

1934-0001

COAL FATAL

REPORT OF FIRE
MINE NUMBER 10, WEST KENTUCKY COAL COMPANY
WHEATCROFT, WEBSTER COUNTY, KENTUCKY

March 12, 1934
1500000

By

Joseph F. Davies
District Engineer

DEPARTMENT OF COMMERCE

BUREAU OF MINES

MSHA LIBRARY
P. O. BOX 25367
DENVER, CO 80225

REPORT OF FIRE
MINE NUMBER 10, WEST KENTUCKY COAL COMPANY
WHEATCROFT, WEBSTER COUNTY, KENTUCKY

By

Joseph F. Davies
District Engineer

DEPARTMENT OF COMMERCE

BUREAU OF MINES

CONTENTS

	Page
Location	1
Ownership and Officials.	1
The Mine	1
Coal Seam.	2
Employees and Production	2
Surface Plant and Equipment.	2
Fire Protection.	3
Power.	3
Underground Equipment and Haulage.	3
Underground Mining Conditions and Methods.	4
Explosives and Blasting.	5
Ventilation and Gas.	6
Lights	7
Dust	8
Electricity Underground.	8
Supervision.	9
Checking System.	9
Story of the Fire.	9
Summary.	12
Recommendations.	12

Appendix:

Mine Map.

REPORT OF FIRE
MINE NUMBER 10, WEST KENTUCKY COAL COMPANY
WHEATCROFT, WEBSTER COUNTY, KENTUCKY

By

Joseph F. Davies
District Engineer

On the morning of March 12, 1934, five men lost their lives as a result of a mine fire in the Number 10 Mine of the West Kentucky Coal Company.

Location:

The mine is located one and one half miles southwest of Wheatcroft, Webster County, Kentucky. It is served by the Illinois Central Railroad.

Ownership and Officials:

This mine is owned and operated by the West Kentucky Coal Company. The main offices are located at Sturgis, Kentucky.

The officials are:

G. F. Richardson	President	Sturgis, Ky.
T. C. Christian	General Mgr. & Gen. Supt.	Sturgis, Ky.
Davis Reed	Chief Engineer	Sturgis, Ky.
R. L. Gregory	Mine Foreman	Wheatcroft, Ky.

The Mine:

The coal is reached by means of a slope which is used as the haulway and by a shaft which is the intake airway and escapeway.

The slope is about one mile long and was driven on about a 10 per cent grade ^{through rock} until the coal was reached.

Coal Seam:

The coal bed dips generally northeast about 3 degrees, but with undulations. The coal bed in this mine is known as the Number Nine Seam and averages about 50 inches in thickness. There are variable impurities consisting of hard slate and sulphur pyrites.

The immediate roof is a black slaty shale in which there are frequent pyritic concretions.

The floor is a hard smooth fireclay.

Employees and Production:

There is employed an average of about 210 men. There are about 125 loaders and 55 day men underground and 30 on the surface.

The average daily production is 1500 tons, the maximum being 2000 tons.

Surface Plant and Equipment:

The tippie is of steel and corrugated iron construction and is equipped with shaker screens and loading booms. All of the electric wiring is in conduit.

The coal is drawn to the surface by means of single steel rope and a double drum hoisting engine which is driven by a 300 horsepower motor operating on 2200 volts a.c.

The hoisting engine and motor generator set are housed in a brick and concrete building.

The blacksmith shop, oil storage house, and wash house are all of brick and concrete construction. The wash house is separated into two compartments for white and colored. The floors are of concrete. In the shower rooms the concrete floors are rough and are inclined only sufficient to prevent water accumulations. No slipping or falling accidents have occurred in the last 2¹/₂ years.

The general appearance of yards and buildings is orderly.

Fire Protection:

There were only two fire extinguishers noted. These were of the 1-quart size Pyrene type, one in the hoisting engine room and one in the bath house. There are two fire hose connections, one in each the hoist room and bath house, but no hose was observed.

Power:

Purchased power is used.

Underground Equipment and Haulage:

The portal of the main slope is of concrete.

The main slope road is laid with 60-pound rails. Trips of mine cars are drawn up the slope by means of steel rope and the empty trips are returned by gravity. A drag of the single-bar type is used on the rear of all slope trips. Signals for trip movements along the slope are given by means of "shorting" two parallel wires hung adjacent to haulage road. Good clearance is maintained along main slope.

On secondary haulage roads 40-pound rails are used ^{and} with 20-pound rails in rooms. The track gauge is 40 inches.

There are in use 395 mine cars. All are equipped with brakes. A three-link-two-pin type coupling is used.

There are 3 six-ton trolley type electric locomotives used on main line haulage and 6 six-ton trolley type locomotives used in gathering. One mule is used for gathering on one entry.

Separate man trips are run for each section. Persons walk the main slope. The trip rider on the main slope rides between loaded ears, and occasionally officials ride main slope trips.

Seven mining machines of the Sullivan CE-7 type are used; all operate on 250 volts d.c.

There are eight pumps used underground; four small portable type, operating on 250 volts d.c.; two Allais Chalmers 250 volts d.c.; and two large centrifugal type, operating on 220 volts a.c. These last two discharge to the surface through drill holes.

Underground Mining Conditions and Methods:

A room-and-pillar plan of mining is followed. Four parallel main slopes are driven directly down the pitch. Room entries are turned at intervals of about 475 feet and are driven in pairs just slightly off the strike so the grade is in favor of the loads. Rooms are turned on 45-foot centers off the top entry of each pair of room entries. Rooms are driven about 30 feet wide with a pillar of about 15 feet between rooms. The rooms are driven about 400 feet deep, leaving a barrier pillar of about 35 feet thick between the top of rooms and the air course of the adjacent entry above. An occasional room is driven through to the air course above and is used as an airway. Cross cuts are made at the top of every room. These last crosscuts are about 14 feet wide and are in line so as to in substance form a continuous airway.

Main slopes are 14 feet wide, room entries 12 feet wide.

This company is to be complimented on strict adherence to a definite system. The writer has been in several of ^{its} ~~their~~ mines on mine fires and explosions and found it remarkable how accurately ^{the} ~~their~~ maps are made. This is unusual in this field.

On the right side of the mine the plan of timbering in rooms requires three rows of props 5 feet apart and on the left side of the mine 2 rows of props 5 feet apart, and on each side such additional props as may be needed.

All roof sounding is by means of pick, either audible or by vibration.

Entries require very little timbering.

No pillar coal is recovered.

All coal is undercut by electric mining machines.

Machine cuttings are not loaded out before shooting.

Explosives and Blasting:

The surface storage magazine is constructed of brick with a concrete floor and weed roof. It is well ventilated. It is provided with double, steel doors. At the time of inspection there were 63 cases of "Dupont" #3 pellet powder and 23 cases of Big Red #7 Permissible, manufactured by Equitable Powder Manufacturing Company, Alton, Illinois, stored in this magazine.

Western Cartridge Company #6 detonators are used. These are stored in a locked cupboard in the hoisting engine room. At the time of inspection there were 1600 so stored.

Explosives are transported into the mine in regular trips. The original cases are hauled in the regular mine cars.

The explosives are stored in the mine in a special box provided for this purpose, which is usually located in a crosscut on each entry.

Fuse is transported and stored with explosives.

The detonators are carried into the mine by the shot firer, usually in lots of 100. He rides regular man trips.

All holes are drilled, charged, tamped, and fired by shot firers. These shot firers are paid on a tonnage basis. There are seven shot firers employed.

The shots are fired at the end of the shift, but the shot firers do not wait until the men are out of the mine. Consequently, many shots are fired while many of the men are in the mine. In rooms 30 feet wide there are 3 or 4 holes fired and in 21-foot rooms 3 holes.

Charges average about $1\frac{1}{2}$ sticks.

Fuse is used for both Pellet powder and Permissibles.

Ventilation and Gas:

This mine is ventilated by means of a 5-foot by 2-foot "Jeffrey" centrifugal fan at the top of the air shaft, which is operated "blowing". The fan is belt driven by means of a 50 horsepower 2200-volt a.c. motor. At the time of this investigation it was running 342 R.P.M. and developing 1.9 inch water gauge and delivering 54,900 cubic feet of air per minute, 18,480 cubic feet being circulated through the split to the left side of the mine and 38,070 cubic feet to the

18 500
34 400
54 900

right side of the mine. The air splits about 200 feet in by the fan shaft, the air to the right side of the mine passing through the over-cast over the main haulage slope, the air to the left side traversing the air courses paralleling main haulage slope.

The fan is set to the north of the air shaft to which it is connected by an air drift and is protected by explosion doors. An oil engine is provided as an auxiliary power unit and the change can be made by changing the belt.

The right side of the mine is ventilated by a continuous current of air which moves down across the rooms and to the bottom of the main haulage slope, returning up this to the outside. The left side of the mine is ventilated by a current of air moving in a similar way to the bottom of the main haulage slope and returns to the surface.

There are 12 wooden doors hung singly; three of these are located on the main haulage slope.

All of the stoppings along the main slopes are of concrete. The room entry stoppings are of wood.

This mine is not rated as gassy by the Kentucky Department of Mines, but fire bosses are employed to make pre-shift examinations. Their findings are recorded in a book kept for this purpose on the surface. The fire bosses use keylock type, Koehler, flame safety lamps on their gas inspections.

Lights:

All persons underground except fire bosses use carbide lights.

Dust:

Some parts of the mine are dry and dusty and other parts are wet. There is appreciable coal lost from cars in transit, principally due to topping of cars.

No water is used on the cutter bars or at the face. Some rock dusting has been done, but the last application was about a year ago.

Electricity Underground:

There are 9 electric locomotives used underground, all of which operate from the trolley wire which carries 250 volts d.c. All of the trolley wires are well supported and are about 14 inches outside the rail. Guards are provided at crossings and where persons are required to pass under. Power lines and trolley wires are carried in trenches in the roof where they cross over.

There are 7 electric mining machines in use. Current is taken from the trolley wires. Trailing cables are hooked over the trolley wire with the usual hooked ends of the cable wires.

There are eight pumps underground; six of them operate on power taken from the trolley wire and two operate on 220 volts a.c., which is transmitted through bore holes from the surface.

Cut-out switches are provided.

There have been two fatalities from electricity in the last 10 years, one inside the mine and one outside.

Supervision:

There ^{are} ~~is~~ one mine foreman and two face bosses, whose duty it is to supervise all of the mine. It is obvious that to visit all of the working places each day would require very hurried visits. There are two fire bosses who make pre-shift examinations and report on gas and other conditions.

Cooperation between officials and men appears to be very good. Disciplinary measures usually consist of lay-off or discharge.

At least two of the officials of this mine attended advanced mine rescue classes conducted by the U. S. Bureau of Mines a few years ago and some of them attended accident prevention classes a little over a year ago.

Checking System:

A checking system is in use. The usual method of moving a check from one hook to another is used.

Story of the Fire:

On the morning of Monday, March 12, 1934, one of the fire bosses, G. D. Bice, evidently completed his usual pre-shift examination of the 10th, 11th, 12th, and 13th Right sections of the Number 10 Mine of the West Kentucky Coal Company at Wheateroft, Webster County, Kentucky. The only unusual thing reported in his written report was that there was a fire at the face of Room #64 off the 10th Right entry. In this written report there is no recommendation. There is nothing to indicate any serious consideration being attached to the finding and reporting of this fire.

note - It was found later that the fire was in room "65"

Evidently the usual routine of beginning the day's shift was followed and evidently the men were not informed of the presence of the fire, as men entered their working places on the return side of the fire and in the same air current.

Another incident which tends to indicate that no significance was attached to the report of the fire was: A man trip in which there were 10 or 12 men was pushed through the curtain between rooms 62 and 63 on 10th Right and all were plunged into a dense smoke, their carbide lights were extinguished, and all became excited. As soon as the motor-man understood what had occurred he reversed the locomotive and pulled the cars out, bringing all of the men except one who was later found, dead, at the mouth of Room 64. This incident indicates that the seriousness of the mine fire was not apparent to these men or that they were unaware of its presence until they were pushed into the smoke. This also indicates the supervising officials were either unaware of the fire or that they attached ^{little or} no significance to its presence.

It is said that one loaded trip was brought out of the 11th Right entry and that some of the men had to be called out of their working places, although four men were later found dead on this entry.

Evidently considerable confusion reigned, but one story told is significant in its details: "After it was learned that there was serious danger of men being overcome, an empty trip was sent into the 11th Right entry to bring those men out. On the way in the four men who were later found dead on this entry were met making their way out. All of the men that were in the 11th Right section were called and they got into the empty trip and started out. On the way out the four men

who were later found dead were passed, but because of the very weakened condition of the men in the trip the motorman was afraid to stop. As the locomotive was moving around the curve from the 11th Right onto the haulageway this motorman fell out of the deck of the locomotive and fortunately fell clear and the trip moved on to the 10th Right where it was stopped and the story told of the motorman and some others lying at the 11th Right intersection. The general superintendent, who had been called from Sturgis, was at this point and immediately took a locomotive and three cars and, with a colored man operating the locomotive, went down to the 11th Right intersection and loaded three men and the motorman, all of whom were unconscious, into the cars. As the superintendent was placing the last man in the car he became so weakened as to fall, fortunately into the car and the colored man, seeing this, immediately started the locomotive out and reached the fresh air at the intersection of the 10th Right, where all were revived."

This left five men in irrespirable gases who were later found dead.

Mr. E. E. Quenon, Senior Safety Instructor, U. S. Bureau of Mines Car No. 10, was advised of the fire by telephone, and he immediately secured the gas masks, flame safety lamp, and ten portable electric cap lamps and hurried to the mine. He arrived at the mine about 12 o'clock and found considerable confusion about the surface and all of the officials underground.

Shortly after arriving underground he assisted in the recovery of the body which was found on the entry at the mouth of Room 64 off the 10th Right.

After this body was recovered six fire seals were built; one across each of the four cross cuts between rooms 61 and 62, one across the 10th Right entry between Rooms 61 and 62, and one across the air course at about the same point.

As soon as the seals were completed the fresh air moved down through the 11th Right entry and cleared it so the four bodies known to be there were recovered.

Summary:

The following men lost their lives:

<u>Name</u>	<u>Age</u>	<u>Married or Single</u>	<u>Occupation</u>
Frank Hill	47	Married	Loader
John Lee	46	Single	Loader
Henry Owen	34	Single	Loader
Tom Goodlow	35	Married	Loader
Douglas Wood	33	Married	Loader

There was no property damage.

An area involving 9 rooms was temporarily sealed.

Recommendations:

In order to prevent recurrence of the disaster, and to provide greater safety, the following recommendations are made. The adoption of all of these, it is believed, could be done without adding to the ultimate cost of production, and are offered in a spirit of cooperation in the interest of greater safety in the industry.

1. It is believed that this disaster fully emphasizes the extreme hazard incidental to fires underground, and it is recommended that full information regarding it be provided and carefully studied and discussed by every one of the officials in the safety meetings.
2. That a definite order emanate from the main office of the company positively prohibiting any person or persons working or entering upon the return of any mine fire excepting they be properly protected, and then only to perform such work as may be absolutely essential to the control of the fire or for rescue purposes.
3. That every fire underground be considered as dangerous.
4. That as soon as a fire is discovered every person working on the return side and those in the vicinity of the fire be immediately withdrawn and proper steps be taken for its control.
5. That suitable fire-fighting equipment of ample capacity be provided and maintained in such condition and location as to be promptly available in event of fire.
6. That when fire seals have been placed all of that section of the mine outby of such seals be promptly and effectively rock dusted throughout.
7. That Permissible explosives be used for all blasting purposes, and that all shots be fired electrically.

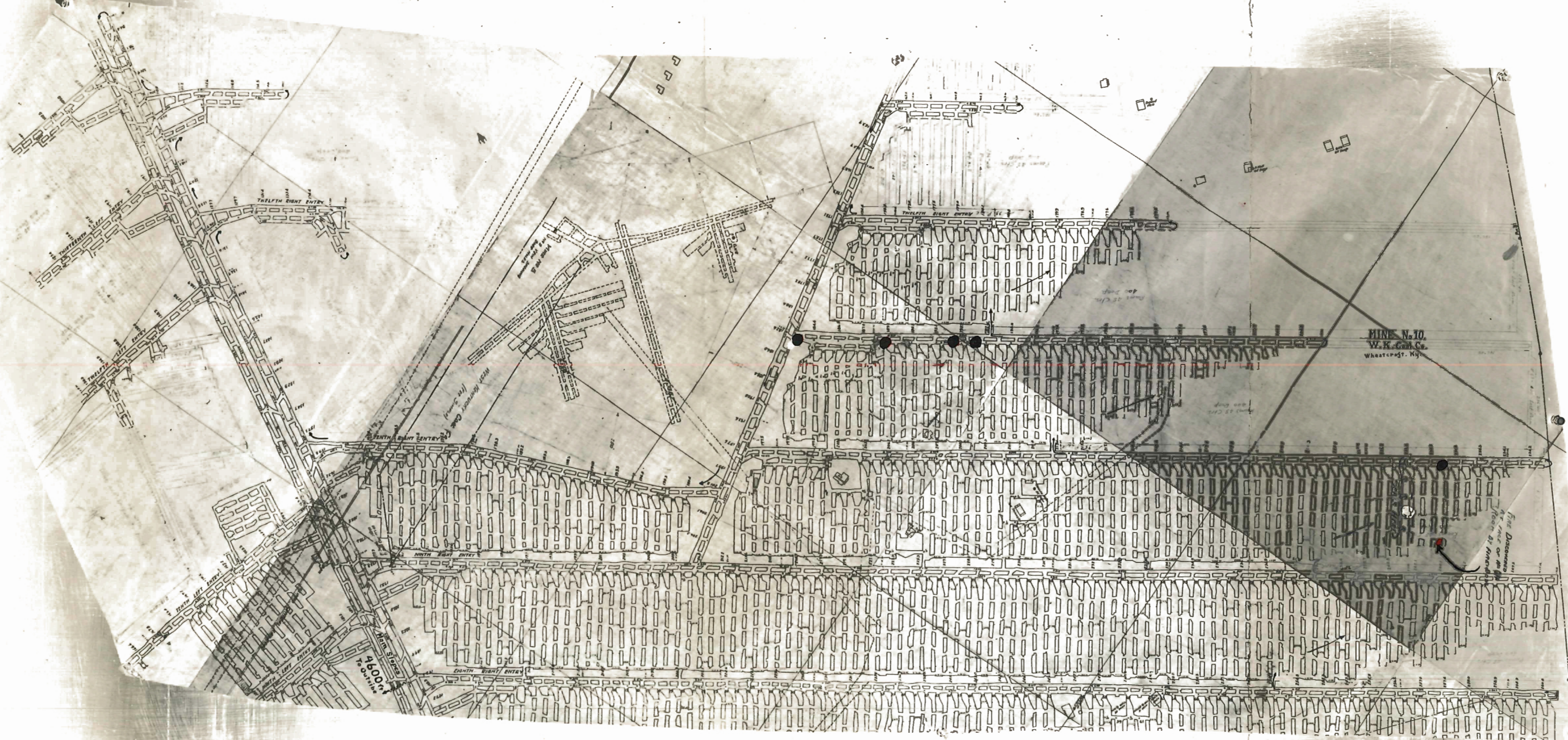
8. That no shots be fired until all persons are out of the mine excepting the shot firers.
9. That no explosives or blasting accessories be transported in regular mine cars nor in regular haulage trips.
10. That no person having about his person explosives or blasting accessories be permitted to ride in regular mine car or on locomotive.
11. That the storage of explosives underground be prohibited.
12. That a study be made of the possibilities of effecting a more economic and effective ventilation of this mine by sealing abandoned sections with strong fireproof stoppings.
13. That consideration be given to making the self-rescuers which are now stored in the warehouse available to the employees underground through the medium of portable caches effectively distributed near the working places, as was discussed with Mr. Christian by the writer.
14. That a selected group from each mine be effectively trained in mine-rescue and fire-fighting methods.
15. That all of the employees be retrained in first-aid methods.

Respectfully submitted,

Joseph F. Davies
Joseph F. Davies
District Engineer

APPROVED:

A P P E N D I X



MINE No. 10.
W. K. C. Co.
Wheatcroft, Ky.

● - Body
■ - Fire