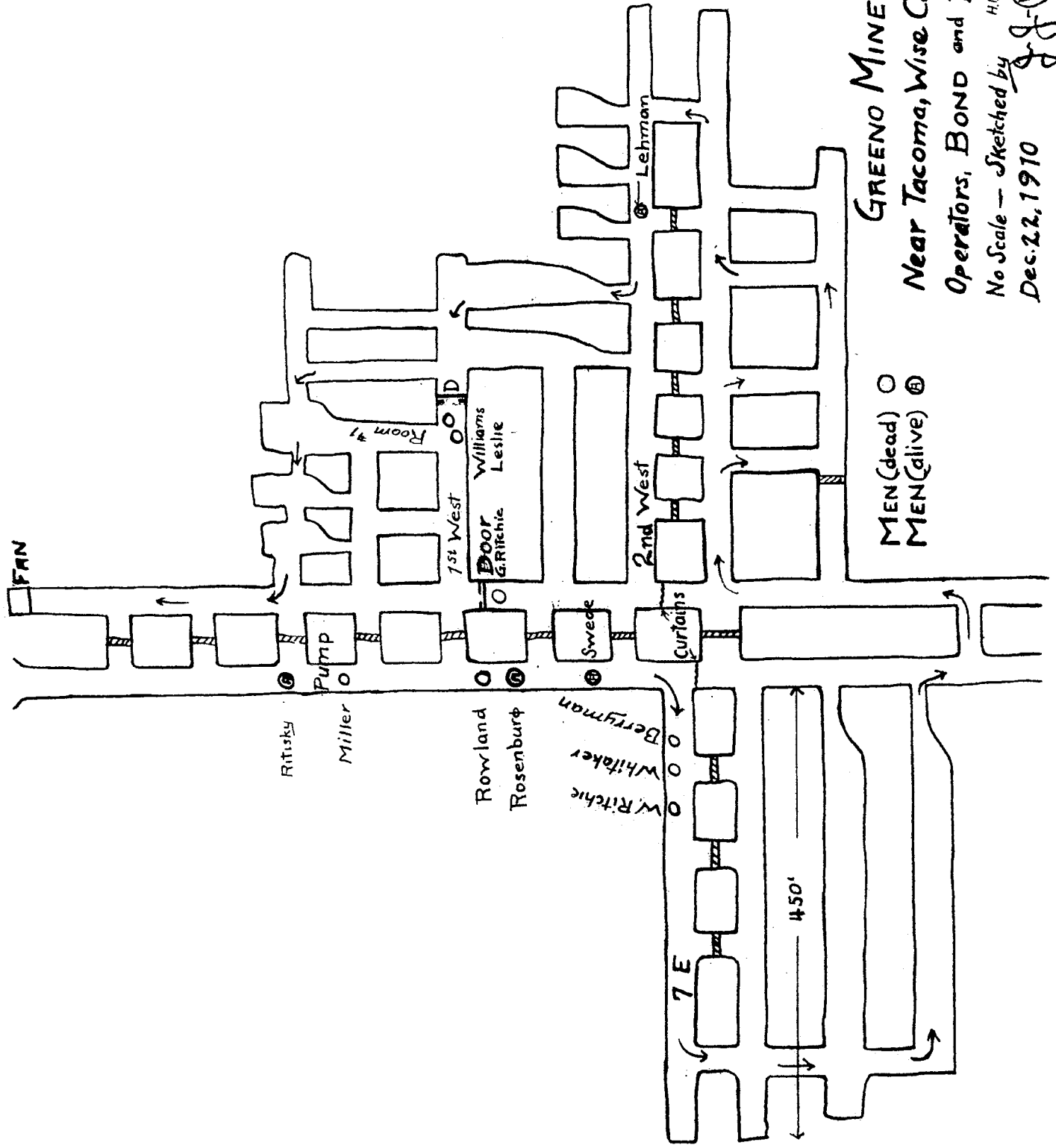
That the Mine Foreman, William Ritchie, knew the mine was gaseous is evidenced by ~~the number and variety of safety lamps which were found in the commissary,~~ and by the establishment of a checking board on the Main Slope where he met all the employees when they entered the mine at the beginning of the shift.

The State of Virginia has no mine inspection service and consequently the smaller mines are not operated in accordance with the best mining practice. Mr. R. P. Bruce gave all possible assistance during the examination of the mine.

Respectfully submitted,


Mining Engineer.

Pittsburgh, Pa.,
August 12, 1911.



GREENO MINE

Near Tacoma, Wise Co. Va.
 Operators, BOND and BRUCE

No Scale - Sketched by ^{HIS.} J. J. Rutledge
 Dec. 22, 1910