



Report

1928

Peabody Coal

REPORT OF EXPLOSION

MINE NO. 30

BLACK MOUNTAIN CORPORATION,
KENNEDY, HARLAN COUNTY, KENTUCKY

by

Alex U. Miller,
Asst. Mining Engr.
U. S. Bureau of Mines,
Vincennes, Indiana.

and

G. T. Powell,
Foreman Miner,
U. S. Bureau of Mines,
Evansville, Indiana.

REPORT OF EXPLOSION

MINE NO. 30

BLACK MOUNTAIN CORPORATION,

KENVIR, HARLAN COUNTY, KENTUCKY

May, 1928

About 6:30 P.M. May 22, 1928, an explosion occurred in Mine No. 30 of the Black Mountain Corporation, Kenvir, Harlan County, Kentucky, resulting in the death of eight men, one of whom died from the effects of breathing after-damp while assisting with the recovery work.

The explosion occurred during the night shift when there were sixty-eight men in the mine, of whom sixty-one escaped unassisted. Eight of those who escaped were temporarily imprisoned until ventilation was partially restored, which was about eight hours.

It is believed that the explosion had its origin in the 3 Right Main entry and was due to mud capping a fall of slate with dynamite.

The explosion was propagated by coal dust and involved only a portion of the mine.

No rock dusting had been done in the mine. Water cars are used for sprinkling the roadways whenever the management deems it necessary.

At the time of the explosion, Bureau of Mines Car #4 was located at Lexington, Kentucky. A request for the services of the Car was received at 7:30 P.M. The Car left Lexington, Ky., about 8:20 P.M. May 22, 1928 and arrived at Kenvir, Ky., about 3:30 A.M. May 23, 1928. Part of the trip from Corbin, Ky., to Kenvir, Ky., was made by special engine, as there was no regular train service at that time.

When the explosion occurred, Mr. Edward Graff, Foreman Miner of the Bureau Mines Station at Norton, Virginia, was at Bonnie Blue, Virginia. He was notified of the explosion about 8 P.M. and arrived at the mine about 4:30 A.M. While Bonnie Blue is about five miles across the mountains from Kenvir, it was necessary for Mr. Graff to drive, via Government truck, about fifty miles over very rough roads before he could get to the mine.

During the recovery work, Messrs. Kessler, Graff, and Miller, assisted in the explorations, and restoring ventilation. Mr. C. F. Herbert, remained on Car 4 and issued supplies.

LOCATION AND OWNERSHIP

Mine No. 30 is located at Kenvir, Harlan County, Kentucky, and is operated by the Peabody Coal Company of Chicago, Illinois. The mine is served by the Louisville and Nashville Railroad.

The officials of the Company are as follows:

President	-	Stuyvesant Peabody,	Chicago, Ill.
Vice President	-	Moses Peltier,	" "
Assist. Vice Pres.	-	George McFadden,	" "
" " "	-	David Devonald,	" "
Div. Superintendent	-	E. B. Childers,	Kenvir, Ky.
Mine Manager	-	Easton Sexton,	" "

SURFACE OPENINGS

What is termed Mine No. 30 is really two separate sections, or mines, with a single tippie for the two mines. One section lies in the mountain, south, and the other in the mountain, north of the railroad. The coal seam is about 500 feet above the base of the mountains and is reached by two drifts at each mine. One drift serving as an air course, and the other as a haulageway. About 700 men work in and around both sections, and produce about 3300 tons per day. The coal is dumped into a bin at each mine and then carried down the mountain side to the tippie by means of a retarding conveyor of the rope and disc type.

The explosion occurred in the section south of the railroad in which about 315 men work on the day and 75 on the night shift. The daily output of this section is about 2400 tons. The following descriptive matter deals with the section in which the explosion occurred.

COAL BED

The mine is working the #5 seam of the Kentucky series. At this point it averages about 40 inches in thickness.

METHOD OF WORKING

The coal seam is worked on a panel system. Main entries are driven 2000 feet apart and room entries 420. All entries are driven 12 feet wide with 36 foot pillars between. The barrier pillars are 150 feet wide. Some of the entry and room pillar coal is extracted. All of the coal is undercut before it is shot.

Analysis of face samples of coal will be found in the appendix.

GAS AND VENTILATION

The mine is ventilated by a 5' x 3' motor driven Jeffrey fan which

is operated blowing. It is so constructed as to be reversible. The fan is running at 160 R.P.M. and is producing about 55000 cubic feet of air per minute. Stoppings are constructed of wood, slate and canvas. Canvas and wooden doors are used for deflecting the air currents. There are two main splits. The mine is considered as being non-gaseous by the State Department of Mines. It is not examined before the day or night shifts report for work.

Tabulated results of the air analyses will be found in the appendix of this report.

HAULAGE

Mechanical haulage is used throughout the mine. Three trolley locomotives are used for main line haulage and 13 storage battery locomotives are used for gathering the coal at the face.

Forty pound rails are used on the entries and twenty pound in the rooms. The track gauge is 48 inches. The cars are constructed of wood, of the tight end type and have a capacity of about 2000 lbs. The main haulage is on the return air.

LIGHTING

All underground employees use open carbide lights. The main haulageways are lighted with electricity.

UNDERGROUND MACHINERY

The underground machinery consists of four electric pumps, two motor generator sets, fourteen cutting machines and sixteen electric locomotives. All underground electrical equipment is of the unapproved type and is operated on 250 volt D.C. current. The trolley wires are very

well hung but are unguarded at crossings. It was also observed at one place in the 15 Left Main that the uninsulated machine wire was placed along the roof and in the center of the roadway.

EXPLOSIVES

Permissible explosives, Hercules Red H.L.F. Brand, No. 6 detonators and fuse are used for blasting coal. The size of the stick is $1\frac{1}{8}$ " x 6". Hercules 40% dynamite is used for blasting rock and slate. The miners carry their supply of explosives into their working places. The writers were informed that some of them have been riding the man trips with their supply of explosives. It was observed that some of the miners were issued a full box of explosives and detonators. This is entirely too much explosives for a miner to have in his place at one time. It was also observed that some of the miners kept their detonators on the box of explosives. This is a dangerous practice that should be discontinued.

The miners drill, charge, tamp, and fire their own shots. Fire coal is used for stemming. The shooting is done at any time during the working shift. The writers were informed that some of the miners, after charging their shot holes, use a short fuse on the primer stick. They then light the fuse and place the primer stick and one dummy in the shot hole and run to a place of safety. This also is a very dangerous practice which should be prohibited.

DRAINAGE AND DUST

The accumulations of water in mine No. 30 are not very large. With the exception of a few dip workings, all sections of the mine visited by the writers were comparatively dry. Four small electric pumps are required to keep the water pumped out.

There was considerable coal dust in the sections visited during

the inspection. Very little inert material becomes mixed with the roadway accumulations after entries are brushed. The dust on the cross entries seems to contain very little incombustible matter. According to the last report of Mine No. 30, made by the State Mine Inspector, there was considerable fine dry coal dust on the entries where the explosion was the most violent.

MINE CONDITIONS PRIOR TO EXPLOSION

From the information obtained, the fan had been in continuous operation during the day, and other conditions in and around the mine were apparently normal.

PROPERTY DAMAGE

While the explosion affected only a portion of the mine, it was somewhat violent and covered considerable area. Four trap doors, one overcast, and about sixty stoppings were blown out. Many timbers were blown out which permitted considerable slate to fall.

Friday, May 25, the management started to remove the debris and rebuild permanent stoppings and on May 30, with the exception of the 9th Right Main section, the mine was again in operation.

FORCES

The writers are of the opinion that the explosion originated on the 3rd Right Main entry, about 600 feet inby the Main entry, and traveled in and outby this point. Inby the 3rd, Left 3rd right entry there was a diminution of forces. The force dying out at a point midway between the 5th and 7th Left entries.

At the mouth of the 3 Right Main entry there was a division of forces. The force traveling inby and outby along the main entry. The fan

drift and housing were partially destroyed at the drift mouth. As the explosion traveled inby along the main entry it seemed to build up to some extent. Thirty-three empty cars, which were standing on a side track opposite the 7th Left Main entry, were badly wrecked. Part of the force went in the 7th Left and then in the motor barn, which is turned off the 7 Left and partially wrecked the switch board and moved a 200 KW motor generator set about 3 inches. This set was grouted to the foundation instead of being bolted.

At the 9th Right entry the main force again divided, part going inby on the Main entry and part going in the 9th Right. As the force traveled inby on the 9th Right it seemed to increase in violence. A number of cross bars were dislodged, causing several large falls of slate. Inby the 18th Left there was a gradual diminution of forces, and there is very little, if any, evidence of force inby the intersection of the 9th Right and 17 Left 3rd Right Main.

The force continued inby on the Main entry until it reached a point about midway between the 13th and 15th Right entries, when it died out. The forces did not travel any great distance in the left or right entries inby the 9th Right.

All of the stoppings between the main entry and air course were blown out from the drift mouth to the 13th Right Main entry. The overcast at the mouth of the 3 Right Main entry was destroyed. Trap doors were blown out at the crossovers opposite the 9th, 11th, and 13th Right Main entries. An automatic door on the main entry about 200 feet inby the 13 Right was also destroyed. A trap door on the 11th Right Main was pushed through the frame but not seriously damaged.

EVIDENCE OF HEAT AND FLAME

On the 3 Right Main entry the insulation on the power cable and phone wires was badly burned. There were deposits of coked coal dust on the props set along the entry. On the main entry the insulation of the power cable and phone wires was burned. Between the 9th and 13 Right entries there was evidence of extreme heat, as some of the timbers were badly burned and there were heavy deposits of coked coal dust on many of the props along the entry.

On the 9th Right Main entry the insulation of the power cable was burned, but otherwise there is very little evidence of heat on this entry. Doubtless this was due to the violence of explosion along this entry.

The bodies that were found in the motor barn and on the 3 Right Main entry were burned.

RECOVERY WORK

The following were notified and arrived as soon as possible, after which they assisted with the recovery work: Chief and District Inspector from State Department of Mines; Mine Rescue teams from, U. S. Coal and Coke, Lynch, Kentucky; Fordson Coal Co., Kentonia, Ky.; Wise Coal and Coke Co., Dorchester, Virginia; U. S. Bureau of Mines Car #4, and the foreman of U. S. Bureau of Mines Station at Norton, Virginia.

In the meantime the management proceeded to restore ventilation by repairing the drift and housing of the fan. After this was done they then started to place temporary canvas stoppings in the affected area.

The recovery crews entered the mine by going in the main air course up to the 3rd Right Main entry. At this point, canvas stoppings were placed across the mouth of the 3 Right, in the air course inby the

3 Right, and on the main haulage outby the 3rd Right so as to force the total volume of air up the main entry. After this was done three bodies were recovered from the motor barn, which is turned off the 7 Left Main about 300 feet inby the mouth of the entry. It was during the recovery of these three bodies that three of those who were assisting with the recovery work attempted to go into the motor barn before the irrespirable gases had been removed, and without any protection, one of the three was overcome with afterdamp. He was removed to fresh air and given artificial respiration for some time, but finally died.

The recovery crews then advanced to the 11 Right Main entry. It was during this time that one of eight men who had retreated to the face of the 11th Right entry, after the explosion, came out and met the recovery crews. He then returned to the face of the entry and notified the other members of the party who then came out unassisted. This was about 2:30 A.M. May 23.

After exploring the 11 Right entry as far as the 7 Left without finding additional live men or bodies, it was decided to retreat to the 3 Right Main and force the total volume of air up this entry and then explore it. This was done and three more bodies were recovered in this section.

After the bodies were recovered in the 3 Right Main section a check was made of those who were supposed to be in the mine and it was found that there was one man still missing. It was then decided to again re-establish the ventilation in the 11 Right Main section, as this was where the missing man worked. However, after restoring the ventilation on the main entry up to the 11 Right, it was found that there was a current of air coming out of the 11 Right. It was then deemed advisable to try and restore the ventilation

on its normal course by forcing the air in the 9th Right Main and having it return the 11 Right. This was done, but owing to the resistance in the 9th Right, due to heave slate falls, and losses caused by so many canvas stoppings outby, it was impossible to get a sufficient volume of air in the 9th Right to make any progress. It was then decided that the only way in which the volume of air could be increased so as to complete the recovery work, was by starting at the drift mouth and replacing the canvas with plastered board stoppings. Preparations for this work was started on May 24th, and the body of the missing man recovered Sunday morning, May 27. Doubtless this man would have been saved had he stayed at his working place.

After the explosion 21 men escaped from the face workings of the 3rd Right section by going out the 3 Right of the 3 Right Main which was holed through to the outcrop. Doubtless, the escape of these men was made possible by the 3rd Right Main being on the return air. Thirty-two men working in the section near the face of the main entry escaped by going out the 13 Left Main which was also holed through to the outcrop. The fact that there were so many openings to the outcrop made it possible to change the ventilation several different ways.

RESULTS OF INVESTIGATION

On May 31 and June 1, a joint investigation was made by the District Inspector of the State Department of Mines, Officials of the Company, and G. T. Powell and Alex U. Miller of the Bureau of Mines. The following information was obtained:

On the evening of the explosion, two employees were instructed to remove a large fall of slate from the side of the haulage way on the 3 Right Main entry. Thirty-six sticks of dynamite were issued to these

two men for the purpose of breaking the slate. Of this amount eight sticks were found after the explosion nearby where the charges were fired.

The evidence seems to indicate that two charges of dynamite, about 10 feet apart, were placed on the slate. Whether clay, or fine dust was placed on the dynamite will never be known, as the man who prepared the shots were killed. After preparing and lighting the charges it is believed that one of the men went inby and the other outby so as to warn any persons who might be going in or out of the entry. The writers are of the opinion that the first charge raised a cloud of coal dust and the second ignited it.

It is believed that if the mine had been thoroughly rock dusted the explosion would have been prevented.

The writers are of the opinion that the principal factor in stopping the explosion was the lowering of pressures due to the expansion of the gases in old and new workings.

The lessons to be learned from the explosion are as follows:

- (1) That mud capping, or shooting debby shots on slate is extremely dangerous.
- (2) That the use of non-permissible explosives in a dusty coal mine should be prohibited.
- (3) It would be less hazardous if the shooting was done after the regular shifts were out of the mine.

RECOMMENDATIONS

1. That instead of mud capping or shooting debby shots, holes be drilled in slate and rock and charged with permissible explosives.
2. That all shot holes be tamped to the collar with incombustible material, and the shots be fired by permissible electric

shot firing equipment after the regular shifts are out of the mine.

3. That only one day's supply of explosives should be taken into the mine at one time. The delivery should be made between shifts with an insulated car, after the electric power is cut off the mine. This can be done with animals, or by using a storage-battery locomotive with an insulated coupling between the locomotive and "powder" car.

4. That all accessible passage ways be rock-dusted and the rock-dusting kept within 50 feet of the face workings. Sufficient rock dust should be applied so that the average analysis of samples of roof, rib and floor dust shall show at least 85% total incombustible. Samples of the rock-dusted area should be taken regularly and when the average percent falls below the above amount in any section it should be re-dusted. Sections of the mine that are inaccessible should be protected by rock-dust barriers.

5. Water sprays should be used on cutter bars and the machine cuttings loaded out while they are in a wet condition.

6. That the miners be required to keep their explosives in a tight box which is provided with a lock and that they keep their explosives and detonators in separate containers and at least twenty feet apart.

7. The U. S. Bureau of Mines recommends that permissible electric cap lamps be used in dusty coal mines.

8. That the mine be examined by competent men, not more than two hours before the shifts start to work.

9. That stoppings on the main air courses should be constructed with some non-inflammable material, such as brick and concrete, and then faced with cement. Trap doors should be used for deflecting the air currents on the entries instead of canvas.

10. That the officials of the Company and some of the other reliable employees take the Advanced Course in Recovery Work after Mine Fires and Explosions.

The writers wish to express their appreciation for the co-operation and courtesies shown the representatives of the Bureau of Mines, by the officials of the Coal Company.

Respectfully submitted,

Alex U. Miller

Alex U. Miller,
Assist. Mining Engineer,

G. T. Powell

G. T. Powell,
Foreman Miner,

APPENDIX

Analysis of face samples of coal, as received, collected by Alex U. Miller,
and G. T. Powell, June 1, 1928.

<u>Location</u>	<u>Lab.No.</u>	<u>Mois- ture</u>	<u>Vol.</u>	<u>Fixed Carb.</u>	<u>Ash</u>	<u>Sul- phur</u>	<u>B.t.U.</u>
Face 1st Right off 15 Left off Main	A42642	3.8	37.4	56.7	2.1	.6	14160
Face 15 Right off 11 Right Main	A42640	3.4	35.5	55.0	6.1	.7	13710
Right Rib Last Cross- cut #2 Main	A42641	3.4	36.9	56.6	3.0	.6	14120
Composite of above	A46643	3.6	36.3	56.4	3.7	.6	14000
Ratio of volatile, plus Fixed Carbon			$\frac{V}{V + F C}$	= .33 plus			

Analysis made at Pittsburgh Laboratory of the U. S. Bureau of Mines,
June 7, 1928 - H. M. Cooper, Analyst.

Volumeter Tests of Roof and Rib Dusts taken by

G. T. Powell and Alex U. Miller

Can #	Sample Location	Kind	% Incom- bustible	Sizing thru 20 mesh	
				% thru 50	% thru 200
1	On Main Entry at 13 Right	Roof & rib	44	36	10
2	On Main Entry at 13 Right	Road	44	47	12
3	On 11 Right Main 20' inby 2 left	Road	32	45	30
4	On 11 Right Main 20' inby 2 left	Roof & Rib	32	65	25
5	On 3 Right Main 10' inby 1 left	Road	32	66	25
6	On 3 Right Main 10' inby 1 left	Roof & Rib	32	77	44
7	On Main Entry Between 5 & 7 Right	Roof & Rib	15	93	75
8	On Main Entry Between 5 & 7 Right	Road	28	66	22
9	On 9th Right Main 100' Inby 7 left	Roof & Rib	15	83	28

Volumeter tests made June 9, 1928 by A. U. Miller, Vincennes, Indiana.

It will be noted that samples of dust collected on the Main entry and on the 9 Right Main, (Cans Nos. 7, 8, 9), were very low in incombustible, as well as high in 200 mesh dust.

The fineness of the dust and the amount of incombustible material are two important factors in the propagation of explosions by coal dust. Doubtless the low ^{content} incombustible and fineness of the dusts on the above entries indicates the reason for the explosion increasing in violence along these entries.

While the tests of the dusts taken on the other entries do not show a sufficient amount of incombustible to prevent propagation under certain conditions, doubtless it contributed, to some extent, toward preventing the explosion from building up on the entries where the samples were taken.

Analyses of Air Samples, Collected at Mine #30 on May 31, June 1, 1921

by G. T. Powell and Alex U. Miller.

<u>Lab.No.</u>	<u>Location</u>	<u>CO₂</u>	<u>O₂</u>	<u>CO</u>	<u>CH₄</u>	<u>N₂</u>	<u>CuFt airPM</u>	<u>Vol CH₄ ea24hrs.</u>
48318	Ret.#2 Main 20' in- by #2 Line Room	.19	20.40	.00	.07	79.34	2500	2520
48320	Ret.#3 Right 50' in- by 1st Right	.20	20.64	.00	.05	79.11	1111 1800	1166 1633 ✓
48322	Main Ret.200' inby 17 Right Main	.66	19.65	.00	.10	79.59	Velocity too low for reading	
48324	Ret.3 Right Main 20' inby 3 Right off 3R	.27	20.56	.00	.05	79.12	3000	4160
48316	Main Ret.20' inby 13 Right Main	.19	20.62	.00	.05	79.14	1750	1260 1220 ✓

When the above samples were taken the ventilation had not been fully restored.

Analyses made June 19, 1923 at U. S. Bureau of Mines Station, Pittsburgh, Pa.,
by W. P. Yant, Chemist.

While the above analyses indicate that the mine is not making a very large volume of methane, it is probable that the volume will increase as the development work advances farther from the outcrop and into territory which has more overburden on the coal. Even with the comparatively small volume of gas liberated when the samples were taken, the writers are of the opinion that there is a distinct gas hazard due to the fact that the mine is working in a territory that is considered as being a non-gaseous field. Laboratory No. 48322, shows an oxygen content of 19.65%, which indicates that the ventilation in this section is somewhat sluggish and should be remedied as soon as possible.

U. S. Bureau of Mines engineers have investigated gas explosions when the volume of methane given off in the mine was even less than that given off in mine #30. It is therefore, suggested that the management consider the mine as being gaseous and treat it as such, by maintaining an ample volume of air at the face workings at all times.

NAMES OF THOSE KILLED BY EXPLOSION

Sam Edwards,	Kenvir, Kentucky	Burned
Asher Hall,	" "	"
Elmer Leach,	" "	"
Clay Quantull,	Londony, Kentucky	"
Lewis Fogarty,	Kenvir, Kentucky	"
B. M. Hagan,	" "	"
Fred Romines,	" "	Overcome by afterdamp

The body of Fred Romines was not found until Sunday morning, May 27.

Frank Chow was overcome with afterdamp in the motor barn while assisting with the recovery work.



Correspondence

05/1928 - 10/1928

UNITED STATES
DEPARTMENT OF COMMERCE

BUREAU OF MINES
Vincennes, Indiana

May 29, 1928



Mr. J. J. Forbes,
Supervis. Engr. Instruction Section,
U. S. Bureau of Mines,
Pittsburgh, Pa.

Thru Mr. Herbert

Dear Mr. Forbes:

Enclosed herewith, are four copies
of preliminary report of the explosion at Mine #30,
of the Black Mountain Corporation, Kenvir, Harlan
County, Kentucky.

Three copies are to be forwarded to the Washington
office, and one retained for your files.

Very truly yours,

Alex U. Miller

Alex U. Miller,
Asst. Mining Engineer

encl.-4

cc
D.Harrington

St. Louis, Missouri
May 31, 1928.

Mr. J. J. Forbes, Supervising Engineer
Instruction Section,
U. S. Bureau of Mines,
Pittsburgh, Pa.



My Dear Mr. Forbes:-

At the recent explosion in Mine #30, Black Mountain Coal Corp, Kenvir, Kentucky, the personnel of Car No.4, assisted with the recovery work.

After a complete check of the equipment, we find that we lost three of our approved flashlights, we used two dozen flashlight batteries and seven (7) of the Burrell all Service Canisters, and lost two of our canary birds.

You will find our requisition No. 14 inclosed herewith for the above supplies with the exception of the canary birds I can purchase them at one of the bird stores here in St. Louis.

Very truly yours,

W. W. Kessler

W. W. Kessler.
Foreman Miner-Car No.4.

cc
Mr. Herbert.
Mr. Miller.
car files.

May 31, 1928. JJF/ee

Mr. D. Harrington,
Washington Office.

Dear Mr. Harrington:

I am forwarding herewith three copies of preliminary report by A. U. Miller on the explosion at the Black Mountain Corporation, Kenvir, Kentucky.

One copy is being retained here in Pittsburgh for our files. Kindly advise us of any corrections to this report in order that the file copy may be changed accordingly.

Very truly yours,

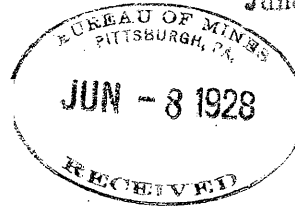


J. J. FORBES
Supervising Engineer
Instruction Section.

Incl.

cc Files

June 7, 1928.



Mr. S. Peabody, President,
Peabody Coal Company,
332 S. Michigan Avenue,
Chicago, Illinois.

Dear Mr. Peabody:

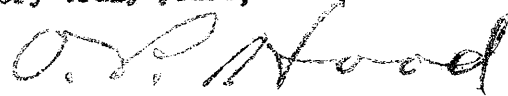
In the course of the Bureau of Mines' study of mine explosions its engineer, Mr. A. U. Miller, has prepared a preliminary report on the explosion which occurred in Mine No. 30 of the Black Mountain Corporation, at Kenvir, Kentucky, May 22, 1928. Studies and reports of this kind are made with the hope of securing information which may aid in preventing similar disasters. Such recommendations are made as seem to be indicated by the conditions in each case.

The explosion on May 22, 1928, resulted in the death of six men and the loss of life to a rescuer. The preliminary investigation into this explosion indicates that while the mine is substantially non-gassy, the coal dust is explosive and propagated the explosion for a distance of about 4,000 feet. The practice of capping dynamite is decidedly hazardous and should be prohibited, more especially when the working shift of men is in the mine. A much safer method of blasting rock is to have all shots fired by a shot firer when all other men are out of the mine and also to have a hole drilled into the rock and the hole charged with a suitable permissible explosive. In order to eliminate or minimize the propagation of explosions by coal dust, all accessible parts of the mine should be thoroughly rock dusted and all sections should be re-dusted when the incombustible content of the dust falls below 65 per cent.

This report and the recommendations are sent to you for your confidential information in the hope that they may be useful in preventing further death and loss from explosions. Reports of this nature are held as confidential by the Bureau, and not published unless by consent of the mining company by whose courtesy these studies were made possible.

If there are any errors or misstatements of fact in the report, it will be appreciated if you will call them to my attention.

Very truly yours,

A handwritten signature in dark ink, appearing to read "O. P. Hood". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

O. P. HOOD, Acting Director,
For SCOTT TURNER, Director.

Inclosure No. 6844

- *cc - Mr. A. U. Miller, Vincennes, Indiana
- *cc - Pittsburgh Office.
- *cc - Safety Div.
- *cc - W. O. Files

UNITED STATES
DEPARTMENT OF COMMERCE
BUREAU OF MINES
Vincennes, Indiana.

June 26, 1928



Mr. J. J. Forbes,
Supervis. Engr. Instruction Section
U. S. Bureau of Mines,
Pittsburgh, Pa.

Dear Mr. Forbes:

There is enclosed herewith, four copies
of report prepared by Mr. A. U. Miller and Mr. G. T. Powell,
of the explosion which occurred in Mine No. 30 of the
Black Mountain Corporation, Kenvir, Harlan County, Kentucky,
on May 22, 1928.

Three of these copies are to be forwarded to Washington
and one retained for your files.

Very truly yours,

A handwritten signature in dark ink, appearing to read "C. A. Herbert". The signature is written in a cursive, flowing style.

C. A. Herbert,
Supervising Engineer.

encl.-4
cc-D.Harrington.

June 28, 1928 jif/d

Mr. D. Harrington,
U. S. Bureau of Mines,
Washington, D. C.

Dear Mr. Harrington:

I am enclosing, herewith, four copies of report on explosion of Mine #30, Black Mountain Corporation, Kenvir, Harlan County, Kentucky which was prepared jointly by Messrs. A. U. Miller and C. T. Powell.

I have gone over this report and have no comments to make. The report as it stands is in fairly good shape.

Very truly yours,

J. J. FORBES,
Supervising Engineer,
Instruction Section.

Enc.

cc
files

Dictated but not read

UNITED STATES
DEPARTMENT OF COMMERCE
BUREAU OF MINES
WASHINGTON

CONFIDENTIAL MEMORANDUM
NOT FOR PUBLICATION

To the members of the Safety Division:

SUBJECT: Mine explosion, Kenvir,
Kentucky.

About 6:30 P.M., May 22, 1928, an explosion occurred in No. 30 mine of the Black Mountain Corporation, Kenvir, Kentucky, resulting in the death of 8 men, one of whom died from breathing afterdamp during recovery work. Sixty-eight men were in the mine at the time of the explosion; 53 escaped unassisted immediately following the explosion and 8 others escaped unassisted about 8 hours after the explosion, when ventilation had been partly restored. It is believed that the explosion was caused by firing two shots of mud-capped dynamite. The first shot probably raised a cloud of explosive dust and the second shot, fired almost at the same time ignited the dense cloud of dust.

Mine No. 30 is located at Kenvir, Kentucky and is operated for the Peabody Coal Company of Chicago, Illinois. The mine is divided into two sections, one on each side of a ravine; the explosion occurred in the section south of the railroad. This section has an employment of about 315 men on the day shift and 75 on the night shift; the daily production is about 2400 tons. The mine is opened by a pair of drifts in the No. 5 bed, averaging 40 inches thick. A panel system of mining is used; pairs of main entries are 2000 feet apart and panel entries are driven in pairs 420 feet apart.

A fan, operated as a blowing unit, delivers about 55,000 cubic feet of air a minute to the mine; the fan is so placed that air currents are readily reversible. Stoppings are constructed of wood, slate and canvas, and wooden and canvas doors are used for deflecting the air current in the two splits. The State Department of Mines classifies the mine as non-gassy and no pre-shift examination is made for gas. Main haulage is on the return air current. Trolley and non-permissible storage-battery locomotives are used for haulage purposes. All underground employees use carbide lights. All underground equipment is non-permissible; trolley wires are unguarded at crossings; and uninsulated machine wire is placed at the roof in center of the roadway.

Permissible explosives, detonators and fuse are used for blasting coal and Hercules 40 per cent dynamite is used for blasting rock. Men carrying explosives sometimes ride in the man trips; as much as a full box of explosives and detonators are issued at one time. Miners prepare and fire shots when the shift is working,

using fine coal stemming; short fuses are also used. Dust is dry and relatively free from inert material, the mine inspector's last report stating that there was considerable fine, dry coal dust on the entries where the explosion was most violent.

The explosion was somewhat violent and covered considerable area; four doors, an overcast, about sixty stoppings and many timbers were blown out. The explosion is believed to have originated on the 3rd right entry about 600 feet from the main entry. During the recovery work, three men attempted to enter the motor barn, without any protection; one was overcome and died in spite of efforts to revive him by artificial respiration. Twenty-one men escaped through openings to the outcrop.

On the evening of the explosion two employees were issued 36 cartridges of dynamite to use in blasting a fall of slate; 8 cartridges were found after the explosion. Evidence indicates that two shots were placed about 10 feet apart on the slate fall and the fuse lighted on each charge; evidently one charge fired first, raised a cloud of dust into the air and this dust was then ignited by the second shot, which fired immediately. Coal dust was ignited and coal dust propagated the explosion. The mine was not rock-dusted; it is believed that if the mine had been thoroughly rock-dusted the explosion could not have occurred.

Practically every unsafe method of blasting, except the use of black powder, was practiced in No. 30 mine. The fact that probably 28 cartridges of dynamite were used in two shots, fired practically simultaneously shows utter disregard for all laws of safe blasting in coal mines. This explosion is not only an example of the hazards of firing mud-capped shots but also an example of the danger of permitting permissible and non-permissible explosives in the same mine. There will continue to be explosions in coal mines as long as other than permissible explosives are allowed to be taken underground. This was purely a coal-dust explosion and if thorough rock-dusting had been practiced, the explosion undoubtedly could have been prevented.

The information contained in this memorandum, abstracted from the final report by A. U. Miller and G. T. Powell, is confidential and should not be published, but may be used in Bureau field work.

C. W. Owings
C. W. Owings

Approved, July 2, 1928.

D. Harrington

D. Harrington.

July 2, 1928.

DE:JK

Mr. Stuyvesant Peabody, President,
Peabody Coal Company,
332 S. Michigan Avenue,
Chicago, Illinois.



Dear Mr. Peabody:

In the course of the Bureau of Mines' study of mine explosions, its engineers, Mr. A. U. Miller and Mr. C. T. Powell, have prepared a final report on the explosion which occurred in mine No. 30 of the Black Mountain Corporation, Kenvir, Kentucky, May 22, 1928. Studies and reports of this kind are made with the hope of securing information which may aid in preventing similar disasters. Such recommendations are made as seem to be indicated by the conditions in each case.

This final report gives more details than the preliminary report sent you on June 7th. Your attention is specifically directed to the many unsafe practices in connection with blasting. The use of non-permissible explosives such as dynamite constitutes a serious hazard in coal mines and, in view of the fact that there are permissible explosives now on the market equal in strength to the dynamite in use at No. 30 mine, this condition should not be allowed to exist. Miners should be issued only sufficient explosives for one day and having full boxes of explosives and detonators in or around mine working places is an extremely dangerous practice. Permitting miners to charge shot holes, using combustible stemming, and to fire shots when the working shift is in the mine, is a very dangerous practice, intensified by the using of short fuse since it is necessary after lighting the fuse that the primer cartridge and one cartridge of stemming must be hurriedly pushed into the hole. Moreover, permissible explosives should be detonated electrically if full safety is to be secured from permissible explosives. I am emphasizing these unsafe blasting practices in the hope that you will give them your immediate attention in order to prevent occurrence of a disaster similar to that of May 22nd.

There is enclosed a copy of serial No. 2533, which points

out the hazards of non-permissible explosives and non-permissible blasting practices.

This report and the recommendations are sent to you for your confidential information in the hope that they may be useful in preventing further death and loss from explosions. Reports of this nature are held as confidential by the Bureau, and not published unless by consent of the mining company by whose courtesy these studies were made possible.

If there are any errors or misstatements of fact in the report, it will be appreciated if you will call them to my attention.

Cordially yours,



SCOTT TURNER,
Director.

CC- Mr. J.J.Forbes
Mr.A.U.Miller and Mr.F.T.Powell,
Safety Division
W. O. Files
Director (pink)

July 12, 1928 33f/a

Mr. D. Harrington,
U. S. Bureau of Mines,
Washington, D. C.

Dear Mr. Harrington:

In checking over A. U. Miller's and G. T. Powell's report of explosion at Mine No. 30, Black Mountain Corporation, Kenvir, Harlan County, Ky. as returned to this office July 5 for Pittsburgh files.

I note that there are some errors in the tabulation of analysis of air samples on page 17. As to total quantity of CH₄ for 24 hours - Laboratory #48320 should be 1166 cu. ft. CH₄ for 24 hours, instead of 1633. Laboratory #48316 should be 1260 instead of 1220. These are the only two that I had occasion to check. Perhaps there may be more inaccuracies. I am calling this matter to your attention for your information. Of course it is too late to do anything for it has already gone to the operator, but it is something that we should lay for in the future.

Very truly yours,



J. J. FORBES,
Supervising Engineer,
Instruction Section.

cc
files

Pittsburgh, Penna. lpc:al
October 8, 1928.

Mr. A. U. Miller,
U. S. Bureau of Mines,
412 La Plante Bldg.,
Vincennes, Indiana.

Dear Mr. Miller:

We are preparing cost data on recent mine disasters and wish that you would let us have quickly the cost figures in connection with the mine disasters at West Frankfort, Ill., on January 9, 1928., and Kenvir, Ky., on May 22, 1928.

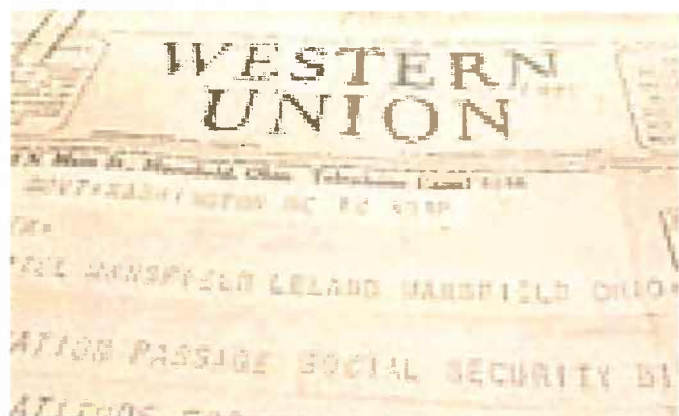
These figures should include cost of transporting Car to mine, cost of subsistence for the Car crew during the recovery work, cost of supplies used in connection with recovery work, and a statement showing the number of days of each employee's time chargeable to the recovery or investigative work. We will appreciate a prompt reply.

Yours very truly,



J. J. FORBES,
Supervising Engineer,
Instruction Section.

cc D. Harrington
files



Telegraph

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NEWCOMB CARLTON, PRESIDENT

J. C. WILLEVER, FIRST VICE-PRESIDENT

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Received at Chamber of Commerce Bldg., Cor. 7th Ave. & Smithfield St., Pittsburgh, Pa.

NDAR117 20 GOVT=VINCENNES IND 28 1103A

1928 MAY 28 PM 12 17
BUREAU OF MINES
PITTSBURGH, PA.
MAY 29 1928
RECEIVED

J J FORBES=

BUREAU MINES PITTSBURG PENN=

MILLER WILL INVESTIGATE EXPLOSION BLUE DIAMOND MINE

EXPECT MAKE INVESTIGATION THIS WEEK AWAITING WORD FROM

JONES CHIEF INSPECTOR REGARDING DATE=

HERBERT.

88.6/

TELEPHONE NO.	4500 MA
TELEPHONE NO.	W.T. (RPTD)
TIME DELIV. REQ.	1231 P
BY	TP
ATTENDED TO	huc
DELIVER	

0-1191

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

GOVERNMENT PRINTING OFFICE 11—9107

IF MESSAGE IS TO WASHINGTON, D. C., SEND COLLECT.

OTHERWISE CHARGE U. S. BUREAU OF MINES Pgh. Pa.
(Station)

Sent by J. J. Forbes,

Title Supervising Engineer, I.S.

Place Bureau of Mines, Pgh. Pa.

Date May 28, 1928.

C. A. HERBERT
U. S. BUREAU OF MINES
VINCENTNES INDIANA

ADVISE IMMEDIATELY WHO WILL MAKE INVESTIGATION BLUE DIAMOND MINE
KENVIR KENTUCKY GIVING DATE PROBABLE START

FORBES

Tel W.U. 5/28/28-12:00 Noon
lps

cc - Harrington
files

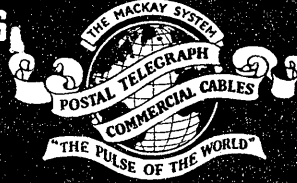
POSTAL TELEGRAPH - COMMERCIAL CABLE

CLARENCE H. MACKAY, PRESIDENT.

RECEIVED AT

STANDARD TIME
INDICATED ON THIS MESSAGE

TELEGRAMS
TO ALL
AMERICA



CABLEGRAMS
TO ALL
THE WORLD

This is a full-rate Telegram
gram, unless otherwise ind
signal in the check or in th

BLUE	DAY LETTER
NL	NIGHT LETTER
NITE	NIGHT TELEGR
LCO	DEFERRED
NLT	CABLE LETTER
WLT	WEEK END LE

CH 8296 30 COLLECT GOVT

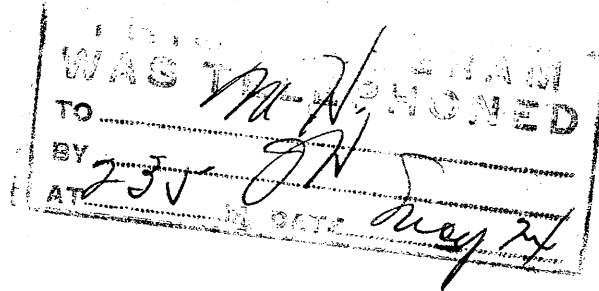
EVARTS KY 24

U S BUREAU OF MINES

PITTSBURGH PA



CAR FOUR ENROUTE LEXINGTON ELEVEN TODAY WASHINGTON NOT ADVISED ONE
MAN NOT YET LOCATED NECESSARY TO RESTORE PERMANENT VENTILATION
REQUIRING ABOUT FOUR DAYS STOP INVESTIGATION IN ABOUT ONE WEEK
HOUSERT.



8.6.6

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WESTERN UNIONS

NEWCOMB CARLTON, PRESIDENT

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 Received at Chamber of Commerce Bldg., Cor. 7th Ave. & Smithfield St., Pittsburgh, Pa. MAY 23 PM 3 57

JB501 ~~28~~ COLLECT=KENVIR KY 23 200P

US BUREAU OF MINES=
PITTSBURGH PENN=

RECEIVED
MAY 24 1928
BUREAU OF MINES
PITTSBURGH, PA.

SEVEN BODIES RECOVERED FROM BLACKMOUNTAIN MINE THIRTY ONE
UNACCOUNTED FOR ORIGIN BELIEVED DUE TO MUD CUPPING ROCK
WITH DYNAMITE RECOVERY WORK PROGRESSING SLOWLY VINCENNES
AND WASHINGTON NOTIFIED=

MILLER.

AD-15 (TRP TO)

mer

Q-117

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WESTERN UNION

NEWCOMB CARLTON, PRESIDENT

J. C. WILLEVER, FIRST VICE-PRESIDENT

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 WLT = Week-End Letter

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Received at Chamber of Commerce Bldg., Cor. 7th Ave. & Smithfield St., Pittsburgh, Pa.

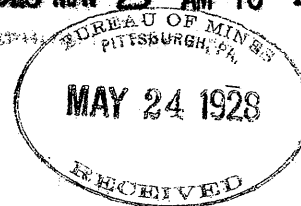
1928 MAY 23 AM 10 45

JB194 ~~16~~ COLLECT=KENVIR KY 23 845A

20-4-2

J J FORBES, US BUREAU OF MINES=

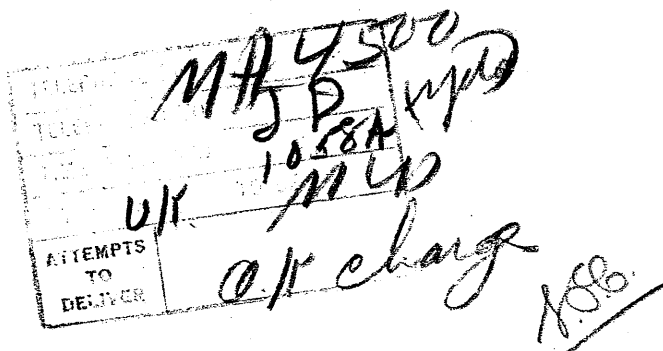
4800 FORBES ST PITTSBURGH PENN=



=ARRIVED KENVIR KY FOUR THIRTY AM EXPECT TO RETURN TO

BONNIEBLUE AS SOON AS POSSIBLE=

GRAFF.



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NEWCOMB CARLTON, PRESIDENT

J. C. WILLEVER, FIRST VICE PRESIDENT

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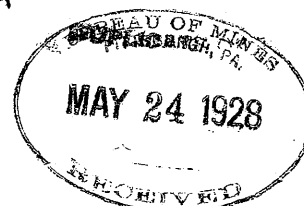
The filing time as shown in the date line on full-rate telegrams and day letters, and the time of receipt at destination as shown on all messages, is STANDARD TIME.

JB177 ~~76~~ COLLECT=KENVIR KY 23 845A

MAY 23 AM 10 31

US BUREAU OF MINES=

PITTSBURGH PENN=



D-1191

EXPLOSION AT BLACKMOUNTAIN MINE NUMBER THIRTY KENVIR KY
 INSTEAD OF EVARTS KY STOP EXPLOSION OCCURRED ABOUT SIX
 THIRTY PM MAY TWENTY SECOND STOP ABOUT FORTY FIVE MEN IN
 MINES WHEN EXPLOSION OCCURRED STOP SEVEN DEAD ONE STILL
 MISSING AND BALANCE ESCAPED STOP CAUSE OF EXPLOSION NOT
 KNOWN MINE NOT ROCK DUSTED STOP CAR NUMBER FOUR ARRIVED AT
 KENVIR THREE THIRTY AM MAY TWENTY THIRD MILLER HERBERT AND
 KESSLER ON CAR STOP VINCENNES AND WASHINGTON NOTIFIED=
 MILLER.

MA 4570
 TO GWT
 UQ 1041A
 ATTEMPTS TO DELIVER

100/

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WESTERN UNION

NEWCOMB CARLTON, PRESIDENT

J. C. WILLEVER, FIRST VICE-PRESIDENT

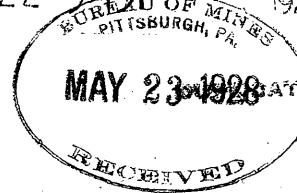
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Received at Chamber of Commerce Bldg., Cor. 7th Ave. & Smithfield St., Pittsburgh, Pa.

[CB1170 26 GOVT=UD VINCENNES IND 22 9/5P 1928 MAY 22 PM 11 24

US BUREAU OF MINES=
PITTSBURGH PENN=



EXPLOSION AT EVARTS HARLAN COUNTY KENTUCKY SEVENTY FIVE
MEN ENTOMBED STOP CAR FOUR LEFT BY SPECIAL TRAIN THIS
EVENING DAVIES AND SELF LEAVING TONIGHT WASHINGTON ADVISED=
HERBERT.

JW (RKH)

TK

1147P

Del AM

Ma 4/500

8560 MA

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NEWCOMB CARLTON, PRESIDENT

J. C. WILLEVER, FIRST VICE-PRESIDENT

SIGNS

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WESTERN UNION

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 Received at Chamber of Commerce Bldg., Cor. 7th Ave. & Smithfield St., Pittsburgh, Pa. **MAY 22 PM 10 46**

1JB674 *56 Centry* COLLECT GOVT=LEXINGTON KY 22 923P

US BUREAU OF MINES=

4800 FORBES ST PITTSBURGH PENN=

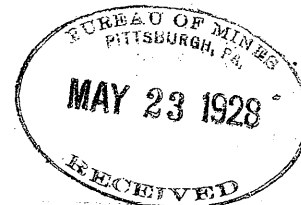
EXPLOSION AT BLACK MOUNTAIN MINING COMPANYS MINE STOP
 EVARTS KENTUCKY STOP REPORTED SEVENTY FIVE MEN ENTOMBED
 STOP REQUEST FOR SERVICES OF CAR NUMBER FOUR STOP CAR
 FOUR LEAVING LEXINGTON FOR EVARTS KENTUCKY TONIGHT AT 820
 PM MILLER KESSLER AND C F HERBERT ON CAR FOUR VINCENNES
 AND WASHINGTON NOTIFIED=

A U MILLER..

8.8.6

TM

May 4 500
JW LRPT
11 P
MAILED





Newspaper Accounts

1928
HARLAN, Ky., May 22. (P)—Fifteen men were unaccounted for tonight after an explosion in mine number 30 of the Black Mountain Coal Corporation at Kenvir, near here. The blast occurred just as the shifts were being changed at 6:45 o'clock, according to a telephoned report from the mine.

The cause has not been determined. A call for a Federal mine rescue squad was sent to Lexington and to Norton, Va., while preliminary attempts to penetrate the mine were made at the shaft.

According to information relayed here from the mine, about 75 were caught by the blast, but all except the 15 escaped. None of the men who had come from the mine was injured, the report said, and it was believed the entombed group would be reached during the night.

HARLAN, Ky., May 23.—(P)—The accidental explosion of a box of percussion caps which set off a load of dynamite was said today to have caused last night's explosion in the Kenvir coal mine, of the Black Mountain Coal Corporation. It cost at least seven lives and threatened 75 other workers, all of whom, however, are believed to have escaped save Frank Romine, who is missing.

The explosion occurred about 1,000 feet from the main entrance after the day shift of approximately 600 men had left. Property loss was estimated at \$20,000.

The dead are Frank Chow, 42, chief electrician; Asher Hall, 47, night foreman; Clay Quintrell, 35, and B. M. Hagard, 35, electricians; Elmore Leach, 22, miner; Louis Fогerty, 25, laborer, and Samuel Edwards, 67, a track layer. All were married.

The first of the seven bodies was brought out early today.