REPORT ON EXPLOSION
PULASKI ANTHRACITE COAL COMPANY
PARROTT MINE
PARROTT, PULASKI COUNTY, VIRGINIA.

By

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DEPARTMENT OF COMMERCE
BUREAU OF MINES

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By Joseph F. Davies

Introduction.--A local gas and dust explosion occurred in the 5 east section of the Parrott mine of the Pulaski Anthracite Coal Company at Parrott, Pulaski County, Virginia, on Monday, January 18, 1932, at about 5:25 p.m., resulting in the death of 6 men.

The entire night crew, consisting of 18 men, was in the mine at the time of the explosion. Twelve men were in the west portion of the mine and, although considerable violence occurred, all of them, with the exception of one man, escaped unassisted. This man was elderly and was at the bottom of the slope which has a 12 to 15-degree pitch, and he was assisted to fresh air by two other men. A pumper and hoistman were in the main slope, but were uninjured.

Notice of the explosion was received by Joseph F. Davies, district engineer of the United States Bureau of Mines, at his home by telephone at about 8 o'clock on the morning of January 19. This message was from Paul C. MacDonald, mine inspector for the American Mine Owners Casualty Company, who had seen a news item in the morning paper and had verified the report by telephone. D. E. Stanton, district mine inspector, accompanied Mr. Davies in the Bureau of Mines truck; the chief mine inspector, A. G. Lucas, accompanied Mr. MacDonald in a private automobile, arriving at the mine at about 3:30 p.m.

Rescue parties recovered the bodies by advancing the air by means of canvas brattice. The last body being brought out of the mine at about 1:15 a.m., January 19, no rescue apparatus of any kind was used. The nearest available mine-rescue equipment was at the Bureau of Mines rescue

station at Norton, Va.

Mr. Davies conducted the preliminary investigation and collected air samples the night of January 19. He also reviewed the findings with William Boncer, state mine inspector, and made air measurements on January 20. Mr. Davies and E. H. Hodgson, foreman miner of the Bureau of Mines, again visited the mine on January 23, and reviewed the entire explosion area and collected air and dust samples both in the explosion area and in other portions of the mine.

MINING CONDITIONS

Situation.--The Parrott mine is about ¼ mile north of Parrott and is served by the Norfolk & Western Railway, shipping point in Parrott.

Company Officials.--The offices of the Pulaski Anthracite Coal Company are at Parrott, Pulaski County, Virginia. Officials are: John C. Parrott, president, Roanoke, Virginia; Joel Asberry, general manager and superintendent, Parrott; and C. D. Akers, mine foreman, also at Parrott.

Employees.--There are 117 men employed - 82 underground and 35 on the surface. The average daily production is about 320 tons. For some time prior to the explosion this mine had been operating about 5 days a week.

The Mine.--The Parrott mine is opened by a slope. It is operating in the Merrimac bed which dips 12 to 30 degrees southeasterly. One main slope serves as intake and main haulage. A slope paralleling the main slope extends from about 150 feet inby the mouth of the main slope to what is known as the 16 west entry; this is used as a manway. A drift has been

driven approximately level from the fan and intersects the old workings; this drift, together with the old workings, serve as main return airways. Parts of this drift are concreted, affording passageway of about 5 by 5½ feet. Two abrupt right-angle bends occur within 350 feet of the fan. The main slope is 6 feet high by 12 feet wide for an appreciable distance inby of slope mouth.

Coal Bed.--The Merrimac coal is non-friable and is locally known as anthracite, but probably might be classed as a semi-anthracite. The bed has a hard, slaty, floor which is smooth; above the coal is a hard slate. About 3 feet from the roof is a relatively soft layer of coal. Between this and the floor are two slate partings. The coal bed averages 90 inches in thickness.

Sizes of Coal Produced.-- Six sizes of coal are produced, namely: egg, stove, chestnut, pea, buckwheat, and culm.

A great part of the culm produced is conveyed into New River which lies adjacent to the mine. This culm accumulates and is washed away during high water. It is only occasionally that culm is shipped.

Dust.--Samples of coal collected from this and nearby mines operating in the Merrimac bed were tested in the Bureau of Mines Experimental Mine during the period November 17, 1926 - February 24, 1927. The average proximate analysis of the coal dust tested at that time is as follows:

Constituent	Per cent
Moisture	1.0
Volatile matter	11.4
Fixed carbon	55.7
Ash	31.9
Ash plus moisture	32.9
Ratio of volatile to total combustible	17.0

Following are the results of standard propagation tests as conducted at the Experimental Mines during the period November 17, 1926-February 24, 1927, with coals from the Merrimac bed from this and adjacent mines.

1. Test 915 was made with pure 20-mesh coal dust from the Parrott mine. The 5-ton sample of coal for use in the test was taken at the face of 20 west entry in November, 1917.

2. In test 915, coal from the Parrott mine was tested with 2.0 per cent methane. The dust of this coal caused a considerable lengthening of the flame, but did not develop an explosion having power to continue independent of its source of ignition.

3. In test 898, pure coal dust of coal from the Parrott mine was used with 1.2 per cent methane in the air current and part propagation was obtained.

From these tests the following conclusions were reached:

1. As large quantities of methane are liberated in the Parrott mine and accumulations occur at times, the dust in this mine should be so treated as not to propagate an explosion of a gas-air mixture when there

is one per cent of gas in the air current. Incombustible dust should be added so that the ash and moisture content of the coal dust will be 40 per cent or more.

2. Much dry coal dust was observed throughout the mine, especially in the area affected by the explosion. Table 1 shows where dust samples were taken and the analyses.

TABLE NO. 1

ANALYSIS OF DUST SAMPLES - PARROTT MINE

Sack No.	Location in Mine	Kind of Dust	Moisture	Ash	Comb.	Total Incomb.	Screen Tests		
							48	100	200
1-A	On lower 4-E inby hole in room 1.	R & R	1.4	22.7	75.9	24.1			
1-B	On lower 4-E inby hole in room 1.	Floor	.6	23.0	76.4	23.6	87.0	72.8	60.5
2-A	On upper 5-E between rooms 5 - 6.	R & R	.4	27.1	72.5	27.5			
2-B	On upper 5-E between rooms 5 - 6.	Floor	.4	26.8	72.8	27.2			
3-A	100 feet inby room 8 in upper 5-E.	R & R	.5	24.7	74.8	25.2			
3-B	100 feet inby room 8 in upper 5-E.	Floor	.4	25.6	74.0	26.0	65.5	43.4	29.9
4-A	150 outby from face of lower 5-E.	R & R	.4	25.7	73.9	26.1	61.6	35.6	16.7
4-B	150 feet outby face of 5-E lower.	Floor	.4	25.5	74.1	25.9	68.3	45.9	33.4
5-A	Opposite room 5 and lower 5-E.	R & R	.4	29.7	69.9	30.1	68.2	47.1	34.3
5-B	Opposite room 5 on lower 5-E.	Floor	.4	34.1	65.5	34.5	72.9	53.3	39.8
6-A	Between rooms 9-10 on upper 22 W.	R & R	.5	23.6	75.9	24.1			
6-B	Between rooms 9-10 on upper 22 W.	Floor	.5	23.7	75.8	24.2	72.7	57.4	39.3
7-A	In mouth of room 4 off 21 West.	R & R	1.7	31.2	67.1	32.9	74.5	55.9	41.5
8-A	Inby hole in room 1 on lower 20 West.	R & R	1.0	20.3	78.7	21.3			
8-B	Inby hole in room 1 on lower 20 West.	Floor	.9	32.7	66.4	33.6	76.4	57.0	43.6

3. The tests of dust samples collected after the explosion of January 18, 1932, all show ash plus moisture content below that recommended (40 per cent) and consequently indicate that rock-dusting should be done to assure that no explosion be propagated.

Method of Mining.--A double-entry room-and-pillar method of mining is used and all mining is done on the advance. No pillars are "robbed." None of the coal is undercut, mined, or sheared. It is shot with permissible explosives--namely, Grasselli 5 L. F. and Burton.

About 25 to 30 mine cars of coal, or 50 to 60 tons a day, are loaded by means of a Vulcan shaker-type conveyor; the remainder is hand loaded. Timbers are set only where deemed necessary. Generally there are two rows of timbers in each place, posts varying from 5 to 8 feet apart. Some poor timbering was observed; many posts were observed that were 6 to 10 inches too short, with short lengths of posts placed between the top of the post and the cap pieces or header. Many were also observe with 3 to 5 cap pieces on the top of the post. On the main slope there were many timbers with but scant clearance between them and the car.

Ventilation and Gas.--This mine is known to be gassy by the State Department of Mines and the mining company.

One fireboss is employed. He enters the mine at 4:00 a.m. for the purpose of making gas inspections before the day shift goes to work. He returns to the surface about 6:30 a.m., then re-enters the mine, remaining until noon. It is questionable as to how careful his examinations were. His written reports were worthless as they were worded as follows: "Mine O. K.", "Mine fairly good." His last entry in this book in which he mentions

gas was on September 8, when he reported as follows: "A little gas in 1 East cleared with brattice." Some of the men testified that he had not examined their places for gas in their presence. The fireboss carried a magnetically-locked, round-wick, flame safety lamp which, when examined, was in good condition with the exception that it was a little dirty.

Installed at the fan drift is an 8 by 5-foot centrifugal fan operating as an exhaust. This fan is a double-inlet type, but one of the inlets is entirely closed off by a concrete retaining wall so that the fan in substance is a single-inlet fan. This inlet is the same size as the diameter of the fan. No provision was made for prompt reversing of direction of air flow. The reports state that the fan was operating at about 168 revolutions per minute. It is belt driven by means of a 40-h.p. electric motor operating on 440 volts a.c. A steam engine formerly drove the fan, and might be used in emergency if a few repairs were made and a belt available.

On the second day following the explosion, the quantity of air, measured at a point at about 250 feet inby of the fan, was 34,125 cu. ft. It is said that the water gage varies from $3\frac{1}{4}$ to $3\frac{1}{2}$ inches with fan operating at 168 r.p.m. The total intake, measured about 200 feet inby the mouth of main slope, was 33,390 cu. ft., when measured about 10 minutes before measuring the return. The total intake measured at a point just below the 16 west and on the main slope was 20,940 cu. ft., showing a loss of approximately 12,450 cu. ft. due to leakage.

This mine is ventilated by what is, in substance, one continuous air current, although the intake air is divided at the 16 west, a portion of it going through the A-1 east entries, the remainder going down the main slope to the 4 east entries, where the two currents again join passing through the 5 east entries, continuing down the main slope to the 23 west, then coursing up through the west entries to the fan.

Appreciable accumulations of methane were found in all of the rooms and faces of 5 east entries, also in the 23 west entries, 22 west entries, and in the 21 west entries, on the fifth day following the explosion, although temporary ventilation had been restored throughout this section. On February 12, nearly 4 weeks after the explosion, an air sample collected at a point about 200 feet on the return side of electrically driven shaker loaders showed 1.13 per cent methane and a slight cap was observed on a flame safety lamp just outby of these machines.

Air Analyses and their Interpretation (See Table 2):-Every air sample collected excepting one contained appreciable percentages of methane; this sample was collected on fresh intake air at a point near 16 west on the main slope. All samples, even those presumed to be of fresh intake air, collected inby this point contained methane. The sample collected in bottle 466 which was taken in the hole in the top of room one off upper 5 east which is the point of intake to all of the active parts of the mine showed 0.16 per cent methane which calculated for 24 hours shows 29,491 cubic feet of pure methane to be passing into the active parts of the mine every 24 hours. This sample was collected 5 days after the explosion and with ventilation temporarly restored another sample (bottle 458) which was collected 26 days

after the explosion and when ventilation had been completely restored shows 0.12 per cent methane and calculated for 24 hours shows a quantity of 25,557 cubic feet of methane passing into the active parts of the mine.

TABLE NO. 2

ANALYSIS OF MINE AIR, PARROTT MINE.

Lab. No.	Bottle No.	Percentage CO_2	Percentage O_2	Percentage CH_4	Percentage N_2	Quantity of air per minute	Quantity of CH_4 per 24-hour	Location
55453)	453	0.10	20.73	0.14	79.03	17,600	35,481.6	In 4 E 50 ft. inby Main Slope.
55454)	454	0.19	20.50	0.60	78.71	42,600	368,064	Full return inby of fan.
55455)	457	0.10	20.47	0.58	78.85	1,600	13,363.2	Inby room 1 on lower 4 E.
55456)	458	0.07	20.80	0.12	79.01	14,790	25,557.12	At hole in top of room 1 on lower 4 E.
55457)	463	0.09	20.45	1.13	78.33	9,750	158,652	Inby room 11 on 21 West.
55458)	464	0.10	20.68	0.56	78.66	8,874	71,568	In last x-cut in 5 E entries.
55459)	467	0.05	20.84	0.00	79.11	15,675		On main slope inby 16 West.
55460)	468	0.11	20.58	0.92	78.39	8,880	117,642.24	In x-cut just inby booster fan on 32 West.
55403)	447							
55404)	448	0.21	20.49	0.53	78.77	34,125	255,528	Full return 200 ft. inby of fan.
55405)	903	0.10	20.65	0.67	78.58	3,800	36,662.4	In last x-cut near face of 5 E. entries.
55406)	904	0.10	20.53	1.12	78.25			At face of upper 5 E. entry.
55407)	449	0.07	20.71	0.73	78.49	7,150	75,160.8	On lower 5 E. 50 ft. inby of main slope. Return from 5 E. section.
55408)	450	0.11	20.15	2.64	77.10			At face of lower 5 E. near point of origin.
55418)	459	0.09	20.37	1.07	78.47	10,080	155,312.64	20' inby room 10 on 21 West lower.
55419)	460	0.07	20.56	0.51	78.86	2,100	15,422.4	80' inby room 1 on lower 4th E.
55420)	465	0.10	20.63	0.62	78.65	5,400	48,211.2	In last crosscut on 5 E. upper.
55421)	466	0.07	20.74	0.16	79.03	12,800	29,491.2	Top of room 1 in upper 5 E.

To determine the source of this methane samples 453 and 457 were collected at points just outby and inby of the point where samples 466 and 458 were collected, and sample 467 was collected at the 16 west on the main slope. As sample 467 gave no methane, but samples 453 and 457 contained appreciable percentages, it is obvious that considerable quantities of methane are being liberated and carried by the ventilating current from the portion of the mine between the 16 west and the lower 4 east into the active portion of the mine.

Sample 464, which was collected in the last crosscut between the 5 east entries, has a methane content of 0.56 per cent, showing an increase of methane in the ventilating current of 0.12 to 0.56 per cent, or calculated for 24 hours, there is added to the ventilating current 46011cubic feet of methane between these two points in the mine; that is, between the hole in the upper end of room 1 and the last crosscut in upper 5 east. These are air samples collected after normal ventilation had been restored.

Air sample 462 collected on the same day as the sample above shows an increase of methane of from 0.56 at the last crosscut in 5 east entries to 0.92 per cent in the crosscut just inby booster fan, and this calculated for 24 hours indicates an increase of from 71568 to 117642 cubic feet of pure methane, or that there is added to the ventilating current between these two points 46074 cubic feet of pure methane in 24 hours.

Air sample 463 taken on the same day as those above shows an increase of 0.92 to 1.13 per cent methane between the crosscut just inby the booster fan to a point on the 21 west just inby of where room 11 from

the 22 west was holed through to the 21 west. This shows an increase of methane from 117642 to 158652 cubic feet calculated for 24 hours, or that there is added to the ventilating current between these two points 41010 cubic feet of methane in 24 hours.

From the study of the foregoing information obtained from the analysis of the air samples collected it seems obvious that to continue to conduct the ventilation of the mine in one continuous current is now and will be ever increasingly hazardous.

Another decidedly hazardous thing is made quite evident by the air analyses. Samples 473 and 468 indicate that the ventilating current between the crosscut just inby the booster fan and the upper end of room 11 off the 21 west is mixed with methane in percentages varying from 0.92 to 1.13. Near the return end of this ventilating current between these two points are two electrically-driven shaker conveyers which were operating at the time the air samples were collected; these the writer judged from a flame safety lamp to contain approximately 1 per cent methane.

The conditions existing which permit the fresh intake air being polluted as it is with methane between the 16 west and lower 4 east should also be corrected insofar as it is possible.

Haulage.--The track gage is 33 inches. Thirty-pound rails laid on ties are used on the main slope down to 16 west; from this point in 20-pound rails are used, both on entries and in rooms. There is scant clearance between cars and rib and between cars and timbers on one side of the main slope and there is scant clearance, in many places, on the opposite side of the main slope.

Cars are of wooden construction and of lift end-gate type. These cars are equipped with a single drawbar of 5/8 by 5-inch iron. The car couplings are of a 3-link and 2-clevis type. They are loose and are attached to the cars by means of two loose pins. The pin passes through the top opening of clevis, through a hole in the drawbar, through the bottom hole of clevis and extends through a thin metal plate and the wooden bottom of the car. The links and clevis are of 1-inch iron. The pins are 1 3/8 inches in diameter and 8 inches long. The cars are all equipped with brakes of a wood block type, engaging the top side of both wheels. Cars are of 2-ton capacity and are loaded level full and are of reasonably tight construction.

All gathering is done by mules. Empty cars are dropped into the upper entry and loaded cars are placed on the lower entry. There are two auxiliary hoists on the main slope which handle all cars up or down the main slope inby of the 16 west entry. These auxiliary hoists are operated by means of electric motors operating on 440 volt a.c. and are equipped with 1-inch wire ropes. The main hoist is on the surface and handles all trips to and from the surface and 16 west. This hoist is operated by an electric motor operating on 2300 volt a.c. and is fitted with $1\frac{1}{2}$-inch wire rope. This main rope is presumably examined each morning and the results of this examination are entered in the same book in which the fireboss' report is entered. Drags are attached to the rear car of all trips operated on the slope. These drags consist of a heavy bar of iron about 4 feet long with a single sharp point and are attached to the drawbar.

Regular man-trips are run up and down the main slope from the surface to the 16 west. Only authorized persons are permitted to ride other than man-trips. The trip-riders ride the top car of all trips on the slope. All trip movements are controlled by means of electrically operated bells. These bells are rung by means of completing the circuit across two parallel wires with short copper bars carried by trip riders.

A safety rope, with a clevis on one end and a clamp on the other, is attached to all man-trips. The clamp is, presumably, clamped on to the main rope a few feet above the socket, the clevis end being attached to the inby end of the inby car. However, this safety rope was too short and was attached to one of the links at the end of the hoisting rope. The purpose of this being clamped on to the rope is that should the rope pull out of the socket, the safety rope would still hold the cars. However, should the rope pull out of the socket and the clamp hold, there is no doubt that at least the first car would be wrecked. It is the writer's belief that this safety device affords very little protection and, as was used, affords none.

Comparatively few rollers are provided, and as a result, many of the ties have been practically cut through by the hoisting ropes, which also suffer.

Lighting.--Portable electric cap lamps of the Edison type are used by all persons underground. There are incandescent lights at each of the hoists connected to the 440-volt a.c. power lines.

In 22 west entry is a small portable generator set which provides power for lights around the shaker, conveyor, loaders, and for the portable coal drills.

No trip lights were observed.

Machinery Underground.--No permissible machinery of any kind is used underground. The power for all motor-driven machinery is 440-volt alternating current.

There are three motor-driven centrifugal pumps, two of which are gathering pumps and the third discharges to the surface.

There are two Vulcan, shaker-type conveyor loaders. These are in rooms 11 and 12 on 22 west upper entry. Where the conveyors are used all holes are drilled with a portable electrically operated drill.

Power.--Purchased power is furnished from the Appalachian Power Company's substation which is near the main slope entrance.

All of the power transmitted underground is 440-volt alternating current.

The power transmission lines consisting of 3 weatherproof-covered cables are carried down the main hoisting slope. It is carried in 3-inch metal pipe conduit down parts of the slope; however, there are places where these cables are not in conduit and where they are close to the cars when passing. This is decidedly dangerous, being both an explosion and a fire hazard. A wrecked trip could easily cause a short circuit which might cause either an explosion or fire, or both.

It was observed that at places the power cables were wrapped or looped around wood posts.

On the fifth day following the explosion the shaker loaders were surrounded with air high in methane, but no power was on at the time.

Explosives.--Two brands of explosives are used, Gasselli 5 L F, permissible and Burton --?. Permissible.

The explosive and detonators are issued from a small building on the surface and are carried into the mine by the men and evidently either in the pocket or loose. The detonators are wrapped in paper and carried by the same man.

No regular system of storage of explosive is followed underground; apparently it is placed where the miner deems most convenient. Each miner is allowed 6 sticks of explosive and 3 detonators a day. Charges vary from 1 to 3 sticks per hole.

Shots are fired by the miner any time during the shift. Duplex shooting cables about 100 feet long are used in connection with a small dry-cell battery to fire the shots. Number 6 electric detonators with 8-foot copper leg wires are used.

It was said that clay was used for stemming; however, no clay was observed anywhere in the mine.

The coal is neither undercut, sheared, nor mined before shots are fired, all coal being shot from the solid. Blown-out shots are frequent. The burning of explosives in the back of the hole of fired shots is common, and is probably due to absorption of moisture by the explosive because of exposure after being carried into the mine.

Drainage.--The mine is easily kept free of accumulated water by means of the three pumps mentioned.

Rock-Dusting and Watering.--No rock-dusting is done, neither is any watering done to allay coal dust, although the mine is dry and dusty.

Some months ago the writer discussed with Mr. Asberry a plan of piping water to all of the shaker conveyors and the wetting down of all coal after shooting and the placing of water sprays on the conveyors so as to minimize the dust. At that time he asked regarding the placing of a fan so as to blow the dust away from the workmen, but accepted the suggestion of using water instead and said he would try it. However, no piping or sprays were observed on or near these conveyors at the time of the investigation.

CONDITIONS IMMEDIATELY PRIOR TO THE EXPLOSION

For a few weeks prior to the explosion the mine had worked about 5 days a week. On the day of the explosion the day shift had completed the shift and had left the mine, and the night shift had been inside for about an hour. According to statements of men who worked on the day shift, no unusual conditions had been observed during that day. The night shift had begun work and apparently nothing unusual was observed by any of them as they were all at their usual working places when the explosion occurred. It was learned from evidence given that a few days before a door had been moved from near the 3 east entry to a point just below the lower 4 east entry.

This door, when closed, blocked the ventilation as all of the air passing into the active parts of the mine had to pass through a small passage which was less than 3 by 5 feet in area and about 40 feet long. One man in his evidence stated that the air conditions were worse after the door was moved than it was before and there is every reason to believe it was as he stated, as before the door was moved the air entered the upper

5 east entry and was not restricted to the small passageway as it was after the door was moved.

The evidence also indicates that the "No-Smoking" rule was not enforced; apparently it was given very little consideration.

CONCLUSIONS REACHED BY CHIEF MINE INSPECTOR AND INVESTIGATING PARTY

An investigation was conducted on the night of January 19. The investigating party consisted of the following persons: A. G. Lucas, chief mine inspector; D. E. Stanton, district mine inspector; Paul C. McDonald, mine inspector for the American Mine Owners Casualty Company; W. D. Akers, mine foreman; and Joseph F. Davies and E. H. Hodgson of the United States Bureau of Mines. The mine superintendent expressed himself as not desirous of going into the mine.

After carefully viewing all of the tangible evidence in the explosion area and questioning workmen and officials, it was concluded that the explosion was caused by ignition of a body of gas by either a lighted match or a lighted cigarette near the face of the lower 5 east entry, and that the explosion had been propagated by gas-laden atmosphere and dust through the upper and lower 5 east entries and rooms outby to room 5 off upper 5 east and to a point on lower 5 east entry adjacent to and directly across from room 2 off upper 5 east entry, as indicated on the accompanying map. This conclusion was concurred with by every one in the investigating party, also by the superintendent.

SUMMARY OF EVIDENCE AS TO CAUSE, ORIGIN, AND PROPAGATION OF EXPLOSION

On January 19, and about 18 hours after the explosion, with temporary ventilation restored, the investigating party detected gas by means

of a flame safety lamp throughout the explosion area from the mouth of room 3 off upper 5 east entry, there being high percentage mixtures in rooms 4, 5, 6, 7, and 8, and at the face of both upper and lower 5 east entries. It was believed by all in the party, excepting the mine foreman, that this area was better ventilated at this time than it had been before the explosion.

That the explosion originated inby room 7 off upper 5 east entry was evidenced by the direction of movement of heavy debris, timbers, and cars; also, by the position of dust deposits on timbers. That there had been flame outby as far as and in room 4 was indicated by burned cloth of the line brattices. The only deposit of coke observed was found on a standing timber and only a few inches from the roof. Shortly after this coke was observed this timber was forced out and covered by a roof fall. All of the evidence indicated that the explosion had originated at or near the face of the lower 5 east entry. In this vicinity three bodies were found, also a dead mule. Two of the bodies were found at the last crosscut about 45 feet back from the face and in positions that would indicate they had been sitting on the floor. Near them were two dinner pails, and one man had a jacket on. Apparently, the men had finished loading a car and were resting. Near these two bodies there was found the butt of a smoked cigarette, and in the jacket pocket there was a cigarette carton in which there were 9 unburned matches and 6 cigarettes. About 28 feet inby, the body of the driver was found lying crosswise of the track. The area near the driver's body was searched carefully for either a cigarette butt or ashes of a burned cigarette, but none was found. The mule had evidently wheeled and ran, as it was found about 70 feet outby of the driver's body,

and it was severely burned. The two bodies found at the last crosscut were the least burned of all; the body of the driver and of all the others showed evidence of severe burns. The positions of all of the bodies except those two found at the last crosscut on the lower 5 east entry indicated that they had been busily engaged when the explosion occurred. In view of there being no electrical source of ignition, that there had been no shot fired in the explosion area, and that all of the electric cap lamps were intact, it was concluded that smoking or a match had been the source of ignition; and inasmuch as two of the bodies found were in positions indicating that they were idle and with both cigarettes and matches about their person and a burned stub of a cigarette found nearby, and the evidence indicated that the explosion had originated at or near that point, it was believed by all of the investigating party that this conclusion was correct.

LESSONS TO BE LEARNED FROM THE CONDITIONS AS THEY RELATE TO THE EXPLOSION

This explosion emphasizes the need of adequate ventilation in any mine and especially if gas is liberated; that where closed lights are used every precaution should be taken to eliminate other sources of ignition; that the No-Smoking rule should be strictly enforced; that regular, frequent, careful, and systematic gas inspections be made, and that supervision should be much more intensive than evidently had been the case in this mine.

CONDITIONS THAT WERE DEVELOPED AT RESUMPTION OF OPERATION FOLLOWING THE EXPLOSION

After the recovery of the bodies and the investigation was complete, work was done preparatory to resuming operation; this consisted of constructing stoppings and doors and placing of line brattice in rooms and cleaning up

roadways and timbering.

During the investigation it was pointed out that ventilation was inadequate and verbal recommendations were made to split the air current and to increase materially the ventilation throughout the active parts of the mine; at that time the question of placing a booster fan near the bottom of the slope was raised by the mine foreman, but he was advised not to install it. However, disregarding the advice, a booster fan was placed on the entry paralleling the 22 west; this was a 40-inch disc fan belt-driven by a 20-horsepower electric motor. This installation constituted another fire and explosion hazard in addition to those already existing and when not running constituted a serious block in the ventilation. The door was replaced on the main slope just below the lower 4 east entry and again caused all the air that circulated through the active part of the mine to pass through the small passageway in the top of room 1 off upper 5 east which was about 15 feet in area and 40 feet long and was passing but 14,790 cubic feet of air per minute, of which only 8,874 feet passed through the last crosscut at the face of the 5 east entries. All of the air passing through the active part of the mine had to pass through another small passageway just inby the booster fan; it was passing only 8,880 cubic feet of air per minute with the booster fan running, and the analysis of a sample collected at this point shows a calculated quantity of 117,642 cubic feet of methane passing this point in 24 hours. The methane in this sample was 0.92 per cent, a high percentage of methane to be passed through an electrically operated booster fan.

After observing these conditions, the following letter was addressed to John C. Parrott, president, and before sending the letter he was advised by telephone of the existing conditions. His reply follows:

Norton, Va.
February 11, 1932.

Mr. J. C. Parrott,
Liberty Trust Bldg.,
Roanoke, Va.

Dear Mr. Parrott:

In accordance with our telephone conversation on the 9th, I am writing you with reference to conditions at your Parrott Mine.

This mine is a decidedly dangerous mine, and particularly so in its present condition. It is my conviction that your local management is incompetent in the handling of a mine of this nature. This incompetency may be due to a lack of knowledge or to a spirit of carelessness. As an illustration, on the 8th, while in this mine accompanied by Mr. Akers, Mine Foreman, he was advised that the booster fan was out of order, the belt wheel having come off of the fan shaft, and that the fan was not running. He showed no concern other than irritation and, had I not expressed a desire to go down to this booster installation, it is my opinion that he would have shown no farther interest. We, however, went down and a man was there helplessly doing nothing of material value toward getting the fan in operation again. At this time I offered to continue my work unaccompanied by Mr. Akers, but he insisted on accompanying me. As we started to leave, the workman courteously asked Mr. Akers what he should do. Mr. Akers reply to this was that there was nothing he (the man) could do and it was not his (Mr. Akers) job to fix it. No precautionary steps were taken, other than usual routine, to take care of the safety of the men, and this in a decidedly dangerously gassy mine. We proceeded up to the 16 West where Mr. Akers ate his dinner with no apparent concern and then went outside where he insisted on accompanying me to meet the Superintendent. The Superintendent was aware of the fact that the fan was down, yet neither of these men evidenced any real concern.

At the time of the investigation, the State Mine Inspectors and myself were asked regarding the installation of a booster fan near the bottom of the Main Slope and all of us counseled against such an act, pointing out at that time that a booster installation would not materially better the existing ventilation and that a booster fan, if installed, would create three distinct hazards in addition to the present existing hazards; one, a decidedly dangerous fire hazard; two, a decidedly dangerous explosion hazard; three, a positive obstruction to ventilation when not actually running. Despite this advice, the installation was made, and in their own words, provided but an additional 4,000 cubic feet of air per minute which, under the circumstances, is negligible.

The local management evidences more interest in the main fan than they do in the quantity of air being circulated through the active part of the mine, while the amount of air at the main fan is inconsequental if insufficient air is provided in the active parts of the mine.

It was my opinion that the experience of having six men killed by an explosion and seven fatal accidents within a period of two weeks would afford incentive for greater safety in this mine and on the part of the officials.

Another instance, evidence taken following the explosion brought out the fact that the door located on the main slope, and upon which the ventilation of the 5 East section solely depended, was opened and propped open by the direction of the Mine Foreman. This, in most coal producing States, constitutes a criminal offence, yet the management endeavors to mitigate the seriousness of this act.

Before the booster fan was installed there were three natural obstructions in the air course. One, the hole in the top of Room 1 in 5 East to 4 East Entries; two, the last cross cut between the 5 East Entries; three, the air course from the monkey Entry paralleling the 22 West through to lower 22 West. If these three openings were enlarged, no doubt appreciably more air would circulate through the active parts of the mine than what is now being circulated with the booster fan running. The booster fan when not running constitutes a fourth air choke.

I would be glad to either make a trip through the mine with you, or go over the material that I have to incorporate in the final report of this explosion. Were it not that I felt that there is eminent danger of another explosion in this mine, I would not have taken the liberty to have called you by telephone, and in view of the fact that a copy of my report will not reach you for several days at least, I deemed it advisable to inform you of conditions existing.

I believe that your officials should, in some manner, be impressed with their responsibilities with reference to the safety of the men under their supervision.

Very truly yours,

Joseph F. Davies
District Engineer

Parrott, Va.
February 16, 1932.

Mr. Joseph F. Davies
District Engineer,
U. S. Bureau of Mines
Norton, Virginia

Dear Mr. Davies:

Referring to our telephone conversation of February 9th and your letter of February 11th, that evening immediately following our telephone conversation I called the mines and had all the men brought out that afternoon. The balance of last week we had men enlarging the cross-cuts and airways in the 5th and 22nd entries and cleared our passages through the entire old workings of the mine to the fan. On Saturday the 13th, I accompanied Mr. Boncer, State Mine Inspector, through the entire mine making careful tests. The inside fan has been removed and we find that a much larger volume of air is circulating through the body of the mine than has ever before been present. This was no doubt due to the enlargement of the airways. Mr. Boncer seemed highly satisfied with the working conditions and ordered us to resume work.

I greatly appreciate your interest and advice and I assure you that any suggestions you might care to make will be carried out by me in person.

Very truly yours,

John C. Parrott
President

JCP:T

RECOMMENDATIONS

To prevent recurrence of a similar disaster and to increase safety in this mine, it is hoped that the following recommendations will receive careful considerations as they are given in a spirit of helpful cooperation, it is therefore recommended:

1. That it be fully appreciated by the mine officials that the Parrott mine is dangerously gassy and that every precaution be taken to insure adequate ventilation throughout the mine.

2. That more effective methods of coursing the air through this mine be adopted; the mine should have several definite splits.

3. That all abandoned portions of the mine not actually used for the coursing of the air be effectively sealed with strong fireproof stoppings.

4. That regular, frequent, and systematic sampling of the air be done and the analyses be plotted and studied.

5. That the ventilation be so arranged as to eliminate the need of doors on the main slope; if this is not done, doors should be placed in pairs so spaced as to permit of one door being closed while trips are passing or, if space for so doing is not sufficient, the suitable and effective curtains be so placed as to permit a little disturbance of the ventilating current as possible while trips are passing through the door.

6. That at no time shall a booster fan be installed in lieu of effective and adequate coursing of air.

7. That line brattices shall not be used in place of crosscuts being driven at regular frequent intervals.

8. That a no-smoking rule be made and effectively enforced by drastic disciplinary action and by thorough search of each and every person entering the mine, regardless of position or character.

9. That permissible electric motors be substituted for all of the non-permissible motors now used on pumps and shaker conveyors that are not on strictly pure intake air.

10. That the 3-phase, 440-volt alternating-current transmission line on the main slope be placed in the slope paralleling it, properly supported on suitable insulators; or that it be replaced by suitably protected cables.

11. That all electric wiring be done in a workmanlike manner and effectively supported by suitable insulators.

12. That all control equipment of electrical machinery such as switches and other similar devices be of suitable enclosed types.

13. That neither explosives nor detonators be permitted to be hauled or carried on man-trips.

14. That separate suitable receptacles be used to carry or transport explosives and detonators.

15. That explosives and detonators be properly stored underground and that explosives shall not be stored nearer than 60 feet of any working face and that detonators shall be at least 15 feet removed from any explosives.

16. That non-combustible material be used as stemming, preferably clay procured outside the mine.

17. That all holes be tamped or stemmed to the collar of the hole.

18. That shotfirers be prohibited from shooting either gripping,

dependent or overcharged shots or shots drilled on the solid; and where feasible the coal should be undercut or overcut or sheared rather than shot off the solid.

19. That preferably all shots be fired by shotfirers after all other persons are out of the mine.

20. That consideration be given the impounding of seepage water and the piping of it to the faces of all places and especially to the shaker conveyors to be used to wet down the coal before and after shooting, thereby allaying much of the coal dust at its source.

21. That all open accessible parts of this mine which are not definitely wet be thoroughly and effectively rock-dusted.

22. That the practice of using short pieces of posts on top of other and longer posts be prohibited.

23. That all of the timbers placed with but scant clearance along main slope be replaced preferably with steel bars, and if leg timbers are used they be recessed into the coal ribs.

24. That suitable rollers be provided along rope haulages to afford protection to ropes and prevent cutting of the track ties.

25. That an effective drag be attached to the rear of all cars or trips being hauled up grade.

26. That essentially no dependence be placed in the safety rope as now used on man-trips. The safety rope should be attached to the main haulage rope several feet from the socket.

27. That every employee be trained in first-aid methods.

28. That at least 10 men be trained in mine-rescue methods and procedure.

29. That first-aid supplies, stretchers and blankets be placed within 1000 feet of the active working faces.

30. That all of the officials and certain selected men attend accident-prevention classes given by the United States Bureau of Mines.

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 447-448 Laboratory No. 55403-55404

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Marimac ft. 7 Sec. , T. , R.

Location in mine Full return 200 ft. inby of fan

Method of sampling V. Date sampled 1/20/32 Hour

Velocity 750 Area 7 x 6.5 Quantity 34,125

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 1/25/32

Laboratory No.	55403 447	55404 448			
Carbon dioxide (CO_2)	0.21	0.20	Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.49	20.41	Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.53	0.52			
Nitrogen (N_2)	78.77	78.87			
Total	100.00	100.00			

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

Form 213 11—8890 GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 903 Laboratory No. 54405

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine In last x-cut near face of 5 R entries

Method of sampling V. Date sampled 1/19/32 Hour

Velocity 380 Area 10 Quantity 3800

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector J.F.Davies Mailed - Received 1/25/32

Laboratory No.	54405 903		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.10		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.65		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.87				
Nitrogen (N_2)	78.38				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

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DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 904 Laboratory No. 55406

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine At face of upper 5 E entry

Method of sampling V. Date sampled 1/19/32 Hour

Velocity Area Quantity

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector J.F.Davies Mailed - Received 1/25/32

Laboratory No.	55406 904		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.10		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.53		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	1.12				
Nitrogen (N_2)	78.25				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

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DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 449 Laboratory No. 55407

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac ft. 7 Sec. , T. , R.

Location in mine On lower 5 E 50 ft. inby of main slope - Return from 5 E section

Method of sampling V. Date sampled 1/20/32 Hour

Velocity 110 Area 65 Quantity 7150

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 1/25/32

Laboratory No.	55407 449		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.07		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.71		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.73				
Nitrogen (N_2)	78.49				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

Form 213 11—8890 GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 450 Laboratory No. 55408

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac ft. 7 Sec. , T. , R.

Location in mine At face of lower 5 E near point of origin

Method of sampling V. Date sampled 1/19/32 Hour

Velocity Area Quantity

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 1/25/32

Laboratory No.	55408 450		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.11		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.15		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	2.64				
Nitrogen (N_2)	77.10				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 459 Laboratory No. 55418

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine 20' inby room 10 on 21 west lower

Method of sampling v.b. Date sampled 1/25/32 Hour

Velocity 80 Area 126 sq.ft. Quantity 10,080

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector J.F.Davies E.H.Hodgson Mailed Received 1/27/32

Laboratory No.	55418 459		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.00		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.57		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	1.07				
Nitrogen (N_2)	78.47				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

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DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 460 Laboratory No. 55419

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine 80' inby room #1 on lower 4th east

Method of sampling v.b. Date sampled 1/23/32 Hour

Velocity 30 (estimated) Area 70 Quantity 2100

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Hodgson & Davies Mailed Received 1/27/32

Laboratory No.	55419 460		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.07		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.56		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.51				
Nitrogen (N_2)	78.86				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 465 Laboratory No. 55420

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine In last crosscut on 5 east upper

Method of sampling v.b. Date sampled 1/23/32 Hour

Velocity 360 Area 15 Quantity 5400

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Hodgson & Davies Mailed Received 1/27/32

Laboratory No.	55420 465		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.10		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.65		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.62				
Nitrogen (N_2)	78.65				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

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DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 466 Laboratory No. 55421

Sample of Mine air

Mine Parrott (Pulaski Anthracite) Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine Top of room 1 in upper 5 east

Method of sampling v.b. Date sampled 1/23/32 Hour

Velocity 820 Area 15 Quantity 12,800

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Hodgson & Davies Mailed Received 1/27/32

Laboratory No.	55421 466		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.07		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.74		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.16				
Nitrogen (N_2)	79.03				
Total	100.00				

Remarks:

Date 1/28/32 (Signed) William P. Yant, Chemist.

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 453 Laboratory No. 55453

Sample of Intake air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed - Sec. , T. , R.

Location in mine In 4 E 50 ft. inby main slope

Method of sampling V. Date sampled 2/8/32 Hour

Velocity 220 Area 80 Quantity 17,600

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55455 453		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.10		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.73		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.14				
Nitrogen (N_2)	79.03				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 454 Laboratory No. 55454

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine Full return inby of fan

Method of sampling - Date sampled - Hour -

Velocity 710 Area 30 Quantity 42,600

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55454 454		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.19		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.50		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.60				
Nitrogen (N_2)	78.71				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

Form 213 11—8890 GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 457 Laboratory No. 55455

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine Inby room 1 on lower 4 E

Method of sampling - Date sampled - Hour -

Velocity estimated 20 Area 80 Quantity 1600

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55455 457		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.10		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.47		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.58				
Nitrogen (N_2)	78.85				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

Form 213 11—8890 GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 458 Laboratory No. 55456

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine At hole in top of room 1 on lower 4 E

Method of sampling Date sampled Hour

Velocity 850 Area 17.4 Quantity 14,790

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55456 458		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.07		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.20		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.12				
Nitrogen (N_2)	79.01				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 463 Laboratory No. 55457

Sample of Return air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine Inby room 11 on 21 west

Method of sampling V. Date sampled 2/8/32 Hour

Velocity 150 Area 65 Quantity 9750

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55457 463		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.09		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.45		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	1.13				
Nitrogen (N_2)	78.33				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

Form 213 11—8890 GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 464 Laboratory No. 55458

Sample of Mine air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott Merrimac

Name of coal bed Merrimac Sec. , T. , R.

Location in mine In last x-cut in 5 E entries

Method of sampling Date sampled Hour

Velocity 510 Area 17.4 Quantity 8874

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55458 464		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.10		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.68		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.56				
Nitrogen (N_2)	78.66				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

Form 213 11—8890 GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 467 Laboratory No. 55459

Sample of Intake air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine On main slope inby 16 west

Method of sampling V. Date sampled 2/8/32 Hour

Velocity 285 Area 55 Quantity 15,675

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55459 467		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.05		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.84		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.00				
Nitrogen (N_2)	79.11				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

Form 213 11—8890 GOVERNMENT PRINTING OFFICE

DEPARTMENT OF COMMERCE
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 468 Laboratory No. 55460

Sample of Mine return air

Mine Parrott Operator Pulaski Anthracite Coal Co.

State Va. County Pulaski Township

Town (distance and direction from, and railroad) Parrott

Name of coal bed Merrimac Sec. , T. , R.

Location in mine In x-cut just inby booster fan on 22 west

Method of sampling V. Date sampled 2/8/32 Hour

Velocity 555 Area 16 Quantity 8880

Barometer: Inside Outside

Corrected to sea level: Inside Outside

Bulbs: Wet Dry Humidity %

Collector Davies Mailed - Received 2/12/32

Laboratory No.	55460 468		Ethane (C_2H_6)		
Carbon dioxide (CO_2)	0.11		Hydrogen sulphide (H_2S)		
Oxygen (O_2)	20.52		Unsaturated hydrocarbons (C_2H_4, etc.).		
Hydrogen (H_2)					
Carbon monoxide (CO)			Sulphur dioxide (SO_2)		
Methane (CH_4)	0.98				
Nitrogen (N_2)	78.39				
Total	100.00				

Remarks:

Date 2/17/32 (Signed) William P. Yant, Chemist.

Form 6—137

U. S. BUREAU OF MINES

E—DESCRIPTION OF MINE

(1) State Virginia (2) County Pulaski (3) Town Parrott (Post office.)

(4) Mine sample of dust (Material—for coal give classification.) (5) Coal field ____ (6) District ____

(7) Mine P. & P. Parrott (a. Name.) slope (b. Kind of opening—if shaft give depth.) (c. Height of opening above sea level.)

at Parrott (d. Distance and direction from town.) Norfolk & Western (e. Sec., T., and R., if necessary.) (f. Railroad connections.)

Parrott (g. Shipping point.) (h. State if wagon mine or prospect and give distance from shipping point.)

(8) Coal bed Merrimac (a. Name.) (b. Geologic system.)

(c. Formation.) 12° to 30° (d. Dip, degrees.) (e. Strike, direction.)

(9) Mining system room and pillar (Long wall, room and pillar, panels, etc.) (10) Undercutting none (Hand or machine.)

(11) Explosives Grasselli 5 LF (a. Used for coal.) (b. Used for roof or floor.)

(12) Operator Pulaski Anthracite Coal Co. (Name and address.)

(13) Sales agent ____ (Name and address.)

(14) Output per day 360 tons (Average—gross or net tons.) (15) Maximum day's output ____ (During past year.) (16) Last year's output 85000 tons (Gross or net tons.)

(17) Output from advance workings, per cent 50 (At present.) (18) Lifetime of mine ____ (Years—estimated.)

(19) Run-of-mine, per cent ____ (Of output shipped.) (20) Is coal screened? yes (21) Type of screens ____

(22) Type of washer ____ (23) Per cent of coal washed ____

(24) Maximum size washed all (25) Sizes produced 5 - pea, buckwheat, stove, egg (Washed coal.) chestnut

(26) Sizes produced 5 (Of coal not washed.) (27) Is coal picked? ____ (State whether on car or belt.)

(28) Per cent of coal coked ____ (At mine.) (29) Sizes coked ____ (Screenings, crushed, washed, etc.)

(30) Type and number of ovens ____ (31) Remarks ____ (For any additional information indicate after subject by mark X if additional information is given here.)

(32) Can Nos. sacks-1A & B, 2A & B, 3A & B, 4A & B, 5A & B, 6A & B, 7A & B, 8A-B (Give Nos. of all samples forwarded.)

(33) Laboratory Nos. A 78946 to A 78961 inc. (Laboratory No. to fill in immediately below corresponding can number.)

(34) Mine sampled at 8 (Number.) points, by Joseph F. Davies, Norton, Va. (Collector.) (Office.) 1/23/32 (Date.), 19

Above information copied from Card A by McDermott on March 10, 1932

6—6472

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No._____ Lab. No. A 78946

Sample of Roof & rif dust (through 20-mesh screen). Can No. sack 1-A

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine on lower 4-E inby hole in room 1

Method of sampling Std Gross weight, lbs._____ Net weight, gms. 23.

Date of sampling 1/23/32 Date of Lab. sampling 2/7/32 Date of analysis_____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss .0	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		1.4		
	~~Volatile matter~~ Comb		75.9	77.0	(a)
	Fixed carbon				
	Ash		22.7	23.0	
			100.0	100.0	
			Grams	Per cent	
Ultimate Analysis	Hydrogen on 20 mesh				
	Carbon		8.0	25.8	
	Nitrogen thru 20 mesh		23.0	74.2	
	Oxygen total wt. of sample		31.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

Screen test, through 20 mesh No size — *Cumulative per cent.* 100

through 48 mesh _____ _____

through 100 mesh _____ _____

through 200 mesh _____ _____

Area from which sample was taken (sq. ft.) _____ _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

[a] This figure is the ratio of volatile combustible to total combustible.

11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78947

Sample of floor dust (through 20-mesh screen). Can No. Sack 1-B

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine On lower 4 E inby hole in room 1

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 107.

Date of sampling 1/23/32 Date of Lab. sampling 3/7/32 Date of analysis _____

For B. of M. section Mine Aco. Collector J.F. Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.6		
	Volatile Comb		76.4	76.9	(a)
	Fixed carbon				
	Ash		23.0	23.1	
			100.0	100.0	
Ultimate Analysis	Hydrogen		Grams	Per Cent	
	Carbon (on 20 mesh)		14.0	11.6	
	Nitrogen (thru 20 mesh)		107.0	88.4	
	Oxygen (total wt. of sample)		121.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	87.0
through 100 mesh	72.8
through 200 mesh	60.5

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

[a] This figure is the ratio of volatile combustible to total combustible.

11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78948

Sample of Roob & rib dust (through 20-mesh screen). Can No. sack 2-A

Operator Pulaski Anthracite coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine on upper 5-E between rooms 5 - 6

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 15.

Date of sampling 1/25/32 Date of Lab. sampling 3/7/32 Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis — Moisture		.4		
Proximate Analysis — ~~Volatile matter~~ Comb		72.5	72.8	(a)
Proximate Analysis — Fixed carbon				
Proximate Analysis — Ash		27.1	27.2	
		100.0	100.0	
Ultimate Analysis — Hydrogen		Grams	Per Cent	
Ultimate Analysis — Carbon (on 20 mesh)		8.0	34.8	
Ultimate Analysis — Nitrogen (thru 20 mesh)		15.0	65.2	
Ultimate Analysis — Oxygen (total wt. of sample)		23.0		
Ultimate Analysis — Sulphur				
Ultimate Analysis — Ash				
		Slight traces of coked particles.		
Calorific value determined — Calories				
Calorific value determined — British thermal units				

Cumulative per cent.

Screen test, through 20 mesh — No size — 100

through 48 mesh _____

through 100 mesh _____

through 200 mesh _____

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

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11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78949

Sample of floor dust (through 20-mesh screen). Can No. sack 2-B

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine on upper 8-E between rooms 5 and 6

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 75.

Date of sampling 1/23/32 Date of Lab. sampling 3/7/32 Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.4		
	~~xxxxxxx~~ Comb		72.8	73.1	(a)
	Fixed carbon				
	Ash		26.8	26.9	
			100.0	100.0	
Ultimate Analysis	Hydrogen		Grams	Per Cent	
	Carbon on 20 mesh		22.0	22.4	
	Nitrogen thru 20 mesh		76.0	77.6	
	Oxygen total wt. of sample		98.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

Screen test, through 20 mesh ---------- No size ---------- *Cumulative per cent.* 100

through 48 mesh _____

through 100 mesh _____

through 200 mesh _____

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

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11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78950

Sample of roof & rib dust (through 20-mesh screen). Can No. sack 3-A

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine 100 feet inby room 8 in upper 5-E

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 43.

Date of sampling 1/23/32 Date of Lab. sampling 3/7/32 Date of analysis _____

For B. of M. section Mine Acc Collector J.F. Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.5		
	~~Volatile matter~~ Comb		74.8	75.2	(a)
	Fixed carbon				
	Ash		24.7	24.8	
			100.0	100.0	
Ultimate Analysis			Grams	Per cent	
	Hydrogen		on 20 mesh		
	Carbon		19.0	30.6	
	Nitrogen		thru 20 mesh		
			43.0	69.4	
	Oxygen		total wt. of sample		
			62.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

Screen test, through 20 mesh No size — *Cumulative per cent.* 100

through 48 mesh _____

through 100 mesh _____

through 200 mesh _____

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

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11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78951

Sample of floor dust (through 20-mesh screen). Can No. sack 5-B

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine 100 feet inby room 8 on upper 5-E

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 139.

Date of sampling 1/23/32 Date of Lab. sampling 3/7/32 Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.4		
	Volatile matter Comb		74.0	74.3	(a)
	Fixed carbon				
	Ash		25.6	25.7	
			100.0	100.0	
Ultimate Analysis	Hydrogen		Grams	Per cent	
	Carbon on 20 mesh		62.0	30.8	
	Nitrogen thru 20 mesh		139.0	69.2	
	Oxygen total wt. of sample		201.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	65.5
through 100 mesh	43.4
through 200 mesh	29.9

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

(a) This figure is the ratio of volatile combustible to total combustible.

U. S. GOVERNMENT PRINTING OFFICE: 1930 11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78952

Sample of roof & rib dust (through 20-mesh screen). Can No. sack 4-A

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine 150 outby from face of lower 5-E

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 140.

Date of sampling 1/23/32 Date of Lab. sampling _____ Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.4		
	Volatile matter ~~XXXXXXX~~ Comb		73.9	74.2	(a)
	Fixed carbon				
	Ash		25.7	25.8	
			100.0	100.0	
Ultimate Analysis	Hydrogen		Grams	Per cent	
	Carbon on 20 mesh		60.0	30.0	
	Nitrogen thru 20 mesh		140.0	70.0	
	Oxygen total wt. of sample		200.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

Screen test,		Cumulative per cent.
	through 20 mesh	100
	through 48 mesh	61.6
	through 100 mesh	35.6
	through 200 mesh	16.7

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

[a] This figure is the ratio of volatile combustible to total combustible.

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Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78953

Sample of floor dust (through 20-mesh screen). Can No. sack 4-B

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine 150 feet outby face of~~xxx~~ 5-E lower

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 185.

Date of sampling 1/23/32 Date of Lab. sampling _____ Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

		Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture			.4		
	~~Volatile matter~~ Comb			74.1	74.5	(a)
	Fixed carbon					
	Ash			25.5	25.5	
				100.0	100.0	
Ultimate Analysis	Hydrogen			Grams	Per cent	
	Carbon (on 20 mesh)			60.0	24.7	
	Nitrogen (thru 20 mesh)			183.0	75.3	
	Oxygen (total wt. of sample)			243.0		
	Sulphur					
	Ash					
Calorific value determined	Calories					
	British thermal units					

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	68.3
through 100 mesh	45.9
through 200 mesh	33.4

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

[a] This figure is the ratio of volatile combustible to total combustible.

11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78954

Sample of roof & rib dust (through 20-mesh screen). Can No. sack 5-A

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine opposite room 5 and lower 5-E

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 136.

Date of sampling 1/23/32 Date of Lab. sampling _____ Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.4		
	Volatile matter Comb		69.9	70.1	(a)
	Fixed carbon				
	Ash		29.7	29.9	
			100.0	100.0	
Ultimate Analysis			Grams	Per cent	
	Hydrogen on 20 mesh				
	Carbon		55.0	28.8	
	Nitrogen thru 20 mesh		136.0	71.2	
	Oxygen total wt. of sample		191.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	68.2
through 100 mesh	47.1
through 200 mesh	34.3

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

[a] This figure is the ratio of volatile combustible to total combustible.

11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78955

Sample of Floor dust (through 20-mesh screen). Can No. sack 5-E

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine opposite room 5 on lower 5-E

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 215.

Date of sampling 1/23/32 Date of Lab. sampling _____ Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

		Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture			.4		
	Volatile matter Comb			65.5	65.8	(a)
	Fixed carbon					
	Ash			34.1	34.2	
				100.0	100.0	
				Grams	Per cent	
Ultimate Analysis	Hydrogen					
	Carbon on 20 mesh			54.0	20.1	
	Nitrogen thru 20 mesh			215.0	79.9	
	Oxygen total wt. of	sample		269.0		
	Sulphur					
	Ash					
Calorific value determined	Calories					
	British thermal units					

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	72.9
through 100 mesh	53.3
through 200 mesh	39.8

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

(a) This figure is the ratio of volatile combustible to total combustible.

11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No._____ Lab. No. A 76956

Sample of roof & rib dust (through 20-mesh screen). Can No. sack 6-A

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine between rooms 9-10 on upper 22 W

Method of sampling Std Gross weight, lbs._____ Net weight, gms. 75.

Date of sampling 1/23/32 Date of Lab. sampling_____ Date of analysis_____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.5		
	Volatile matter		75.9	76.3	(a)
	Fixed carbon				
	Ash		23.6	23.7	
			100.0	100.0	
			Grams	Per cent	
Ultimate Analysis	Hydrogen				
	Carbon		31.0	29.2	
	Nitrogen		75.0	70.8	
	Oxygen		106.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

on 20 mesh
thru 20 mesh
total wt. of sample

No size.

Screen test,		Cumulative per cent.
through 20 mesh		100
through 48 mesh		
through 100 mesh		
through 200 mesh		

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

[a] This figure is the ratio of volatile combustible to total combustible.

U. S. GOVERNMENT PRINTING OFFICE: 1930 11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78957

Sample of floor dust (through 20-mesh screen). Can No. sack 6-B

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine between rooms 9 - 10 on upper 22-W

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 167.

Date of sampling 1/23/32 Date of Lab. sampling _____ Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.5		
	~~xxxxxxxxx~~ Comb Volatile matter		75.8	76.2	(a)
	Fixed carbon				
	Ash		23.7	23.8	
			100.0	100.0	
			Grams	Per cent	
Ultimate Analysis	Hydrogen				
	on 20 mesh Carbon		54.0	24.4	
	thru 20 mesh Nitrogen		167.0	75.6	
	total wt. of sample Oxygen		221.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	72.7
through 100 mesh	57.4
through 200 mesh	39.3

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

(a) This figure is the ratio of volatile combustible to total combustible.

U. S. GOVERNMENT PRINTING OFFICE: 1930 11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78958

Sample of roof & rib dust (through 20-mesh screen). Can No. sack 7-A

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine in mouth of room 4 off 21 west

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 39.

Date of sampling 1/23/32 Date of Lab. sampling 3/7/32 Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		1.7		
	~~xxxxxxx~~ Comb		67.1	68.2	(a)
	Fixed carbon				
	Ash		31.2	31.8	
			100.0	100.0	
Ultimate Analysis	Hydrogen		Grams	Per cent	
	on 20 mesh Carbon		25.0	39.1	
	thru 20 mesh Nitrogen		39.0	60.9	
	total wt. of sample Oxygen		64.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh No size.	100
through 48 mesh	
through 100 mesh	
through 200 mesh	

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

[a] This figure is the ratio of volatile combustible to total combustible.

U. S. GOVERNMENT PRINTING OFFICE: 1930 11—9333

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 73959

Sample of 4 floor dust (through 20-mesh screen). Can No. sack 7-B

Operator Pulaski Anthracite coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine in mouth of room 4 off 2l west

Method of sampling std Gross weight, lbs. _____ Net weight, gms. 98.

Date of sampling 1/23/32 Date of Lab. sampling _____ Date of analysis _____

For B. of M. section Mine Acc Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		.5		
	xxxxxxxx Comb Volatile matter	½	57.2	57.5	(a)
	Fixed carbon				
	Ash		42.3	42.5	
			100.0	100.0	
Ultimate Analysis	Hydrogen		Grams	Per cent	
	on 20 mesh Carbon		19.0	16.2	
	thru 20 mesh Nitrogen		98.0	83.8	
	total wt. of sample Oxygen		117.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	74.5
through 100 mesh	55.9
through 200 mesh	41.6

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

[a] This figure is the ratio of volatile combustible to total combustible.

11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78960

Sample of roof & rib dust (through 20-mesh screen). Can No. sack 8-A

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine inby hole in room 1 on lower 20 West

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 45.

Date of sampling 1/23/32 Date of Lab. sampling 3/7/32 Date of analysis _____

For B. of M. section Mine Ace Collector J.F.Davies

	Air-dry Loss	Coal (Air dried)	Coal (As received)	Coal (Moisture free)	Coal (Moisture and ash free)
Proximate Analysis	Moisture		1.0		
	~~Volatile matter~~ Comb		78.7	79.5	(a)
	Fixed carbon				
	Ash		20.3	20.5	
			100.0	100.0	
			Grams	Per cent	
Ultimate Analysis	Hydrogen		on 20 mesh		
	Carbon		32.0	41.6	
	Nitrogen		thru 20 mesh		
	Oxygen		45.0	58.4	
	Sulphur		total wt. of sample		
	Ash		77.0		
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh No size.	100
through 48 mesh	
through 100 mesh	
through 200 mesh	

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

a This figure is the ratio of volatile combustible to total combustible.

11—9383

Form 261

DEPARTMENT OF COMMERCE
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. A 78961

Sample of floor dust (through 20-mesh screen). Can No. sack B-B

Operator Pulaski Anthracite Coal Co. Mine Parrott

State Virginia County Pulaski Bed Merrimac

Town Parrott

Location in mine inby hole in room 1 mkt on lower 20 west

Method of sampling Std Gross weight, lbs. _____ Net weight, gms. 129.

Date of sampling 1/25/32 Date of Lab. sampling _____ Date of analysis _____

For B. of M. section Mine Asc Collector J.F.Davies

	AIR-DRY LOSS	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture		.9		
	~~Volatile matter~~ Comb		66.4	67.0	(a)
	Fixed carbon				
	Ash		32.7	33.0	
			100.0	100.0	
Ultimate Analysis			Grams	Per cent	
	Hydrogen		on 20 mesh		
	Carbon		33.0	20.4	
	Nitrogen		thru 20 mesh 129.0	79.6	
	Oxygen		total wt. of sample 162.0		
	Sulphur				
	Ash				
Calorific value determined	Calories				
	British thermal units				

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	76.4
through 100 mesh	57.0
through 200 mesh	43.6

Area from which sample was taken (sq. ft.) _____

Date, March 14, 1932 (Signed) H. M. Cooper, *Chemist.*

U. S. GOVERNMENT PRINTING OFFICE: 1930

[a] This figure is the ratio of volatile combustible to total combustible.

11—9383

EMPLOYEES STATEMENTS
IN CONNECTION WITH
MINE EXPLOSION

Mr. Boneer, Question: What is your name?

Answer : Albert Akers.

Q: Where do you live?

A: In a company house on Church Hill at Parrott.

Q: What is your occupation?

A: Pumper in the mines of the Pulaski Anthracite Coal Company at Parrott, Virginia.

Q: How long have you worked here?

A: Nine years.

Q: Are you still employed by this company?

A: Yes.

Q: Were you working in the mines on January 18th, the day the explosion occurred?

A: Yes.

Q: The explosion occurred about 5:15 P.M. Were you in the mines at this time?

A: Yes.

Q: Do you know anything about the conditions existing in there at this time?

A: Yes, the car coupler, Howard Moore, is left in the evening to watch the slope door, to see that it is kept closed.

Q: Were you at #16 West Level, where the engine is located, that afternoon?

A: Yes.

Q: What time?

A: After the 4:00 o'clock trip left.

Q: From your knowledge was there any neglect on the part of anyone in leaving doors open?

A: Yes.

Q: Who was negligent in connection with this?

A: Howard Moore.

Q: In what way was he negligent?

A: They leave him there in the evening after the trapper leaves. He came to #16 Level and left the door open on the main slope above #21 West Entry.

Q: From knowledge you have, how long do you think he permitted the door to be left open?

A: About thirty-five (35) minutes.

Q: You know that the door was left open that long, but you do not know how much longer?

A: No, I do not know how much longer.

Q: You know that the permitting of that door to be left open would cause the air to be short-circuited, do you not?

A: Yes.

Q: What other, if any, conditions have entered into affairs at this mine that would be detrimental to its operation?

A: No, sir; I don't know unless a driver might leave a door open on an incline while taking a car out.

Mr. Stanton, Q: Have you smelled tobacco smoke at any time while you were at work?

A: Yes, but not lately.

Mr. Boncer Q: Have you ever seen anyone smoking?

A: No.

Mr. Stanton Q: Have you ever smoked yourself in there?

A: No.

Mr. Boncer Q: Why do you know that the door was open at least thirty-five minutes?

A: Moore walked to #16 and told the hoist-engineer that it was open.

Q: What would convince you that the door was open?

A: The trip was dropped down to #22, and the door would have to be open to allow this.

Q: Before the trip was dropped did the hoisting engineer ask Moore if the door was open so that he could drop the trip down to #22?

A: No, but Paris Albert, the rope rider asked him, and he said, "Yes."

Q: After the hoist-engineer learned that the door was open, the trip was then dropped through to #22 without hesitating at the door?

A: Yes. The rope-rider transmitted the message to the engineer.

Q: You were there and heard this?

A: Yes.

Q: How long after the empty trip was dropped down until the loaded trip was brought back?

A: Fifteen (15) minutes.

Q: Do you know whether or not the door was closed after the loaded trip was brought up?

A: No, except that I heard Paris Albert say outside that it was not, and Charles Bland and Percy Purdy were with me, at this time.

Q: He definitely made the statement that the door stood open for two hours?

A: Yes.

Q: Why do you believe that Albert knew what he was talking about?

A: He was down there.

Q: Was there anyone else down there who had knowledge of the door being open?

A: The engineer, Crockett Hungate, and rope-rider, Paris Albert, and the foot-man on the outside rope, Clarence Hamblin.

Mr. Stanton Q: How many, and who were the other men who had knowledge of the door being open?

A: Four, Crockett Hungate, Paris Albert, Clarence Hamblin and myself and Howard Moore.

Albert Akers.

Q: What is your name?

A: Crockett Hungate.

Q: Where do you live?

A: In a company house at Parrott.

Q: What is your occupation?

A: I run a hoisting engine inside.

Q: How long have you worked for the Pulaski Anthracite Coal Company?

A: Since I was sixteen years old.

Q: How old are you now?

A: Thirty-five. I have worked here about nineteen years.

Q: Which shift do you work on?

A: On the day shift, but on some occasions I work overtime.

Q: Were you at work in the mine on Monday, January 18th, the day the explosion occurred?

A: Yes, I worked overtime.

Q: Were you in the mine at the time the explosion occurred?

A: Yes.

Q: If you have any opinion, what do you think could have occurred that could have caused the explosion?

A: No. I don't know of anything.

Q: Was the door open at the time you wanted to drop a trip of cars through to #22 West Entry?

A: Yes. And for that reason I didn't have to stop for the door to be opened.

Q: Have you any idea how long the door could have been open?

A: No. I do not.

Crockett Hungate.

Q: What is your name?

A: Clarence Hamblin.

Q: Where do you live?

A: Delspring.

Q: Where do you work?

A: For the Pulaski Anthracite Coal Company at Parrott.

Q: What is your occupation?

A: Rope-rider on the slope.

Q: How long have you been working for this company?

A: Ten (10) or twelve (12) years.

Q: Were you at work in the mine on Monday, January 18th, the day the explosion occurred?

A: Yes.

Q: What time did you come out of the mine?

A: I left #16 West entry about 5:00 P.M.

Q: Who was with you at #16 Entry when you left?

A: Albert Akers, Paris Albert, Crockett Hungate, but only Howard Moore came out with me.

Q: You worked overtime?

A: Yes, to pull the day coal out.

Q: As a rope-rider, do you work down as far as #22?

A: No. I handle the rope from #16 out.

Q: Do you know that there is a door on the Main Slope near #21 West Entry?

A: Yes.

Q: Do you know whether this door is left open at any time?

A: No.

Q: Did you hear anyone say it was?

A: No.

Q: Were you there when the first trip was dropped, about 4:00 o'clock?

A: Yes.

Q: Did you hear anyone tell the engineer to drop the trip straight through to #22?

A: Couldn't say, but the trip went straight through to #22 Entry without hesitating at the door.

Q: You do not recall any questions asked about the door, or any answers relative to this?

A: No, I cannot remember hearing anyone say anything to the engineer. They may have but I paid no attention. But I know that the trip went straight through.

Q: You do know that if the door had been closed that they would have had to stop the trip until the door was opened, do you not?

A: Yes.

Mr. Stanton. Q: Have you ever smelled tobacco smoke in there, or have you ever seen anyone smoking?

A: No.

Q: You do not smoke yourself?

A: No.

Mr. Boncer Q: If the door was open it would short-circuit the air and not allow it to go into the East side?

A: Yes.

Clarence Hamblin.

Q: What is your name?

A: Paris Albert.

Q: Where do you live?

A: Parrott, Va.

Q: Where do you work?

A: Pulaski Anthracite Coal Company at Parrott, in the mines.

Q: What is your occupation?

A: Rope man on the Main Slope.

Q: What portion of the Slope?

A: From #16 West Entry to the bottom of the Slope.

Q: Were you at work in the mine on Monday, January 18th, the day the explosion occurred?

A: Yes.

Q: Were you in the mine at the time the explosion occurred?

A: Yes.

Q: Where were you?

A: #23 Entry.

Q: What were you doing at that time?

A: Pushing loaded car from face of #23 West Entry.

Q: On January 18th, were you riding up and down on the trip from #16 to the bottom of the slope?

A: Yes. I made two trips since 8:00.

Q: There is a door on the Main Slope near #21 West Entry?

A: Yes.

Q: What is the custom of yourself and the engineer so far as your work is concerned, as affected by the door on the Main Slope?

A: After the day coal is pulled I never have to go through there but twice, as all my shifting is done below the door, and that door remains closed.

Q: Is it your responsibility to open and close this door while you are on duty?

A: Yes.

Q: On this particular day, instead of going in the mines at 3:00, as usual because no trip was dropped from #16 to below until about 4:00 o'clock, because the tipple was down and no coal was hoisted to the outside?

A: Yes.

Q: Was the door left open so that the engineer did not have to stop with either of these two trips.

A: The door was left open for the first trip.

Q: Who left it open?

A: I don't know.

Q: Who told you to go straight through with that trip if you didn't know the door was open?

A: Howard Moore walked up from the bottom and told me.

Q: How long was it after he told you the door was open until you dropped the trip below and through the door?

A: Not over ten minutes until the trip was started from #16.

Q: How long do you think it would take you to walk from the door on the Slope near #21 Entry to #16?

A: About five or ten minutes.

Q: How far is it from the door to #16 Entry?

A: About 1,700 feet.

Q: The trapper on that door is in the habit of tying the door open when he comes out on the Man-trip, and you as a rope-rider closed the door when going down with the first trip after the man-trip is taken outside?

A: Yes.

Q: You know Howard Moore?

A: Yes.

Q: What are the duties of Howard Moore after the day shift goes outside?

A: He couples cars and throws the latches.

Q: Does Moore ever stay up there at that door when the night shift is pulling any coal?

A: I do not know. I have never seen him there. I do not know whether it is part of his duty to stay there or not. I have never seen him opening or closing the door.

Q: On that day there was a delay on account of the tipple being down outside, which is not a usual occurrence?

A: Yes there was a delay which is unusual.

Q: As a rule, how long do you wait at #16 before making your first trip to the bottom after the Man-trip has been pulled and the empties returned to #16 from the outside?

A: Not over two or three minutes.

Q: How long is it before the empties are returned from the outside after the Man-trip is pulled?

A: About fifteen or twenty minutes.

Q: When the trip was dropped to the bottom are there any inquiries made as to whether the door is open or closed?

A: Clarence Hamblin asked Howard Moore about the door and he replied that it was open.

Q: You went down on this trip. Who rode it with you?

A: Yes, Howard Moore went with me.

Q: As you went down on this trip did you stop at the door, or either of you get off to open it?

A: No, we went to #5 Entry.

Q: How long was the door on the Main Slope near #22 West Entry open, so far as you know?

A: From thirty to thirty-five minutes.

Q: Then the door was open from before the first trip was dropped down to #22 while the first trip was brought up to #16, and while the second trip was pulled up to the door?

A: Yes.

Mr. Stanton Q: How many times within the last thirty days have you found the door tied open?

A: I don't know whether it was open at all or not. I had no reason to notice it. I have always found the door closed, except on this day.

Albert Paris.

Q: What is your name?

A: Howard Moore.

Q: Where do you live?

A: Dry Branch.

Q: Where do you work?

A: In the slope mines of the Pulaski Anthracite Coal Company.

Q: What is your occupation?

A: Car coupler.

Q: What part of the mines do you work in?

A: Two entries: #5 East Entry, and #22 West Entry.

Q: How long have you worked here?

A: Little better than a year.

Q: Were you at work on Monday, January 16th, the day of the explosion?

A: Yes.

Q: What shift do you work on?

A: On the day shift from seven to four and sometimes till five o'clock when I work overtime.

Q: On the day of the explosion, what time did you quit?

A: About five o'clock.

Q: Then you worked an hour overtime?

A: Yes.

Q: Do you have any other duties at any time other than coupling cars?

A: No.

Q: On the day of the explosion before you came out did you walk from #5 East up to #16?

A: Yes.

Q: When you walked up you had to come through a door?

A: Yes.

Q: Was it open?

A: Yes.

Q: Do you know who opened the door?

A: No.

Q: Did you close the door when you went through it?

A: No.

Q: Is the door supposed to be closed?

A: I do not know.

Q: Did you know the trapper had gone at that time?

A: There was none there.

Q: Have you ever had any instructions to open or close this door?

A:. Never.

Q: Did you know that the door being open short-circuited the air and cut it off from the East side?

A: Yes.

Q: How long do you think the door stayed open?

A: Couldn't say.

Q: Was it customary for the trapper to leave the door open when he came out about 4 o'clock?

A: He had been leaving it open.

Q: How long has that door been there?

A: It hasn't been there more than five or six days. About a week.

Q: How long was the door open to your personal knowledge?

A: I do not think it could have been open more than thirty or forty minutes.

Q: You insist that nobody had ever given you instructions to open or close this door?

A: Yes.

Q: What is your name?

A: D. H. Caldwell.

Q: Where do you live.

A: Belspring.

Q: Where do you work?

A: Pulaski Anthracite Coal Company at Parrott, Virginia.

Q: What is your occupation?

A: Fire-boss.

Q: How long have you worked here?

A: About thirty-six years in all.

Q: How long have you been fire-boss?

A: Six or seven years, as well as I can remember.

Q: What are your general duties?

A: To look after ventilation, and to look after track as I go in, inspect top and air. Principally to test for gas.

Q: What are you supposed to do to insure the safety of the mine?

A: I am supposed to go through every working place, test for gas, see that proper ventilation is there, mark the place, test the top.

Q: Do you ever find any gas condition in the mines?

A: Yes, but not lately.

Q: How long since you have found some?

A: I don't know.

Q: Within a month?

A: No.

Q: In looking over your book, I find on several days you have the mine marked "O. K."

A: This means that the mine is in good shape.

Q: On some other days I notice that you have it marked "Fairly good." Why do you mark it O. K. some days when it is in good condition and

"Fairly good" on the others? What do you mean by this term?

A: I mean the general condition of the mine, including such things as dirty slope, etc.

Q: Have you ever found gas in the mine and not put it in the book?

A: Yes, sir, not so long ago.

Q: Was this gas found in a room or an entry?

A: A room.

Q: Why didn't you report this?

A: Because I had closed the door that was left open and stayed there until the place was cleared of gas. This was on my first inspection early in the morning.

Q: Why didn't you report the door being open?

A: I reported it to the mine foreman, but didn't think it necessary to put it on the book.

Q: Were you in the mine of Monday, January 18th?

A: Yes, sir.

Q: What time did you finish your day's work?

A: 12:00 Noon.

Q: How many times did you make an inspection of all places necessary to be inspected?

A: Twice that day in #6 Entry and #6 Room The men working in this room, Sydney Snyder and Everett Snyder said that they thought there was some gas. I tested for gas but found none.

Q: Did you find gas in any of the rooms in #5 Entry?

A: No.

Q: You consider #5 Entry the worst in the mine?

A: Yes.

Q: Why is it more hazardous than in the West? Is there More gas?

A: Yes, I think the coal is dustier, and that there is more gas.

Q: Have you ever tested, or seen tests made, in your place?

A: No, sir. The fire-boss tests early in the morning.

Q: Have you ever complained or asked him to make a test?

A: No, but the air was bad.

Mr. Stanton Q: Have you or your buddy ever complained to the fire-boss of any condition in your working place that he has not remedied?

A: No, I never have, and haven't known my buddy to ask him that it hasn't been remedied.

Q: Have you ever complained to the foreman or the superintendent of any condition that hasn't been cleared up?

A: No.

Q: Isn't it a matter of general knowledge that the superintendent of the mine would discharge any man, if he had knowledge of him smoking or carrying cigarettes or matches in the mines?

A: Yes.

Q: Do you know that he has discharged men for a breech of this rule, namely, Lewis Richardson, and a man named Mitchell?

A: Yes. I remember Mr. Akers finding cigarettes on Lewis Richardson's bucket, and that he was fired. I do not recall Mitchell.

Mr. Stanton Q: How often does the mine-foreman inspect your place? Every day?

A: No, sir. Not every day.

Q: Does the fire-boss mark up your placeevery morning?

A: Yes.

Q: If for any reason the fire-boss doesn't inspect your place, does the mine-foreman do so in his place?

A: Yes.

Q: Does the fire-boss inspect your place twice a day?

A: No. Not every day, but most of the time.

Q: When he comes down the second time does he inspect for gas?

A: He has his light with him, but he doesn't make a test every time he comes through.

Q: Don't you believe that the mine officials in direct charge of this mine have the safety of the men at work in the mines at heart and try to protect their lives?

A: Yes.

James Snyder.

Q: What is your name?

A: Fred Minnick.

Q: Where do you live?

A: Rock Creek.

Q: Where do you work?

A: In the mines of the Pulaski Anthracite Coal Company.

Q: What is your occupation?

A: Loader or miner. I work on the day shift.

Q: How long have you worked here?

A: Twelve years.

Q: Were you in the mines on Monday, January 18th?

A: Yes.

Q: But not at the time the explosion occurred?

A: No.

Q: Do you know of any conditions in there that could have caused this explosion?

A: Yes. Lack of air.

Q: Where do you work in the mines?

A: Room #4 on #5 East Entry.

Q: What was the condtion of the ventilation in the room as you know it?

A: Very poor.

Q: Had you made a complaint to anyone of this condition?

A: Yes, to Orrin Minnick, the brattice man, and to the fire-boss, Mr. Caldwell.

Q: What action did Mr. Caldwell take?

A: He didn't seem to understand the cause for the lack of air.

Q: Did he himself say that he didn't think the air what it should be?

A: He didn't express himself.

Q: What was done to improve it?

A: Nothing.

Q: What did the brattice man say?

A: He didn't know the cause for it.

Q: How long ago was this?

A: Just a few days previous to the explosion.

Q: Did any of the others make complaints about the air?

A: Yes, Bill Overstreet, Harrison Bane and Jim Snyder(constantly) Everett Snyder, Syd Snyder, Walton Abbott, Leonard Minnick and Edgebert Gravely.

Q: And these complaints were made just a short time before the explosion?

A: Yes, within three weeks. I had said something to Harrison Bane, Jim Snyder two or three days before.

Q: Why didn't you report this?

A: Was expecting a change by the door being moved down closer to #5 East to get better air. But this didn't seem to help it.

Q: This door was put in the new location prior to the explosion?

A: Yes.

Q: What improvement did you notice?

A: It was worse instead of better.

Q: Were there any particular conditions to convince you that the air was worse?

A: Yes. You could tell by smoke and dust staying in there instead of going out.

Q: Why do you think moving the door made this worse?

A: I don't know.

Q: How far was the break-through in the last few days from the face of the room?

A: About fifteen feet.

Q: What was the distance from the face of the room to the break-through at the time the door was moved?

A: About fifty or sixty feet.

Q: And you still maintain that the air was worse after the door was moved?

A: Yes.

Q: When tests for gas were made, have you any recollection of any being found?

A: No.

Q: When the fire-boss made his second inspection did he test for gas?

A: No.

Q: Have you ever seen him make tests for gas in the room on his second inspection?

A: Yes.

Q: Have you ever made a request of the fire-boss, or complained to him that there was gas in your working place that he didn't make a test for gas?

A: No.

Q: Did he ever find any gas when he made a test at your request?

A: Yes. In the mouth of an air-course.

Mr. Stanton Q: Does the foreman inspect your place every day?

A: No.

Q: How often does he visit your place?

A: It has been about ten days since he has been in my place.

Q: Who works with you?

A: Mr. Lykens.

Q: Have you ever smoked in the mines?

A: No. Not within ten days.

Q: Didn't you know that if you smoked in the mines that it was in violation of the law, and endangered the lives of every man in there?

A: Yes.

Q: Why did you do it?

A: Others were smoking and I asked for the cigarettes after they had finished.

Q: Did you not know that men have been discharged for having cigarettes and matches in the mines?

A: No.

Q: Don't you know that Lewis Richardson and a man named Mitchell were discharged for this?

A: I knew that Richardson was discharged but I didn't know about the other man.

Q: Isn't it a matter of ~~general~~ general knowledge of all employees in this mine that when a man is discharged all of the men in the mine know why?

A: Yes.

Q: When you men all know that you will be discharged for smoking in the mine, why do you do it?

A: It is a customary practice.

Q: Have you reason to believe that if a violation of this rule was reported to the superintendent of this mine, that the man would not be discharged?

A: No. If he had sufficient evidence he would fire the man.

Q: How are the cigarettes smuggled in?

A: I do not know.

Q: Why didn't you report it if you saw anyone smoking?

A: Because I knew they would make me out a liar, and outnumber me three to one.

Q: To what do you refer?

A: I am referring to the time Robert Bane reported Quincy Akers.

Fred Minnick.

Q: What is your name?

A: Graham Hopkins.

Q: Where do you live?

A: Parrott.

Q: Where do you work?

A: In the mines of the Pulaski Anthracite Coal Company.

Q: What shift do you work?

A: Extra.

Q: Where do you work in the mines?

A: The last place I worked was in #6 room, #6 East, on the day shift on the day of the explosion.

Q: What was the condition of the ventilation?

A: Good and bad at times.

Q: Did you complain of the ventilation?

A: Only to the men.

Q: What was your reason?

A: I thought the condition was serious but would not risk losing my job.

Q: Have you known of men making complaints being discharged?

A: I am not positive.

Q: Do you smoke?

A: No.

Q: Who works with you?

A: Everett Snyder.

Q: Did you see any men smoking?

A: Yes.

Q: Who were they?

A: Claude Subblett, Homer Hamblin, Walton Abbott, Chas. Bland, Quincy Wade, Fred Minnick, Wm. Overstreet, Wendell Ritter, Syd Snyder, Frank Albert, Morris Chadwell, Frank Kincaid, Preston Goad, Thomas Goad, Taylor Mitchell, Clayton Price, Bud Duncan, Charley Crossell, Jess Perdue, Frank Thomas, in general all smoke.

Q: Are you men searched every morning?

A: Yes.

Q: What is your idea as to how they get matches in the mines?

A: Do not make close enough inspection.

Q: Have you ever carried matches or cigarettes into the mine?

A: No.

Q: How long have you worked in #5 East Entry?

A: One week.

Q: Did the fire-boss on his second inspection examine your place for gas?

A: No.

Q: How often does the mine-foreman examine your place?

A: Very seldom.

Q? Did you know of hazardous conditions?

A: Yes. So many men smoked that I didn't see my use of making report, because they would make me out a liar.

Q: Why did you not report to the superintendent or mine foreman?

A: I was afraid.

Q: Has the mine foreman asked you if you have seen anyone smoking in the mine?

A: Yes.

Q: Did the mine foreman ask you who you saw smoking?

A: I am not positive.

Graham Hopkins.

MINE MAP

PULASKI ANTHRACITE COAL CO
PARROTT VA

Scale 1"- 100'
SHEET NO 2

A MURRILL E-
BLACKSBURG

DATE OF SURVEY
JAN-12-1931.
JUNE 15 1931
Aug 22 1931

2000 1000 500 0 500 1000

BARRIER PILLAR

200' PILLAR

Hoist

E=1257

E1227

N 11281
E 1210
EL 2214

PUMP

E-1150

E=1015

Pump

Hoist

B 406

DS-1

DS 2

DS 3

B 904

B 450

Point of Origin

903-465

DS 4

DS 5

B 466

B 459

B 449

Lower 6 FT

E 361

200 Ft
Pump

7 MEN
ESCAPED

Approximate Limits
of Violence

Probable Extent of Flame

BLUE FIELD

CENTER LINE NEAR BLUEFIELD

S 33° E

S 22° E

S 33° E

- ●← Body
- → Ventilation
- ⌓ Door
- = Wall Stopping
- ⬅ Forces