

EXPLOSION REPORT

MOSSBORO NO.1 MINE, PREMIER COAL COMPANY

JANUARY 29, 1926

by

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U.S. Bureau of Mines

CONTENTS

INTRODUCTION	
General Statement	1
DESCRIPTION OF MINE AND PRACTICES	
Location	2
Ownership and Operators	2
Geology	2
Table No. 1 - Sections of Coal Bed.	3
Table No. 2 - Analyses of Coal Samples.	3
Coal Analyses	4
Production and Employment	4
Mining Methods	4
Haulage	5
Explosives	5
Ventilation.	5
Table No. 3 - Location and Analyses of Air Samples.	6
Gas and Air Samples.	7
Dust and Moisture	7
Dust Samples	8
Table No. 4 - Location and Analyses of Dust Samples	9
STORY OF EXPLOSION	10
Rescue and Recovery	11
INVESTIGATION	12
Evidence of Explosion	12
SUMMARY	16
RECOMMENDATIONS	17
ACKNOWLEDGMENTS	18
APPENDIX	
Coal Analyses	
Air Analyses	
Dust Analyses	

EXPLOSION REPORT

MOSSBORO NO. I MINE, PREMIER COAL COMPANY

JANUARY 29, 1926

INTRODUCTION

General Statement:

An explosion occurred at 4:00 P.M. Friday, January 29, 1926, in the Mossboro No. I Mine operated by the Premier Coal Company. The coal is leased from the Tennessee Coal Iron and Railroad Company and located in Section 31, Township 20, South Range 3 West and Section 36, Township 20, South Range 4 West, 25 miles south of Birmingham and 5 miles southwest of Helens, in Shelby County, Alabama. The explosion resulted in the death of 27 men, six affected by gas requiring artificial respiration, the remainder of the men in the mine or 9 in number escaped unassisted and uninjured.

The explosion occurred near the end of the day shift at shooting time and was caused by "windy shots" in 23 room off 5 right. The blown out shots raised and ignited coal dust, probably assisted by a small amount of methane being given off at the face of 5 right. The ignition was propagated by dust from its origin inby to the face and outby to No. I room where it was checked and the flame extinguished by water running down No. I room across 5 right entry and aircourse and thence down the slope.

Most of the stoppings on 5 right were blown out, one on 4 right, one on 4 left and one on 5 left. Very little force was evidenced elsewhere in the mine with maximum violence and all the flame confined to 5 right entry, aircourse and rooms. The affected area is indicated on the mine map which is a part of this report.

DESCRIPTION OF MINE AND PRACTICES

Location:

The Mossboro No. 1 mine is situated about 25 miles south of Birmingham and 5 miles southwest of Helena in Shelby County, Alabama. The tippie is located on the Elceton branch of the Louisville and Nashville Railway, which leaves the main line at Toccoa. The passenger service to the mine, is train to Helena and bus to Mossboro.

Ownership and Operators:

The coal is leased from the Tennessee Coal Iron & Railroad Company and the mine developed and operated by the Premier Coal Company, with offices at Helena, Alabama. The officials are as follows:

G. W. Postell,	Pres. and Gen. Mgr.	Helena, Ala.,
C. T. Hines,	Supt., and Foreman,	Helena, Ala.,

Geology:

The Mossboro Mine is located in the Cahaba Coal field, Birmingham district and belongs to the Carboniferous Age, Pottsville Group, which is a part of the Great Appalachian Coal Measures.

The mine is developed on the Black Shale (Coke, Youngblood) bed which is one of the many beds in the Cahaba Field. The Atkins (Buck) bed lies 200 feet below the Black Shale at Mossboro.

The Black Shale bed in this mine averages 29 inches in thickness of clean coal, from the outcrop it dips 22° to 25° , $S 45^{\circ} E$. Immediately over the coal is 2 inches to 4 inches of rash or black shale, while the main top is hard blue to black shale. Immediately under the coal is 3 inches to 10 inches of fire clay which is hard when first uncovered but soon becomes plastic. The main bottom is hard slate. The mine was sampled at 3 places by Cash and Saxon, February 4, 1926.

TABLE NO. 1

Sections of Coal Bed

Can No. Lab. No.	H 55 A 19258	D 685 A 19259	E 135 A 19257
Main Top	Black Shale	Black Shale	Black Shale
xRash	0' 3"	0' 2"	0' 4"
Coal	5' 2"	4' 0"	2' 6"
Floor	Fire Clay	Fire Clay	Fire Clay
Main Floor	Slate	Slate	Slate

TABLE NO. 2

Analyses of Coal Samples

Lab. No.	Moist %	Vol. Mat. %	Fixed Carbon %	Ash %	Sul. %	BTU	Location
A19257	3.7	34.1	55.7	6.5	0.8	13690	5 Lt. and Slope.
A19258	2.9	34.7	54.3	8.1	0.7	13600	34 Room 4th Lt.
A19259	2.7	35.0	56.2	6.1	0.8	13910	5 Rt. Face
A19260	3.1	34.6	55.2	7.1	0.8	13750	Composite.

Analyses on "As received" basis.
Complete analyses appended.
x = excluded.

Coal Analyses:

In Table No. 1, the sections of coal at points sampled are given and in Table No. 2, the analyses of these samples are given on "as received" basis. Complete analyses are appended to this report.

It will be seen that the moisture in the coal runs around 3 per cent and the ash 7 per cent. This gives a moisture plus ash content of 10 per cent. The volatile matter 54.6 per cent and fixed carbon 55.2 per cent.

From The similarity of this coal to other coals which have been tested in the Bureau's experimental mine indicates that 68 per cent inert material will be required to prevent propagation in the pure pulverized coal dust. The last column of Table No. 4 gives the total inert (moisture and ash) that should be present in the samples listed, and it is to be observed that all of the samples are deficient.

Production and Employment:

At the time of the explosion Mosabero was producing 225 to 275 tons per day and employing 40 to 50 men underground. On January 29 with 42 men in the mine 234 tons were mined and for the year 1924 the production was 52,547 tons, 20 per cent lump and 80 per cent washed run of mine, or through a 4-inch screen.

Mining Methods:

The Mosabero Mine is opened by a haulage or intake air slope paralleled on the right by a return air slope with a 10-foot pillar between the two. The slopes are driven in the coal from the outcrop on the dip varying from 22° to 25° with their direction S. 45° E. On the left of the slope 100-foot barrier pillars are left and on the right 50-foot pillars. Off the slope room entries are turned 150 to 190 feet apart to right and left and driven double. The lower is driven

wide enough to take care of the gob from bottom brushing for haulage and the upper driven 8 feet wide. Off the upper or return entry, rooms are driven on 36-38 foot centers and 24 feet wide. At the room faces the coal is loaded in metal chutes and slides to the haulage entry. Side tracks are in all haulage room entries between the slope and No. 1 room.

Haulage:

The coal is loaded into loose gate wooden cars on the room entries and pulled by mules to the side tracks near the slope. From these points it is transported by 7/8" rope from a 50 HP Allis Chalmers 2200 volt AC motor geared to a Vulcan single drum hoist to the surface landing. The coal is then pulled by a horse 1000 feet to the tippie.

The track is 36-inch gage, laid of 20-pound steel on wooden ties. There is no room track since the coal can be loaded in a metal chute at the room faces, sliding to the haulage entry.

Explosives:

The coal is shot off the solid with black powder. The breaking shot in each face was supposed to be shot with permissible, fuse and caps but no permissible explosive or detonators were found in any of the powder boxes examined. Fire clay was supposed to be used for stemming but coal dust dummies were found made up in the mine. Holes were often bored at right angles to the face and indications are that 30 to 40 inches of black powder constituted a charge in a 5 to 5-1/2 foot hole.

A sketch of 23 room showing location of holes will be found under "Investigation".

Ventilation:

For details of air travel in the mine refer to the map at the

beginning of this report.

The mine is ventilated by a 6-foot Jeffrey disc fan, belt connected to a small 2200 volt motor with a capacity of 20,000 cubic feet, exhausting. The fan is in line with the return slope and exhausts very close to the intake or haulage slope. A few rock stoppings are used but the majority of the stoppings are built of boards or canvas. The one overcast has a wooden bottom. The air enters the haulage slope, travels to the bottom, splits and ventilates each side on a continuous current. The air enters the lower or haulage room entry and is carried to the face, returns through the working rooms and then to the entry above through rooms which have been cut through. Deflecting curtains are presumably used from the last break-through in rooms to carry the air to the face.

TABLE NO. 3

Location and Analyses of Air Samples, Mossboro Mine,

Date 1926	Lab. No.	Location	Q cu.ft.	CO ₂ %	O %	CH ₄ %	N %	Remarks
2/3	43200	5 Rt. between No. 1 Room.	4800	0.09	20.86	0.07	78.98	Origin Explo- sion. Return
2/3	43201	5 Rt. between No. 1 Room	4800	0.04	20.90	0.06	79.00	Duplicate 43200.
2/4	43202	Main Return 25 ft. inby fan.	15930	0.08	20.88	0.04	79.00	Main Return
2/4	43203	Main Return 25 ft. inby fan	15930	0.10	20.83	0.04	79.03	Duplicate 43202
2/3	43204	5 Lt. return No. 1 Room.	3496	0.07	20.86	0.02	79.05	5 Lt. Re- turn.
2/3	43205	Main Return 25 ft. inby fan.	15300	0.09	20.75	0.06	79.10	Main re- turn.
2/3	43206	Main Return 25 ft. inby fan	15300	0.07	20.83	0.05	79.05	Duplicate 43205.
2/3	43207	5 Rt. inby last crosscut.	-	0.20	16.90	8.90	74.00	Small Feeder.
2/3	43208	5 Rt. inby last crosscut.	-	0.10	17.10	8.40	74.40	Duplicate 43207

Complete Analyses of Air Samples are appended to this report.

Gas and Air Samples:

A few small feeders were found in the mine during the investigation. All samples showed a small amount of methane, the maximum being in Nos. 43207-43208, duplicate samples taken in the last break-through between 5 right and its aircourse. This break-through was shot through but not cleaned up and the ventilating current was traveling through an open crosscut outby where the sample was taken. The face of 20 to 24 rooms inclusive gave 1 inch to $1\frac{1}{2}$ inch cap on a flat wick safety lamp 5 to 8 feet back from the room faces. This was due to temporary ventilation and deflecting curtains too far from the faces.

Dust and Moisture:

The principal sources of dust are solid shooting, loading, drilling and transporting - named in the order of their importance. Solid shooting is responsible for the major part of the dust made in the mine. Four to six holes are shot across a working face, very little attention is given to plasing holes and no snubbing or undercutting is done. Working rooms up the pitch and shooting as described results in fine coal and dust finding its way down the room and in return airways. Loading in the metal chutes and the coal sliding down spills fine coal and throws into suspension coal dust.

The slope floor is damp to wet, the ribs and roof are moist to very dry with large amounts of fine dust. The room entry and room floors are moist to wet, to and including the last room cut-through to the entry above; inby this point they become less and less moist until at or near the face the roadways and room floors are dry. The ribs and roof are dry and dusty where the floor is moist to dry as described above.

The working rooms are very dry and dusty. The abandoned or worked out sections are moist to wet. No attempt is made to wet the dust although there is sufficient water in the mine.

Dust Samples:

Table No. 4, gives the location and analyses of dust samples in the affected area and around the outside limits of the explosion forces. There were 7 rib and 5 floor dust samples taken.

The Bureau of Mines experiments have shown that only the part of mine dusts finer than 20 mesh play a part in explosions. The 20-mesh and finer dusts assist in the propagation of flame, the finer the dust the more dangerous. The smallest percentage of 20-mesh dust was in road or floor dust sample No. 19272 and the greatest amount was in No. 19264, while the smallest percentage through 200 mesh was in sample No. 19269 and the greatest in sample No. 19265.

The rib dusts naturally are finer than the road and floor. The moisture in the coal samples taken varied from 2.7 to 5.7 per cent while the dust ran slightly lower and higher varying from 1.9 per cent in No. 19272 to 6.1 per cent in No. 19264. The ash in the dusts ran considerably higher than the coal due to roof and floor becoming mixed with the coal dust. The ash varied from 12.5 per cent in No. 19266 to 38.0 per cent in No. 19262.

As stated under "Coal Analyses", 68 per cent inert is required in pulverized face coal to prevent propagation of flame in the absence of gas. On account of the moisture plus ash from 15 per cent to 41.1 per cent the inert required, shown in the last column of Table No. 4 varies from 67 per cent to 54 per cent.

Location and Analyses of Dust Samples
 Mosshero Mine
 Table No. 4

Date 1926	Lab. No.	Location	Kind	% thru 20-mesh	100% Cumulative thru 48 mesh	Cumulative thru 100 M	Cumulative thru 200 M	Ratio Y Y + FC	% Moisture	% Ash	% Moisture plus Ash	% Inert Required.
2/4	A 19261	Slope & 5 Right	Rib	55.4	48.4	25.0	14.1	.363	2.1	12.9	15.0	65
2/4	A 19262	Slope & 5 Left	Rib	84.1	79.7	67.0	37.2	.388	3.1	38.0	41.1	54
2/3	A 19263	Slope & 4 Left	Rib	80.7	73.4	46.4	27.0	.380	4.2	33.6	37.8	57
2/4	A 19264	Heading & Air Course 4 Rt. op. 1 Room 5 Right.	Rib	71.9	71.2	63.7	33.3	.368	6.1	25.8	31.9	63
2/3	A 19265	Slope & 3 Left	Rib	74.3	80.6	64.1	50.0	.383	3.7	24.3	28.0	62
2/4	A 19266	4 Lt. Heading & AC op. 15-37 Rooms.	Rib	58.6	52.0	36.7	17.6	.362	4.2	12.5	16.7	67
2/3	A 19267	Heading -AC & 18 Room. 5 Rt.	Rib	42.2	59.4	36.6	23.1	.346	3.3	27.1	30.4	60
2/4	A 19268	5 Rt. 20 Room	Road	46.9	46.3	25.2	10.5	.379	5.1	24.1	29.2	63
2/4	A 19269	5 Rt. 23 Room.	Road	43.0	45.9	22.1	12.4	.396	3.9	36.0	39.9	56
2/4	A 19270	5 Rt. 2 Room.	Road	71.2	64.5	44.6	20.4	.379	2.4	32.5	34.9	56
2/3	A 19271	5 Rt. 26-27 Rooms.	Road	61.4	58.9	35.7	22.3	.353	2.2	20.5	22.7	62
2/3	A 19272	5 Right AC & 11 Room.	Road	30.5	48.7	31.1	13.7	.373	1.9	29.3	31.2	58

Moisture and Ash given on "As received" basis.
 Complete Analyses will be found in the Appendix.
 Add 10% to Inert Column for each 1% or less of methane.

EXTENT AND STORY OF EXPLOSION

The explosion occurred about 4:00 P.M. Friday, January 29, 1926, with 42 men underground. This was during the general shooting time for practically all working places.

The explosion originated in 23 Room off 5 right, as a result of a blown out shot raising and igniting dust and propagating throughout 5 right entries and rooms. There was a small amount of gas which no doubt assisted the flame. The maximum violence and practically all the flame was evidenced in 5 right entries and rooms. When the flame reached No. 1 room and the haulageway opposite, water extinguished it. Water was standing in the haulage entry at this point and a quantity running down No. 1 room from a dam in 4 right, and also across the slope from a sump between 3 and 4 left. Practically all the stoppings in 5 right were blown out. In addition, two stoppings and a door were blown out in 4 right, one stopping and a door in both 4 and 5 left were blown. Practically all the men were on their respective entries or collected near the slope waiting on the man trip.

The explosion resulted in the death of 27 men and 3 mules. Thirteen men escaped unassisted, 4 of which were given first aid treatment when they got outside - the other 9 were uninjured. Two men were carried from 5 left and revived by artificial respiration. Ten men were killed in 5 right by violence and flame, 6 men in 5 left and 11 men on the slope were killed by afterdamp.

At 5:10 P.M. the Bureau of Mines office was called and Weir, Saxon, and the writer were notified at 5:35 P.M. at Corona, Alabama, which is about 65 miles north of Birmingham. The three immediately started by automobile arriving in Birmingham at 8:30 P.M. where Moriwether joined the party. The apparatus was loaded on a Louisville and Nashville Special train which arrived at the mine at 10 P.M.

There were no men working in 1-2-3 and 4 right and 1 and 2 left. All men working in 3 left escaped, three up the slope and 3 out through 2 left and the slope. All men escaped from 4 left except the driver No. 6 who was found dead on the slope near 4 left. Three escaped through the slope and 6 came out through 3 and 2 left and up the slope. All men below 4 left were killed except two from 5 left who were carried out and revived. Eleven men on the slope from 4 right to 5 left and six in 5 left were killed by afterdamp. Ten men in 5 right were killed by violence and flame. One mule found dead at 4 left and slope - one at pump in slope below 4 right, and one at 5 left and slope.

Rescue and Recovery:

When the Bureau was notified, knowing the Premier Coal Company did not have any trained rescue men, The Alabama Fuel & Iron Company was requested to send 5 sets of apparatus and 3 men, the DeBardeloben Coal Corporation to send 10 men and the Woodward Iron Company to send 3 men and all responded. The Bureau had 4 men and 10 sets of apparatus. This gave 20 men and 15 sets of apparatus available for rescue and recovery work. The officials, employees and volunteers had recovered 17 bodies

without apparatus and it was only necessary to use apparatus in 5 right to locate the remaining 10 men unaccounted for. A rescue crew was left on the outside and two crews with apparatus entered the mine. One crew remained at the fresh air base at 5 right and the slope and the other crew explored 5 right finding all ten men dead. The air was carried up 5 right and the bodies removed in fresh air.

Investigation

A joint investigation of the explosion was made by the State Mining Department and the Bureau of Mines, February 3 and 4. The Bureau finished collecting samples February 5, 1926. So far as can be determined no Coroner's inquest was held.

Samples of coal, dust and air were collected throughout the affected area of the mine.

Evidence of Explosion:

The first indication of trouble underground was noticed by the hoisting engineer when an empty trip being lowered stopped near 3 left, as though wrecked. Soon afterwards the men commenced to come from underground and gave the alarm. The fan was neither damaged nor ventilation interrupted above 4 right.

Slope Outby 4 Right:

The three car trip was found wrecked at 3 left and by retracking could be pulled out. Two of the three cars were slightly damaged.

Slope and 4 Right:

Nos. 1 and 2 bodies were found in 4 right near the slope, killed by afterdamp. The dam in 4 right gave way running the water down No. 1

room to 5 right. The door in the heading and stopping in aircourse of 4 left were blown towards the slope. A stopping between heading and aircourse outby the dam and inby the door was blown towards the aircourse. There were no other indications of force in 4 right.

Slope and 4 Left:

Nos. 3, 4, and 5, bodies were found in a tool house in break - through opposite 4 left and No. 6 body in slope just below 4 left, killed by afterdamp. A door in 4 left and stopping in 4 left aircourse were blown away from the slope.

Slope and 5 Left:

No. 7 and 8 bodies were found in the slope above 5 left, - No. 9 and 10 in slope at 5 left, No. 11 in slope below 5 left and Nos. 12, 13, 14, 15, 16 and 17 in 5 left, - all of which were killed by afterdamp.

A door in 5 left and a stopping in 5 left aircourse were blown away from the slope. No other evidence manifested.

Slope and 5 Right:

There were 9 empty cars blown off the side track in 5 right, wrecked, twisted and badly damaged across the slope and in the turn to 5 right. The stopping in 5 right aircourse and door in 5 right were blown towards the slope. All board stoppings between entry and aircourse were blown towards the entry up to and including 18 room. The board stopping opposite 19 room was in place. Inby 19 room canvas was used for stoppings, all of which were burned but part or all of each was hanging in place.

From 23 room the force was inby to the face and outby to the slope as evidenced by stoppings, timbers and cars. All ten bodies were found on the entry, killed by violence and flame. They were found as shown on the mine map as follows: No. 18 opposite 11 room, No. 19 opposite 12 room, No. 20 and 21, 10 feet inby break-through to 13 room, No. 22 and 23 opposite 14 room, No. 24, 15 feet inby chute to 15 room, No. 25, 15 feet inby chute to 16 room, No. 26 opposite 19 room, No. 27 opposite 21 room.

The first coke in 5 right entry was found on outby side of timbers at 18 room chute. Coke was deposited all around the chute timbers at 22 and 23 rooms. The right hand entry rib was coked at 25 room and coke on inby rib of last crosscut. 26 room, coke on inby side of timbers. 25 room, coke on inby of timbers and force down. 24 room, coke on inby of timbers and force down and in 23 room, (see sketch). Coke on roof, ribs, and both sides of timbers beginning 12 feet from the face and increasing towards the aircourse. Very heavy coke on upper rib of aircourse inby and outby 23 room.

22 to 18 Rooms:

Evidence of force was out and down with coke on outby side of timbers and upper rib of aircourse and break-throughs.

17 and 18 Rooms:

On account of the water coming from 4 right into 17 room the floor was moist to damp in 17 and 18 rooms but the flame carried over and was fed by dry dust outby.

16 to 2 Rooms:

Coke was found on the outby side of timbers with indications of force down and out.

1 Room:

The water running down this room normally, assisted by the dam breaking on 4 right was responsible for stopping the flame.

Origin - 23 Room, 5 Right:

Coke was found (see sketch) on the outby side of loading board, post supporting it and the posts opposite break-throughs to 22 and 24 rooms. On all posts below or outby the break-throughs heavy coke was found on inby and outby and also on roof and floor. Some coke was found on all ribs below the loading board with a maximum amount on the upper ribs in the two break-throughs.

Timbers, chute and loading boards were in place with several large lumps between face and boards. No. 1 was the gun or bottom of a hole shot on a day before the explosion. No. 5 and 6 holes had cracked the coal face from floor to roof vertically through each hole. Hole No. 4 had a vertical crack the same as No. 5 and 6 and in addition pulled a vertical crack in the coal face at approximately 60° to the direction of No. 3 hole, the barrel of which was covered by the large block of coal near the center. No. 2 hole was gun-barrelled without cracking the coal face, with one large lump blown off its face. The depth of the five holes as found, it is believed, indicates closely the length of powder charge in each. All five were drilled at right angles to the face with very little or no chance of pulling the coal.

Nos. 3, 4, 5, and 6 resulted in partially blown out shots and No. 2 strictly a blown out shot, raising and igniting dust and the other three holes serving as boosters in rapid succession.

SUMMARY

1. A gassy Mine ventilated by a 6-foot disc fan, with a capacity of 20,000 cubic feet, exhausting near the intake almost in direct line with the return airway.

2. Open flame lamps are used for general lighting and key-locked flame safety lamps for testing purposes.

3. All coal is shot off the solid without proper attention to placing holes.

4. Permissible explosive, caps and fuse are supposedly used for breaking shots and black powder and fuse for all other shooting.

There was no permissible or caps in the several powder boxes examined.

5. Fire clay is available in the floor for stemming but coal dust is used in places.

6. The room and heading faces are from dry to very dry. The haulage entries are from wet to dry. The slope and main returns are wet on the floor but ribs are dry. No precautionary methods are employed for rendering the dust inert.

7. There are dangerous accumulations of dust in rooms and aircourses.

8. The mine makes considerable water, at present about 100,000 gallons per day.

9. Deflecting curtains are not kept near enough to room faces to prevent gas accumulations.

RECOMMENDATIONS

1. Move the fan so that it will not be in line with the return aircourse, also so it will not exhaust so near the intake, and protect it with explosion doors. A good location would be near and at right angles to No. 2 room off 1st left.
2. It is recommended that close supervision of employees be exercised so that the state and company rules be complied with.
3. It is recommended that permissible electric lamps be used for general lighting and approved safety lamps for testing.
4. It is recommended that the breaking shot at least in all faces be undercut and hole not drilled beyond the depth of this cut. More attention should be given to placing holes to prevent blown out shots.
5. It is recommended that permissible explosive, electric detonators and inert stemming be used exclusively and shooting done when men are out of the mine.
6. All deflecting curtains blown down should be replaced and advanced as soon after shooting as practical under the supervision of a competent gas man.
7. The fire boss should make a regular and thorough inspection of the mine each morning as near the beginning of the shift as practical and that the company require a written signed record kept of all such inspections.
8. Gas found by the fire boss should be removed by ventilation by competent gas man before the men are allowed to enter the mine.

9. Empty and loaded cars should be thoroughly wetted in the slope and on the right and left side tracks.


10. It is recommended that at least 15 men trained with rescue apparatus be available at all times.


11. It is recommended that all dust accumulations be removed as far as practical and the mine thoroughly rock dusted. Where impractical or impossible to rock dust, all live workings should be kept thoroughly wet, and abandoned workings separated from active places by rock dust barriers.

12. It is recommended that regular samples be taken of mine dusts to determine when it is necessary to apply additional inert dust.

ACKNOWLEDGEMENTS

The writer wishes to thank Mr. G. W. Postell, President and General Manager and Mr. C. T. Hines, Superintendent and Mine Foreman for the cordial and willing assistance and information given during this investigation.


F. E. CASH,
Mining Engineer.

APPROVED:

Chief of Coal
Mining Investigations.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. **A 19272**
 Sample of **Road** dust (through 20-mesh screen). Can No. **H 236**
 Operator **Premier Coal Co.** Mine **Mossboro**
 State **Alabama** County **Shelby** Bed **Coke or Blackshale**
 Town **Helena, Ala.**
 Location in mine **Ac & 11 Room 5 Rt.**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **556.0**
 Date of sampling **2/3/26** Date of Lab. sampling **2/12/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **F. E. Cash**

		AIR-DRY LOSS 1.1	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture		.8	1.9		
	Volatile matter		26.0	25.7	26.2	37.3 ^(a)
	Fixed carbon		45.6	43.1	45.9	62.7
	Ash		29.6	29.5	29.9	
			100.0	100.0	100.0	100.0
Ultimate analysis	Hydrogen			<u>Grams</u>	<u>Per Cent</u>	
	Carbon	On 20-mesh		613.0	69.5	
	Nitrogen	Thru 20-mesh		556.0	30.5	
	Oxygen	Total wt. of sample		1169.0		
	Sulphur			<u>VM</u>	.575	
	Ash			VM + FC		
Calorific value determined	Calories	Alcohol coke test.				
	British thermal units	Coke present	0.2 to 0.5%			
		CO₂ None				

Screen test, through	Cumulative per cent.
through 20 mesh	100
through 48 mesh	48.7
through 100 mesh	51.1
through 200 mesh	12.7

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

Date, **February 20, 1926.** (Signed) **H. M. Cooper,** Chemist

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

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DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DUST-ANALYSIS REPORT

Test No. _____ Lab. No. **A 19871**
 Sample of **Roed** dust (through 20-mesh screen). Can No. **0796**
 Operator **Premier Coal Co.** Mine **Mossboro**
 State **Alabama** County **Shelby** Bed **Coke or Blackshale**
 Town **Helena, Ala.**
 Location in mine **5 Rt. near Hdg. Opp - 26-27 Rooms.**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **812.0**
 Date of sampling **2/3/26** Date of Lab. sampling **2/12/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **F. R. Cash**

AIR-DRY LOSS 1.4		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	.8	2.2		
	Volatile matter	27.7	27.3	27.9	35.5 ^(a)
	Fixed carbon	50.7	50.0	51.1	64.7
	Ash	20.8	20.5	21.0	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen		<u>Grams</u>	<u>Per Cent</u>	
	Carbon	On 20-mesh	122.0	38.6	
	Nitrogen	Thru 20-mesh	212.0	61.4	
	Oxygen	Total wt. of sample	345.0		
	Sulphur		<u>VM</u>	= .265	
	Ash		<u>VM + FC</u>		
		Alcohol coke test.			
Calorific value determined	Calories	Present large quantity 0.5 to 1.0 %.			
	British thermal units	CO₂ None.			

	Cumulative per cent.
Screen test, through 20 mesh	100
through 48 mesh	58.9
through 100 mesh	35.7
through 200 mesh	22.3

Area from which sample was taken (sq. ft.) _____
 Date, **February 20, 1926.** (Signed) **H. M. Cooper,** _____, *Chemist.*

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

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

~~EXHIBIT~~

DUST-ANALYSIS REPORT

Test No. _____ (Room) _____ Lab. No. **A 19270**

Sample of **Road** dust (through 20-mesh screen). Can No. **00100**

Operator **Premier Coal Co.** Mine **Mossboro**

State **Alabama** County **Shelby** Bed **Coke or Blackshale**

Town **Helena**

Location in mine **No. 2 Room 5 Rt.**

Method of sampling **standard** Gross weight, lbs. _____ Net weight, gms. **706.0**

Date of sampling **2/4/26** Date of Lab. sampling **2/12/26** Date of analysis _____

For B. of M. section **Mine Acc.** Collector **F. K. Cash**

		AIR-DRY LOSS 1.6	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture		.8	2.4		
	Volatile matter		25.1	24.7	25.3	37.9 ^(a)
	Fixed carbon		41.1	40.4	41.4	62.1
	Ash		33.0	32.5	33.3	
			100.0	100.0	100.0	100.0
Ultimate analysis	Hydrogen			<u>Grams</u>	<u>Per Cent</u>	
	Carbon		On 20-mesh	256.0	28.8	
	Nitrogen		thru 20-mesh	<u>706.0</u>	71.2	
	Oxygen		total wt. of sample	992.0		
	Sulphur			<u>VM</u>	.379	
	Ash			VM + FC		
Calorific value determined			Alcohol coke test.			
	Calories		Coke present .1 to .2%.			
	British thermal units		CO₂ None			

Screen test, through	Cumulative per cent.
20 mesh	100
48 mesh	64.5
100 mesh	44.6
200 mesh	20.4

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

Date, **February 20, 1926.** (Signed) **H. M. Cooper,** *Chemist*

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

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DUST-ANALYSIS REPORT

Test No. _____ (Room) _____ Lab. No. **A 19269**
 Sample of **Roam** dust (through 20-mesh screen). Can No. **D 791**
 Operator **Premier Coal Co.** Mine **Mossboro**
 State **Alabama** County **Shelby** Bed **Coke or Blackshale**
 Town **Helena**
 Location in mine **25 Room 5 Rt.**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **521.0**
 Date of sampling **2/4/26** Date of Lab. sampling **2/12/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **Cash and Saxon**

		AIR-DRY LOSS 3.1	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture		.8	3.9		
	Volatile matter		24.6	23.8	24.8	29.6 ^(a)
	Fixed carbon		37.4	36.3	37.7	60.4
	Ash		37.2	36.0	37.5	
			100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen			<u>Grams</u>	<u>Per Cent</u>	
	Carbon		On 20-mesh	690.0	57.0	
	Nitrogen		Thru 20-mesh	521.0	45.0	
	Oxygen	Total wt. of sample		1211.0		
	Sulphur			<u>VM</u>	.296	
	Ash			<u>VM + FC</u>		
Calorific value determined	Calories		Alcohol coke test.			
	British thermal units		Trace of coked particles.			
			00₂ None.			

Cumulative per cent.

Screen test, through 20 mesh 100
 through 48 mesh **45.9**
 through 100 mesh **22.1**
 through 200 mesh **12.4**

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

Date, **February 20, 1926.** (Signed) **H. M. Cooper,** Chemist

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

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DUST-ANALYSIS REPORT

Test No. _____ (Room) _____ Lab. No. **A 19268**
 Sample of **Roam** dust (through 20-mesh screen). Can No. **R 153**
 Operator **Premier Coal Co.** Mine **Hessboro**
 State **Alabama** County **Shelby** Bed **Coke or Blackshale**
 Town **Helena**
 Location in mine **20 Room 5 ft.**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **561.0**
 Date of sampling **2/4/26** Date of Lab. sampling **2/12/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **Cash and Saxon**

		AIR-DRY LOSS 4.5	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture		.7	5.1		
	Volatile matter		28.1	26.9	28.5	27.9 ^(a)
	Fixed carbon		46.0	45.9	46.5	62.1
	Ash		25.2	24.1	25.4	
			100.0	100.0	100.0	100.0
Ultimate analysis	Hydrogen			<u>Grams</u>	<u>Per Cent</u>	
	Carbon		On 20-mesh	684.0	55.1	
			Thru 20-mesh	561.0	46.9	
	Nitrogen		total wt. of sample	1195.0		
	Oxygen					
	Sulphur			<u>VM</u>	- .579	
			VM + FC			
			Alcohol coke test.	None.		
Calorific value determined	Calories		CO₂ None			
	British thermal units					

Screen test, through	Cumulative per cent.
20 mesh	100
48 mesh	46.3
100 mesh	25.2
200 mesh	10.5

Area from which sample was taken (sq. ft.) _____
 Date, **February 19, 1926.** (Signed) **H. M. Cooper,** Chemist.

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

DEPARTMENT OF THE INTERIOR

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DUST-ANALYSIS REPORT

A 19267

Test No. R1b Lab. No. D 887
 Sample of Edna Premier Coal Co. dust (through 20-mesh screen). Can No. D 887
 Operator Alabama Mine Kensboro
 State Alabama County Shelby Bed Coke or Blackshale
 Town Helena
 Location in mine Hdg., -A C & 18 R on 5 Rt.
 Method of sampling standard Gross weight, lbs. 160.0
 Date of sampling 2/3/26 Date of Lab. sampling 2/11/26 Date of analysis _____
 For B. of M. section Mine Acc. Collector P. E. Cash

AIR-DRY LOSS		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	.8	8.5		
	Volatile matter	24.7	24.1	24.9	24.6 (a)
	Fixed carbon	45.7	45.5	47.1	65.4
	Ash	27.8	27.1	28.0	
		100.0	100.0	100.0	100.0
Ultimate analysis	Hydrogen		<u>Grams</u>	<u>Per Cent</u>	
	Carbon	On 20-mesh	219.0	57.8	
		Thru 20-mesh	160.0	42.2	
	Nitrogen				
	Oxygen	Total wt. of sample	379.0		
	Sulphur		<u>VM</u>	<u>.246</u>	
		<u>VM + FC</u>			
Caloric value determined	Calories	Alcohol coke test. Coke particles present in large quantity			0.5 to 1.0%
	British thermal units	CO ₂	None		

Screen test, through	Cumulative per cent.
20 mesh	100
48 mesh	59.4
100 mesh	36.6
200 mesh	25.1

Area from which sample was taken (sq. ft.) _____
 Date, February 19, 1926. (Signed) H. M. Cooper, Chemist.

^a This figure is the ratio of volatile combustible to total combustible. 6-5154

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DUST-ANALYSIS REPORT

Test No. _____ Lab. No. **A 19266**
 Sample of **Rib** dust (through 20-mesh screen). Can No. **25**
 Operator **Premier Coal Co.** Mine **Hosbors**
 State **Alabama** County **Hosbors** Bed **Coke or Blackshale**
 Town **Helena** Shelby
 Location in mine **4 Lt. Hdg. - AG 55-56-57 Rooms**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **425.0**
 Date of sampling **2/4/26** Date of Lab. sampling **2/11/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **P. E. Cash**

AIR-DRY LOSS		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
5.8		1.0	4.2		
Proximate Analysis	Moisture	31.2	30.1	31.4	36.2 ^(a)
	Volatile matter	54.9	53.2	55.5	65.8
	Fixed carbon	12.9	12.5	13.1	
	Ash	100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen		<u>Grams</u>	<u>Per Cent</u>	
	Carbon	On 20-mesh	299.0	41.4	
	Nitrogen	Thru 20-mesh	425.0	58.6	
	Oxygen	Total wt. of sample	722.0		
	Sulphur		<u>VM</u>	.362	
	Ash		<u>VM + FC</u>		
Alcohol coke test		None			
Calorific value determined	Calories	CO₂ None.			
	British thermal units				

Screen test, through 20 mesh _____ Cumulative per cent. 100
 through 48 mesh _____ **52.0**
 through 100 mesh _____ **56.7**
 through 200 mesh _____ **17.6**

Area from which sample was taken (sq. ft.) _____
 Date, **February 19, 1926.** (Signed) **H. M. Cooper,** Chemist.

^a This figure is the ratio of volatile combustible to total combustible. 6-514

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DUST-ANALYSIS REPORT

A 19265

Test No. _____ Lab. No. _____
 Sample of Rib dust (through 20-mesh screen). Can No. D 824
 Operator Premier Coal Co. Mine Mossboro
 State Alabama County Shelby Bed Coke or Blackshale
 Town Helena
 Location in mine Slope and 5 Lt.
 Method of sampling Standard Gross weight, lbs. _____ Net weight, gms. 124.0
 Date of sampling 2/3/26 Date of Lab. sampling 2/11/26 Date of analysis _____
 For B. of M. section Mine Acc. Collector F. E. Cash

	AIR-DRY LOSS 2.4	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	1.4	5.7		
	Volatile matter	28.5	27.6	28.6	38.5 ^(a)
	Fixed carbon	45.5	44.4	45.1	61.7
	Ash	25.0	24.5	25.5	
	100.0	100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen		<u>GRAMS</u>	<u>PER CENT</u>	
	Carbon	<u>On 20-mesh</u>	45.0	25.7	
		<u>Thru 20-mesh</u>	124.0	74.5	
	Nitrogen	<u>Total wt. of sample</u>	167.0		
	Oxygen				
	Sulphur		<u>VM</u>	.393	
Ash		<u>VM + FC</u>			
		Alcohol coke test.	None.		
Caloric value determined	Calories	00₂	None.		
	British thermal units.				

Screen test, through 20 mesh	Cumulative per cent. 100
through 48 mesh	80.6
through 100 mesh	64.1
through 200 mesh	50.0

Area from which sample was taken (sq. ft.) _____
 Date, February 19, 1926. (Signed) H. M. Cooper, Chemist.

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

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DUST-ANALYSIS REPORT

Test No. _____ Lab. No. **A19264**
 Sample of **Rib** dust (through 20-mesh screen). Can No. **D 898**
 Operator **Premier Coal Co.** Mine **Nessboro**
 State **Alabama** County **Shelby** Bed **Coke or Blackshale**
 Town **Helena**
 Location in mine **Hdg. - 10 4 Rt. op 1 Room 5 Rt.**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **253.0**
 Date of sampling **2/4/26** Date of Lab. sampling **2/11/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **F. H. Cash**

ATR-DRY LOSS 5.2		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	1.0	6.1		
	Volatile matter	26.4	25.1	26.7	26.8 ^(a)
	Fixed carbon	45.4	43.0	45.8	63.2
	Ash	27.2	25.8	27.5	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen		<u>Grams</u>	<u>Per Cent</u>	
	Carbon	On 20-mesh	91.0	28.1	
	Nitrogen	Thru 20-mesh	253.0	71.9	
	Oxygen	Total wt. of sample	524.0		
	Sulphur		<u>VM</u>	= .568	
	Ash		VM + FC		
		Alcohol coke test.		None.	
Calorific value determined	Calories	CO₂ None.			
	British thermal units				

Screen test, through	Cumulative per cent.
20 mesh	100
48 mesh	71.2
100 mesh	63.7
200 mesh	35.3

Area from which sample was taken (sq. ft.) _____
 Date, **February 20, 1926.** (Signed) **H. M. Cooper,** _____, *Chemist.*

^a This figure is the ratio of volatile combustible to total combustible. 6-5151

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DUST-ANALYSIS REPORT

Test No. _____ Lab. No. **A19268**
 Sample of **Rib** dust (through 20-mesh screen). Can No. **H 233**
 Operator **Premier Coal Co.** Mine **Hosborne**
 State **Alabama** County **Shelby** Bed **Coke or Blackshale**
 Town **Helena**
 Location in mine **Slope and 4 ft.**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **876.0**
 Date of sampling **2/3/26** Date of Lab. sampling **2/11/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **F. H. Cash**

		AIR-DRY LOSS	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	3.4	.8	6.8		
	Volatile matter		24.5	25.6	24.7	58.0 ^(a)
	Fixed carbon		59.9	58.6	40.2	62.0
	Ash		24.8	35.6	55.1	
			100.0	100.0	100.0	100.0
Ultimate analysis	Hydrogen			<u>Grams</u>	<u>Per Cent</u>	
	Carbon		On 20-mesh	210.0	19.5	
			Thru 20-mesh	876.0	80.7	
	Nitrogen		Total wt. of sample	1086.0		
	Oxygen					
	Sulphur			<u>VM</u>	.580	
Ash			VM + FC			
			Alcohol coke test.	None.		
Caloric value determined	Calories		CO₂ None			
	British thermal units					

Screen test, through	Cumulative per cent.
20 mesh	100
48 mesh	73.4
100 mesh	46.4
200 mesh	27.0

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

Date, **February 19, 1926.** (Signed) **H. M. Cooper,** Chemist.

^a This figure is the ratio of volatile combustible to total combustible. 6-5151

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DUST-ANALYSIS REPORT

Test No. _____ Lab. No. **A 19262**
 Sample of **Rib** dust (through 20-mesh screen). Can No. **00200**
 Operator **Premier Coal Co.** Mine **Wassboro**
 State **Alabama** County **Shelby** Bed **Coke or Blackshale**
 Town **Holona**
 Location in mine **5 Lt. and slope**
 Method of sampling **Standard** Gross weight, lbs. _____ Net weight, gms. **408.0**
 Date of sampling **2/4/26** Date of Lab. sampling **2/11/26** Date of analysis _____
 For B. of M. section **Mine Acc.** Collector **F. R. Cash**

		AIR-DRY LOSS 2.2	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture		.9	5.1		
	Volatile matter		23.4	22.8	23.6	38.8 ^(a)
	Fixed carbon		36.8	36.1	37.2	61.2
	Ash		38.9	38.0	39.2	
			100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen			<u>Grams</u>	<u>Per Cent</u>	
	Carbon		On 20-mesh	77.0	15.9	
	Nitrogen		Thru 20-mesh	408.0	64.1	
	Oxygen		Total wt. of sample	485.0		
	Sulphur			<u>VM</u>		
	Ash			<u>VM + FC</u>		.388
			Alcohol coke test.	None.		
Calorific value determined	Calories	CO₂	None			
	British thermal units					

Cumulative per cent.

Screen test, through 20 mesh 100
 through 48 mesh **79.7**
 through 100 mesh **67.0**
 through 200 mesh **37.2**

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

Date, **February 19, 1926.** (Signed) **H. M. Cooper,** Chemist.

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

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DUST ANALYSIS REPORT

Test No. Lab. No. A 19861
 Sample of Hib dust (through 20-mesh screen). Can No. D 879
 Operator Fraser Coal Co. Mine Mossbore
Alabama County Shelby Bed Coke or Blackshale
 State Town
 Location in mine Slope and 5 Right
 Method of sampling Standard Gross weight, lbs. Net weight, gms. 576.0
 Date of sampling 2/4/26 Date of Lab. sampling 2/11/26 Date of analysis
 For B. of M. section Mine Ass. Collector Cash & Saxon

		AIR-DRY LOSS <u>1.6</u>	COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture		<u>.6</u>	<u>2.1</u>		
	Volatile matter		<u>31.4</u>	<u>30.9</u>	<u>31.6</u>	<u>26.2</u> ^(a)
	Fixed carbon		<u>54.9</u>	<u>54.1</u>	<u>55.2</u>	<u>55.7</u>
	Ash		<u>15.1</u>	<u>12.9</u>	<u>15.2</u>	
			<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Ultimate Analysis	Hydrogen			<u>Grams</u>	<u>Per Cent</u>	
	Carbon		<u>ON 20-mesh</u>	<u>454.0</u>	<u>44.5</u>	
			<u>Thru 20-mesh</u>	<u>576.0</u>	<u>55.4</u>	
	Nitrogen	<u>Total wt. of sample</u>		<u>1040.0</u>		
	Oxygen			<u>VM</u>	<u>.565</u>	
	Sulphur			<u>VM + P O</u>		
	Ash					
Calorific value determined	Calories	<u>Alcohol coke test.</u>				
	British thermal units	<u>Coked particles present in large quantity</u>				<u>0.5% or more.</u>

Screen test, through	Cumulative per cent.
through 20 mesh	100
through 48 mesh	<u>49.4</u>
through 100 mesh	<u>25.0</u>
through 200 mesh	<u>14.1</u>

Area from which sample was taken (sq. ft.)
 Date, February 19, 1926. (Signed) H. M. Cooper, , Chemist.

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

COMMERCE
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GAS ANALYSIS REPORT

Bottle No. 282-281 Laboratory No. 43,207-43,208

Sample of Mine Air

Mine Monsboro Operator Premier Coal Co.

State Alabama County Shelby Township _____

Town (distance and direction from, and railroad) 5 Mi. S.W. Helena, Ala.

Name of coal bed Coke or black shale Sec. _____, T. _____, R. _____

Location in mine SRT Inby last break through

Method of sampling Vacuum Date sampled 2-3-26 Hour _____

Velocity _____ Area _____ Quantity _____

Barometer: Inside 29.50 Outside 29.15

Corrected to sea level: Inside _____ Outside _____

Bulbs: Wet 63 Dry 66 Humidity 84 %

Collector F. E. Gash Mailed _____ Received 2/8/26

Laboratory No. _____	<u>43,207</u>	<u>43,208</u>	Ethane (C ₂ H ₆) _____
----------------------	---------------	---------------	---

Carbon dioxide (CO ₂) _____	<u>0.2</u>	<u>0.1</u>	Hydrogen sulphide (H ₂ S) _____
---	------------	------------	--

Oxygen (O ₂) _____	<u>16.9</u>	<u>17.1</u>	Unsaturated hydrocarbons (C ₂ H ₄ , etc.) _____
--------------------------------	-------------	-------------	--

Carbon monoxide (CO) _____	<u>.00</u>	<u>.00</u>	Sulphur dioxide (SO ₂) _____
----------------------------	------------	------------	--

Methane (CH ₄) _____	<u>8.9</u>	<u>8.4</u>	_____
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Hydrogen (H ₂) _____	<u>.00</u>	<u>.00</u>	_____
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Nitrogen (N ₂) _____	<u>74.0</u>	<u>74.4</u>	_____
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Total _____

Remarks: _____

Date February 11, 1926 (Signed) W. P. Yant,

ASROC 1216 Chemist.

COMMERCE
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 284-286 Laboratory No. 43,205-45,200

Sample of Mine Air

Mine Hossphore Operator Premier Coal Co.

State Alabama County Shelby Township _____

Town (distance and direction from, and railroad) 5 mi. S.W. Helena, Ala.

Name of coal bed Coke or black shale Sec. _____, T. _____, R. _____

Location in mine 25 Ft. Inby fan, Main return (Entry) Return slope.

Method of sampling Vacuum Date sampled 2/5/26 Hour _____

Velocity 720 Area 21-1/4 Quantity 15,000

Barometer: Inside _____ Outside _____

Corrected to sea level: Inside _____ Outside _____

Bulbs: Wet 66 Dry 66 Humidity 100 %

Collector F.H. Gash Mailed _____ Received 2/5/26

Laboratory No.	<u>43,205</u>	<u>45,206</u>	Ethane (C ₂ H ₆)	_____
Carbon dioxide (CO ₂)	<u>.09</u>	<u>.07</u>	Hydrogen sulphide (H ₂ S)	_____
Oxygen (O ₂)	<u>20.75</u>	<u>20.85</u>	Unsaturated hydrocarbons (C ₂ H ₄ , etc.)	_____
Carbon monoxide (CO)	<u>.00</u>	<u>.00</u>	Sulphur dioxide (SO ₂)	_____
Methane (CH ₄)	<u>.06</u>	<u>.05</u>		_____
Hydrogen (H ₂)	<u>.00</u>	<u>.00</u>		_____
Nitrogen (N ₂)	<u>79.10</u>	<u>79.05</u>		_____
Total	_____	_____		_____

Remarks: _____

Date February 11, 1926. (Signed) W.F. Fent,
Associate Chemist.

COMMERCE
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

GAS ANALYSIS REPORT

Bottle No. 287 Laboratory No. 45,204
 Sample of Mine Air
 Mine Hoosboro Operator Premier Coal Co.
 State Alabama County Shelby Township _____
 Town (distance and direction from, and railroad) 5 Mi. S.W. Helena, Ala.
 Name of coal bed Coke or Black shale Sec. _____, T. _____, R. _____
 Location in mine 1 off 5 Lt. Return
 Method of sampling Yacum Date sampled 2/3/26 Hour _____
 Velocity 833 Area 10-1/2 Quantity 3496
 Barometer: Inside _____ Outside _____
 Corrected to sea level: Inside _____ Outside _____
 Bulbs: Wet 60 Dry 62 Humidity 69 %
 Collector F.R. Cash Mailed _____ Received 2/8/26

Laboratory No. <u>45,204</u>	Ethane (C ₂ H ₆) _____
Carbon dioxide (CO ₂) <u>.07</u>	Hydrogen sulphide (H ₂ S) _____
Oxygen (O ₂) <u>20.86</u>	Unsaturated hydrocarbons (C ₂ H ₄ , etc.) _____
Carbon monoxide (CO) <u>.00</u>	Sulphur dioxide (SO ₂) _____
Methane (CH ₄) <u>.02</u>	_____
Hydrogen (H ₂) <u>.00</u>	_____
Nitrogen (N ₂) <u>79.05</u>	_____
Total _____	_____

Remarks: _____

Date February 11, 1926. (Signed) W.P. Yant,
Associate Chemist.

COMMERCE
 DEPARTMENT OF THE INTERIOR
 BUREAU OF MINES
 GAS ANALYSIS REPORT

Bottle No. 365,564 Laboratory No. 45,202 - 45,205

Sample of Mine Air

Mine Monaboro Operator Premier Coal Co.

State Alabama County Shelby Township _____

Town (distance and direction from, and railroad) 5 mi. S.W. Helena, Ala.

Name of coal bed Coke or black shale Sec. _____, T. _____, R. _____

Location in mine 25 ft. inby fan - main return

Method of sampling Vacuum Date sampled _____ Hour _____

Velocity 750 Area 21-1/4 Quantity 15,950

Barometer: Inside _____ Outside _____

Corrected to sea level: Inside _____ Outside _____

Bulbs: Wet 65 Dry 66 Humidity 95 %

Collector F.E. Osh Mailed _____ Received 2/8/26

Laboratory No.	<u>45,202</u>	<u>45,205</u>	Ethane (C ₂ H ₆)	_____
Carbon dioxide (CO ₂)	<u>.08</u>	<u>0.10</u>	Hydrogen sulphide (H ₂ S)	_____
Oxygen (O ₂)	<u>20.88</u>	<u>20.85</u>	Unsaturated hydrocarbons (C ₂ H ₄ , etc.)	_____
Carbon monoxide (CO)	<u>.00</u>	<u>.00</u>	Sulphur dioxide (SO ₂)	_____
Methane (CH ₄)	<u>.04</u>	<u>.04</u>		_____
Hydrogen (H ₂)	<u>.00</u>	<u>.00</u>		_____
Nitrogen (N ₂)	<u>79.00</u>	<u>79.03</u>		_____
Total	_____	_____		_____

Remarks: _____

Date February 11, 1926.

(Signed) W.P. Yarn, Associate Chemist.

COMMERCE
DEPARTMENT OF ~~THE~~ INTERIOR
BUREAU OF MINES
GAS ANALYSIS REPORT

Bottle No. 279 - 280 Laboratory No. 45,200 - 45,201

Sample of Mine Air

Mine Hessboro Operator Premier Coal Co.

State Alabama County Shelby Township _____

Town (distance and direction from, and railroad) 5 mi. S.W. Helena, Ala.

Name of coal bed Coke or black shale Sec. _____, T. _____, R. _____

Location in mine 5 Right Return No. 1 room near 4th rt.

Method of sampling Vacuum Date sampled 2/3/26 Hour _____

Velocity 60 Area 60 Quantity 4800

Barometer: Inside 29.60 Outside 29.15

Corrected to sea level: Inside _____ Outside _____

Bulbs: Wet 60 Dry 61 Humidity 94 %

Collector F. R. Cash Mailed 2/5/26 Received 2/8/26

Laboratory No. _____	<u>43,200</u>	<u>45,201</u>	Ethane (C ₂ H ₆) _____
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Carbon dioxide (CO ₂) _____	<u>.09</u>	<u>.04</u>	Hydrogen sulphide (H ₂ S) _____
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Oxygen (O ₂) _____	<u>20.66</u>	<u>20.90</u>	Unsaturated hydrocarbons (C ₂ H ₄ , etc.) _____
--------------------------------	--------------	--------------	--

Carbon monoxide (CO) _____			Sulphur dioxide (SO ₂) _____
----------------------------	--	--	--

Methane (CH ₄) _____	<u>.07</u>	<u>.06</u>	_____
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Hydrogen (H ₂) _____			_____
----------------------------------	--	--	-------

Nitrogen (N ₂) _____	<u>78.98</u>	<u>79.00</u>	_____
----------------------------------	--------------	--------------	-------

Total _____			_____
-------------	--	--	-------

Remarks: _____

Date February 11, 1926. (Signed) W. P. Yant,

Associate Chemist.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Test No. _____

G-COAL-ANALYSIS REPORT

Lab. No. **A 19260**Sample of **Face Coal**

Can No. _____

Operator **Premier Coal Company**Mine **Hosshore**State **Alabama**County **Shelby**Bed **Coke or Blackshale**Town **Helena**Location in mine **A 19260 - Composite Lab. No. of A 19257-58 and 59.**

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams _____

Date of sampling _____ Date of Lab. sampling _____ Date of analysis **2/17/26**B. of M. or U. S. G. S. section **B of M** Collector **Cash and Saxon**

AIR-DRY LOSS		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
2.4					
Proximate Analysis	Moisture	.8	3.1		
	Volatile matter	35.4	34.6	35.7	38.5
	Fixed carbon	56.5	55.2	56.9	61.5
	Ash	7.3	7.1	7.4	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.0	5.1	4.9	5.3
	Carbon	78.3	76.4	78.9	85.2
	Nitrogen	1.4	1.3	1.4	1.5
	Oxygen	7.2	9.3	6.6	7.2
	Sulphur	.8	.8	.8	.8
	Ash	7.3	7.1	7.4	
		100.0	100.0	100.0	100.0
Calorific value	Calories	7822	7639	7883	8511
	British thermal units	14080	13750	14190	15320

Softening temperature of ash _____ ° C. _____ ° F.

Date **February 26, 1926**(Signed) **H. M. Cooper,**

Chemist.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Test No. _____

G-COAL-ANALYSIS REPORT

Lab. No. A 19259Sample of Face CoalCan No. D 885Operator Premier Coal CompanyMine MossboroState AlabamaCounty ShelbyBed Coke or BlackshaleTown HelenaLocation in mine Face 5 RightMethod of sampling StandardGross weight, lbs. 30Net weight, grams 3Date of sampling 2/4/26Date of Lab. sampling 2/11/26

Da

B. of M. or U. S. G. S. section B of MCollector Cash and Saxo

AIR-DRY LOSS <u>1.9</u>		COAL (Air dried)	COAL (As received)	COAL (Moisture)
Proximate Analysis	Moisture	<u>.8</u>	<u>2.7</u>	
	Volatile matter	<u>35.6</u>	<u>35.0</u>	<u>35.9</u>
	Fixed carbon	<u>57.4</u>	<u>56.2</u>	<u>57.8</u>
	Ash	<u>6.2</u>	<u>6.1</u>	<u>6.3</u>
		<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Ultimate Analysis	Hydrogen			
	Carbon			
	Nitrogen			
	Oxygen			
	Sulphur	<u>.8</u>	<u>.8</u>	<u>.8</u>
	Ash			
Calorific value	Calories	<u>7872</u>	<u>7728</u>	<u>7939</u>
	British thermal units	<u>14170</u>	<u>13910</u>	<u>14290</u>
				<u>15250</u>

Softening temperature of ash _____ ° C. 2110 _____ ° F.Date February 26, 1926(Signed) H. M. Cooper

Chemist.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Test No. _____

G-COAL-ANALYSIS REPORT

Lab. No. **A 19258**Sample of **Face Coal**Can No. **H 55**Operator **Premier Coal Co.**Mine **Mossboro**State **Alabama**County **Shelby**Bed **Coke or Blackshale**Town **Helena**Location in mine **Face 34 Room 4th Left**Method of sampling **Standard**Gross weight, lbs. **25**Net weight, grams **1227.0**Date of sampling **2/4/26**Date of Lab. sampling **2/11/26**Date of analysis **2/17/26**B. of M. or U. S. G. S. section **B of H**Collector **Cash and Saxon**

AIR-DRY LOSS		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	2.2				
	Moisture	.8	2.9		
	Volatile matter	35.5	34.7	35.8	39.0
	Fixed carbon	55.4	54.3	55.8	61.0
Ash	8.3	8.1	8.4		
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen				
	Carbon				
	Nitrogen				
	Oxygen				
	Sulphur	.7	.7	.7	.8
	Ash				
Calorific value	Calories	7728	7556	7789	8500
	British thermal units	13910	13600	14020	15300

Softening temperature of ash _____ ° C.

_____ ° F.

Date **February 19, 1926**(Signed) **H. M. Cooper**

Chemist.

DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

A 19257

Test No. _____ G-COAL-ANALYSIS REPORT Lab. No. **E 135**Sample of **Face Coal** Can No. _____Operator **Premier Coal Company** Mine **Mossboro**State **Alabama** County **Shelby** Bed **Coke or Blackshale**Town **Helena**Location in mine **5 Lt. and Slope**Method of sampling **Standard** Gross weight, lbs. **25** Net weight, grams **1273.0**Date of sampling **2/4/26** Date of Lab. sampling **2/11/26** Date of analysis **2/17/26**B. of M. or U. S. G. S. section **B of M** Collector **Cash and Saxon**

AIR-DRY LOSS 3.1		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	.7	3.7		
	Volatile matter	35.2	34.1	35.4	38.0
	Fixed carbon	57.4	55.7	57.9	62.0
	Ash	6.7	6.5	6.7	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen				
	Carbon				
	Nitrogen				
	Oxygen				
	Sulphur	.8	.8	.8	.9
	Ash				
Calorific value	Calories	7844	7606	7900	8472
	British thermal units	14120	13690	14220	15250

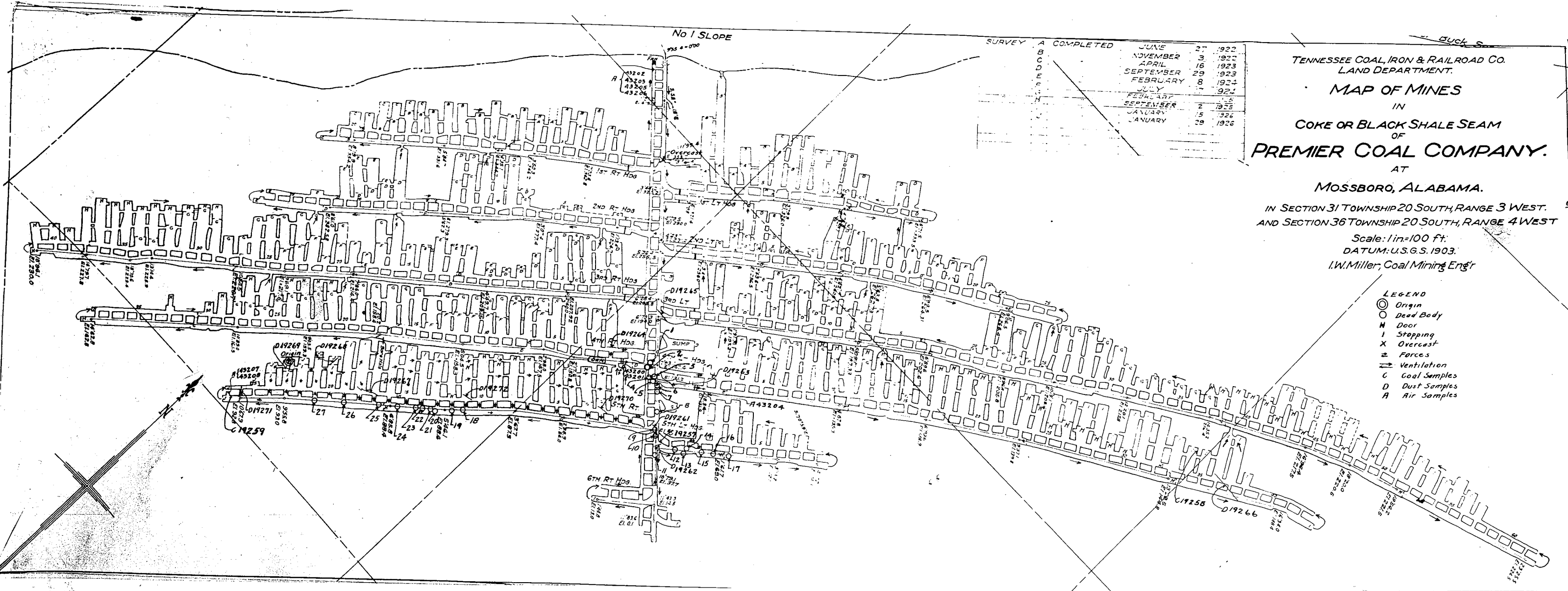
Softening temperature of ash _____ ° C. _____ ° F.

Date **February 19, 1926** (Signed) **H. M. Cooper**

Chemist.

Victims of Mossboro Mine Explosion 1/29/1926

NAME	Race	DATE	MINE	F/N
Adams, James	w	1926Jan29	Mossboro	F
Bald, Robert	w	1926Jan29	Mossboro	F
Burk, Pat	w	1926Jan29	Mossboro	F
Carrick, william	w	1926Jan29	Mossboro	F
Collins, Mose	b	1926Jan29	Mossboro	F
Duncan, Glenn	w	1926Jan29	Mossboro	F
Fitts, Willie	b	1926Jan29	Mossboro	F
Gipson, Sam	b	1926Jan29	Mossboro	F
Gold, Henry	w	1926Jan29	Mossboro	F
Grigley, Anderson	b	1926Jan29	Mossboro	F
Harris, Hosey	b	1926Jan29	Mossboro	F
Harrison, W	w	1926Jan29	Mossboro	F
Hawkins, Clifford	b	1926Jan29	Mossboro	F
Henderson, Lee	b	1926Jan29	Mossboro	F
Holloway, M	w	1926Jan29	Mossboro	F
Johnson, Will	b	1926Jan29	Mossboro	F
Lambert, Doyle	w	1926Jan29	Mossboro	F
Mannor, Joe	w	1926Jan29	Mossboro	F
Oakes, Henry	w	1926Jan29	Mossboro	F
Odom, Will	b	1926Jan29	Mossboro	F
Peterman, Henry	b	1926Jan29	Mossboro	F
Reed, Primus	b	1926Jan29	Mossboro	F
Segrest, W	b	1926Jan29	Mossboro	F
Temple, Will	b	1926Jan29	Mossboro	F
Treadwell, Eli	b	1926Jan29	Mossboro	F
Williams, Robert	b	1926Jan29	Mossboro	F
Woodson, Enoch	b	1926Jan29	Mossboro	F



SURVEY A COMPLETED

JUNE	27	1922
NOVEMBER	3	1922
APRIL	16	1923
SEPTEMBER	29	1923
FEBRUARY	8	1924
JULY	7	1924
FEBRUARY	15	1925
SEPTEMBER	2	1925
JANUARY	15	1926
JANUARY	29	1926

BUCK S.

TENNESSEE COAL, IRON & RAILROAD CO.
LAND DEPARTMENT.

MAP OF MINES
IN
COKE OR BLACK SHALE SEAM
OF
PREMIER COAL COMPANY.
AT
MOSSBORO, ALABAMA.

IN SECTION 31 TOWNSHIP 20 SOUTH, RANGE 3 WEST.
AND SECTION 36 TOWNSHIP 20 SOUTH, RANGE 4 WEST

Scale: 1 in = 100 ft.
DATUM: U.S.G.S. 1903.
I.W. Miller, Coal Mining Eng'r

- LEGEND**
- ⊙ Origin
 - Dead Body
 - M Door
 - I Stopping
 - X Overcast
 - ≡ Forces
 - Ventilation
 - G Coal Samples
 - D Dust Samples
 - A Air Samples